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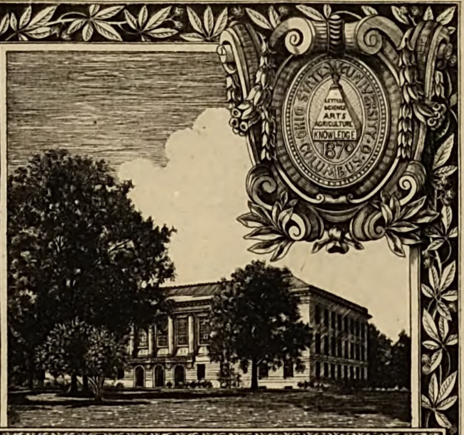

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Arctotis breviscapa.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 62·9°.

ACTUAL TEMPERATURE.—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, July 4, 10 a.m. Bar. 32. Temp. 69°. Weather, Fine.

Variation.

MUCH water has flown under the bridge since Darwin brought the phenomenon of variation into the forefront of biological science. Yet in spite of immense efforts on the part of investigators, our ignorance of the origin of variation remains profound. The more and the closer anyone observes a given species of plant or animal the more apparent is the variation which it presents. Material for the study of variation is therefore by no means lacking, and yet no master craftsman has arisen to distil the essential significance from these so carefully gathered flowers of observation. Perhaps the long darkness which has obscured the problem —the origin of variation—is about to break! There are signs, it is true, that the utter darkness which has obscured this problem may some day be dissipated. It is claimed, for example, that certain plant hybrids which are sterile and remain sterile under ordinary conditions, may be rendered fertile by the simple process of continually cutting them back. One of the foremost geneticists of the world has informed us that he has succeeded by these means in inducing fertility in the most refractory of sterile hybrids. He tells us, moreover, that by other means, such as submitting plants to certain radiations, he has also induced the sterile to become fertile. If this be indeed so, we shall have to readjust our opinions as to the origin of variation, and we may have to come back to a modified acceptance of the old and generally discarded hypothesis of the inheritance of acquired characters. For example, in the case of a plant—if such a case there be—in which fertility follows on frequent cutting back, it must be assumed that the plant responds to these drastic operations by such a change in its nuclear and cellular make-up that viable reproductive cells capable of union with one another are produced. It is dangerous to generalise from limited observations, particularly in such a case as this, where confirmation of the observation is not yet available, nevertheless, it is an attractive speculation to hazard that living things in themselves are static and repugnant to change, but that the stresses and buffetings imposed upon them by a hard world compel them from time to time to forego their conservative habits and, as it were, move with the times. The attitude of the plant to the world it lives in would in this view be a curious one. Up to a point, the plant would be "an ever-fixed mark that looks on tempests and is never shaken," but beyond that point, provided the "shaking" was of the appropriate kind, it would cease resistance to change and engage in a reorganisation of its working plant—its cells and nuclei—out of which haply might come something new. A change of environment may influence a plant in such a manner as to stimulate variation, especially in the colour and form of the flower. The recent behaviour of Meconopsis Baileyi, in producing flowers of several shades of colour and varying degrees of doubleness, would seem to lend weight to this suggestion.

Our Coloured Supplement Plate.—With the present issue we present our readers with the first of a new series of illustrations of plants in colour. The originals of this series have been taken for us by Messrs. Malby and Co., the block-making has been entrusted to Messrs. Lascelles and Co., Ltd., and the reproduction to Messrs. Edmund Evans, Ltd. The whole business is a somewhat tedious and expensive one, but we hope in future to give our readers a Coloured Supplement Plate each month. The illustration herewith represents Arctotis breviscapa, a South African species that was exhibited before the Royal Horticultural Society on June 29, 1926, by Mr. T. Hay, of Hyde Park, when it received an Award of Merit. The plant was described, and illustrated in black and white, in our issue of July 10, 1926.

Presentation to Mr. C. T. Musgrave, V.M.H.—On the evening of the opening day of the Royal Horticultural Society's New Hall, the past and present members of the Council of the Society entertained Mr. C. T. Musgrave to dinner at the Grosvenor Hotel. Lord Lambourne, the President of the Society, occupied the chair, and presented Mr. Musgrave with some forty volumes of the *Botanical Magazine*, to show their great appreciation of his unstinted services in the important capacity of Chairman of the Housing Committee for the New Hall. Mr. Musgrave, in his reply, said he was overwhelmed by the kindness of his colleagues, and they could have made him no gift more useful and more appreciated than the beautiful volumes of the *Botanical Magazine* that lay before him.

Jones-Bateman Cup for Research in Fruit-growing.—In 1920, Miss L. Jones-Bateman, of Cae Glass, Abergele, presented to the Royal Horticultural Society a valuable Silver-gilt replica of the Warwick Vase, to be used for the encouragement of fruit production. The Council has accordingly decided to offer it triennially for researches in the growing of hardy fruits, Figs, Grapes and Peaches in the open or under glass, and it is available for award in 1928. Candidates should submit accounts of their work by October 31. The work dealt with must have been carried out by the candidate in the United Kingdom mainly during the past five years. The Cup will be held for three years by the successful candidate, who must give a bond for its safe return, and when the Cup is relinquished the holder will receive a commemorative Gold Medal. The holder will be eligible to compete on the next or any succeeding occasion. The assessors will be three, two appointed by the Royal Horticultural Society, and one by the National Farmers' Union, and they will report to the Council of the Royal Horticultural Society upon the originality and comparative potential value to the fruit-growing industry of the work of the candidates. The Council of the Royal Horticultural Society will award or withhold the Cup at its discretion.

Southport Flower Show.—The fifth Southport Flower Show will be held on August 22, 23 and 24, in Victoria Park, and it will be under the patronage of H.R.H. the Duchess of York, The schedule contains one fewer than three hundred classes, and the prizes offered make a total value of over £4,000. New classes have been provided for hardy British Ferns, and in one of these Messrs. Abol, Ltd., offer a Challenge Cup, value £50. A Silver Challenge Cup, value £25, has been offered by Sir Arnold Rushton, to be awarded to the most meritorious group of Orchids in the show. A special attraction on this occasion will be the Provincial Show of the National Sweet Pea Society, for which the prizes are provided by the *Daily News and Westminster Gazette*. The Secretary of the Southport Show is Mr. T. E. Wolstenholme, Town Hall, Southport, who has already received an unusually large number of requests for space from trade exhibitors, both in the cut-flower and plant sections, and in the section for horticultural sundries. The attendance at the Southport Show of 1924 (the first) was 45,349; in 1925, 58,554; in 1926, 67,514; and in 1927, 84,087.

Public Parks and Gardens.—Horsforth Urban District Council has received gifts of £200 towards the cost of a recreation ground.—The Swansea Parks Committee has resolved to make application for a grant to provide a recreation ground at Heol Las, Llansamlet. The cost is estimated at £3,675.—The Middlesex County Council has received sanction to borrow £3,072 and £3,997 respectively as contributions towards the cost of the purchase of lands at Northfield and at Cleveland Park, Ealing, for open spaces. —The Salford Corporation Museums, Libraries and Parks Committee has resolved that application be made to the Ministry of Health for sanction to borrow £3,200 to cover the cost of the acquisition of land and property in Broughton Park, and for its development as a public park.—The Nuneaton Town Council has approved plans prepared by the Borough Surveyor for the lay-out of a recreation ground at Stockingford, Park.—On the recommendation of the Kent County Association, the National Playing Fields Association and the Carnegie United Kingdom Trust have granted £1,000 to Maidstone for public recreation grounds, and £200 to Orpington and £100 to Chelsfield for similar purposes.

The Future of Cyprus.—Sir Ronald Storrs, Governor of Cyprus, was the guest of the Royal Colonial Institute at luncheon recently and he afterwards gave an address on "Cyprus." He spoke of the colony as in a transitional stage, held back chiefly by lack of financial resources. One of the chief hindrances to development has been lack of water, but extensive borings have been made, and a large subterranean source had been discovered which, when develloped, would give to agriculture an impulse which would render Cyprus the garden, as she was in the middle ages the emporium, of the Mediterranean. He stated that almost every variety of temperate and sub-tropical fruit flourished on mountain and plain, and that the market of Egypt was ready to absorb, especially during the five hotter months, almost any quantity of fruits and vegetables. Water was essential to Citrus growing, in which Cyprus was coming to the fore, for twenty-one million Oranges were exported last year, and the highest grades of these were pronounced to be the finest on the market, while the hills of Limassol and Paphos, carpeted in the summer with wonderful vines, had begun to attract the attention of the English wine market, with whose assistance it would be possible to develop this industry into one of capital importance. Cotton-growing is also being developed rapidly, while the amount and standard of Tobacco cultivation were going up by leaps and bounds. Sir R. Storrs also stated that another source of wealth was the Carob, or Locust Bean, which was imported in large quantities for manufacture into cattle food and into a preparation for finishing the surface of linens, while the maritime climate of Cyprus seemed peculiarly favourable to the production of fine Flax, and it was their ambition, by the extension and improvement of cultivation, to do something towards compensating Belfast for the defection of Russian Flax by producing a superior imperial substitute.

Illness of Mr. A. B. Lister, B.Sc.—We learn with very great concern and distress that Mr. A. B. Lister, A.R.C.S., D.I.C., B.Sc., has been suddenly stricken down, at the early age of forty, with acute pulmonary tuberculosis, and, in consequence, has decided to relinquish his salaried appointments. For fourteen years Mr. Lister has been associated with various local and national organisations connected with the glasshouse industry. As director, advisory officer and secretary of the Experimental and Research Station, Cheshunt, 1914-21; as secretary to the Lea Valley Growers' Association, 1914-28; as general secretary and publicity manager to the British Glasshouse Produce Marketing Association, 1921-26; and as secretary and manager of Nursery Trades, Ltd., 1920-28, it has been Mr. Lister's privilege to disseminate advice and information of incalculable value to hundreds of growers. The time has now arrived for the many to help the one. Mr. Lister's five medical advisors, including three London specialists, have formed the opinion that it will take at least eighteen months of special treatment to effect a cure, and they insist that twelve months of this period shall be spent at a high mountain sanatorium in Switzerland. An appeal is made therefore for a sum of £1,250, without prejudice to the corporate sympathetic action already being taken by the respective organisations by whom Mr. Lister was employed recently. A Committee has been formed in connection with this appeal and all donations should be sent to the Hon. Treasurer, Mr. H. H. Wardle, Editor of *The Fruit-Grower*, Bouverie House, Fleet Street, London, E.C.4.

Land Reclamation in Holland.—The Society in Holland for the reclaiming of Heath lands (Nederlandsche Heidemaatschappj), recently celebrated the fortieth year of its formation at Arnhem. Baron van Nagell is the President, and one of the founders of the Society, which has good reason to be proud of the success which has attended its efforts. The Society is a private one, and was founded originally as a philanthropic one, with a view chiefly to assisting the unemployed. It received the recognition of the Royal Family, and has from the first been run on sound business lines, so that it is now a flourishing corporation with a membership of 9,500; while, since its inception, nearly 3,000,000 florins have been spent on wages alone. In 1888 about twenty-three per cent. of Holland was waste land, and the Society has been the means of reclaiming thousands of acres from these waste tracts and converting them into cultivated and pasture lands, and forests. At the Congress organised by the Society and held recently at Arnhem, England was represented by Mr. W. H. Guilleband, of the Forestry Commission; Colonel Gerard Leather, President, and Mr. E. Davidson, Secretary, of the Royal English Arboricultural Society.

The Balfour Forest in Palestine.—As a memorial to Lord Balfour, who has done so much towards the regeneration and development of Palestine, an enormous forest is to be planted. A Balfour Forest Fund has been started, and some of the subscriptions to it are generous. Mr. Bernhard Baron has subscribed £5,000, and Lord Melchett £1,000, while the total contributions amount to nearly £16,000. A start will be made with the planting of 50,000 trees, and it is hoped ultimately to increase this number to 300,000, at an estimated cost of £75,000.

Mr. W. D. Cartwright.—A hard-working and popular member of the Royal Horticultural Society's staff, at Wisley, Mr. W. D. Cartwright is also well-known to those who attend regularly the fortnightly meetings and other exhibitions of the Society. He entered service at Wisley as a student in 1908, and in 1910 won the Wisley Diploma, and was appointed Chief Clerk at the R.H.S. Gardens. His duties are many, but he carries them out with a quiet effectiveness that is greatly admired and appreciated. Mr. Cartwright became the Secretary of the R.H.S. Floral Committee in 1910 and, with the exception of one short period, held that office until 1924, when the Committee was divided into the present A and B Sections. He was then appointed Secretary of Section A, which deals with florists' flowers. No matter how great the rush of entries may be at Westminster, Mr. Cartwright receives them all quite unperturbed, save for an occasional humorous reference to the name of a plant, or to the consequences that may overtake the "last minute" man. The secretarial work of the Joint Dahlia Committee is carried out by Mr. Cartwright, and he is also the indefatigable Secretary of the R.H.S. Gardens Club, a position he has held since 1920. He is an intensely loyal and capable official, and his dourness only very faintly veils his kindliness.

MR. W. D. CARTWRIGHT.

National Diploma in Horticulture.—The Royal Horticultural Society's National Diploma in Horticulture has been awarded to the following as a result of the written and practical examinations held this season:—Section 1, General Horticulture: Mr. David Crosland, Springfield Cottage, Outlane, Huddersfield; Mr. A. A. Culham, 79, Gladstone Road, Wimbledon, S.W.; Miss Vera F. P. Day, 58, Ashburton Road, East Croydon; Miss A. M. Ferguson, Middle Hill Park Gardens, Broadway, Worcestershire; Miss B. M. Hitching, 30, Cresswell Grove, Didsbury, Manchester; Mr. Albert E. Johnston, 9, Whaley Terrace, Enniskillen, Co. Fermanagh; and Miss Anne Redfern, Lowther College, Rhuddlan, North Wales. The following have passed the Preliminary Examination, and will be eligible to take the Final Examination when they have completed the necessary six years of practical experience in gardening:—Mr. Wilfred A. Bane, Weybourne, King's Road, Uxbridge; Miss Kathleen Barnett, 11, Willis Road, Cambridge; Mr. William H. C. Bevan, 3, Riverside Terrace, Usk, Mon.; Mr. John Billington, The Nurseries, Attleborough, Nuneaton; Mr. W. E. Shewell Cooper, Sydwyn, Reaseheath, Nantwich; Mr. Robert J. Garner, 3, Chapel Street, East Malling, Kent; Mr. Robert Hart, Gorseland, Danbury, Essex; Mr. Wilfred C. Ibbett, The University, Reading; Mr. Samuel R. Jones, Barnes Home School, Heaton Mersey; Mr. Patrick J. O'Carroll, Allenagh House, Longford, Ireland; Mr. Charles M. Robertson, 27, Rintoul Place, Edinburgh; Mr. Frederick C. S. Robinson, 5, Lindlow Square, Lancaster; Miss Hilda M. Smith, 45, De la Warr Road, East Grinstead; and Mr. John Swan, 2, Wheatfield Road, Gorgie, Edinburgh. The Examiners' report that from the poor work shown by some of the candidates especially in the Preliminary Examination, and the very unequal work shown by others, it would appear that many have not yet realised the importance of becoming really skilled workmen, equipped with a knowledge of materials and tools, and the skill to use them in a workmanlike way. Without these attainments, which can be acquired only by steady and painstaking practical work combined with the study of the principles which underlie good practice and of the methods adopted in applying them, the National Diploma in Horticulture is beyond their reach.

Record Exports of Fruits from Tasmania.—The total quantity of fruits exported from Hobart this year was 2,444,404 bushels, as compared with the previous record of 1,742,669 bushels. From Launceston 363,064 bushels were shipped, as compared with the previous record of 334,467 bushels. The State exported 150,000 bushels more fruits this year than in any previous, owing to the abnormally large Apple crop. One vessel took nearly 200,000 cases, the largest shipment ever exported from Australia.

New Rose Garden at Brooklyn Botanic Gardens.—We learn that on June 19, the new Rose garden at the well-known Brooklyn Botanic Garden, America, was formally opened and dedicated. The construction of this Rose garden was made possible by the munificence of Mr. and Mrs. Walter Cranford, of Greenwich, Connecticut, U.S.A., who presented a large sum of money for the specified purpose of forming a Rose garden. The garden covers about one acre, and was designed by Mr. H. Cafarn, one of the leading American landscape architects. It is intended to contain at least two hundred H.T. Roses, and a large selection of rambler and Polyantha types.

R.H.S. Garden Club's Outing.—The Annual Meeting of the R.H.S. Gardens Club will be held in the South Drawing Room of the Royal Pavilion, Brighton, by kind permission of the Corporation, at 4.30 p.m., on Saturday, July 14. Prior to the meeting, members will have the opportunity of seeing some of the Brighton Parks, under the guidance of Captain B. H. MacLaren, who has very kindly drawn up a programme of visits.

Canadian Grapes.—We learn that the first vineyard in Ontario, Canada, was planted near Niagara, in 1857. By 1880, Ontario had only 400 acres of vineyards, but now the area under vines has increased to 7,545 acres. Canadian Grapes are not European varieties, but have been developed from the wild Canadian Grape.

Cornwall Dry Bulb Show.—With a view to stimulating the dry bulb industry in Cornwall we learn that a show is to be held at Paul, on July 21. Full particulars and schedules of this show may be obtained from Mr. H. W. Abbiss, Horticultural Superintendent for Cornwall, County Hall, Truro.

Dahlias versus Pelargoniums.—Those who grow plants for Covent Garden Market are considering a very interesting problem, *i.e.*, whether the dwarf races of brightly hued Dahlias may not supplant the scarlet-flowered Zonal Pelargoniums as bedding plants for summer displays. Mr. Philip Ladds has for many weeks past offered for sale plants of Coltness Gem, and seedlings therefrom, in bloom, and these have met with a good demand. Other varieties of Dahlias are also offered, and in all cases the plants are sturdy and admirably grown, and either in bloom or about to flower. When the market growers take up a business of this sort we may be sure that it is something more than an experiment.

Malayan Magnolieae.—In the *Bulletin of Miscellaneous Information*, No. 5, 1928, issued by the Royal Botanic Gardens, Kew, is a treatise on the Malayan Magnolieae, by J. E. Dandy. Six genera are dealt with, and some twenty-four species and varieties are described. Aromadendron elegans var. glauca is stated to be, except for the glaucescence of the under-surfaces of its leaves, indistinguishable from some of the more slender Sumatran examples of A. elegans, while A. nutans, Dandy, is a new species which differs from A. elegans in the differently shaped leaves, in the smaller flowers, and in several minor points. Elmerrillia mollis and E. papuana var. adpressa, also var. glaberrima, are described, the two varieties of E. papuana apparently varying only slightly from the type, while the Magnolias dealt with are M. aequinoctialis, M. pachyphylla, M. persauveolens and M. pulgarensis. Manglietia glauca var. lanuginosa and var. sumatrana, also Michelia sumatrae, are included in the list, together with Talauma athliantha, T. betongensis, T. gitingensis var. glabra and var. rotundata, T. gracilior, T. intonsa, T. levissima, T. oblanceolata, T. peninsularis, T. sebassa, T. singapurensis and T. soembensis.

Legacies to Gardeners—The late Miss Charlotte Eliza Griffith, of Plas Pigot, Denbigh, who died on March 26, left £50 to her gardener, Mr. John Pierce.—The late Mr. Matthew Henry Rackstraw, of Copley Dene, Cholmeley Park, Highgate, N., who died on April 2, left £50 to his gardener, Mr. William Hocking.

A Roumanian Royal Residence.—The *Revista Horticola*, the Roumanian horticultural journal, publishes in its issue of June 1 an interesting account of the gardens of Scrovistea, a country residence of the Roumanian royal family. Situated in the midst of a magnificent forest of Oaks, Beeches and Pines, Scrovistea at first consisted of a small hunting lodge, of which the late King Ferdinand was especially fond. The view is very fine; an opening between two hollows in the landscape is mirrored in a beautiful lake fringed with reeds, the whole scene being reminiscent of some mediaeval tale. The late King was passionately fond of gardens, and only a few hours before his death was making plans for the development of the gardens at Scrovistea. The garden is not large, consisting of three terraces one above the other along the lakeside, a distance of about two hundred yards. The planting of the terraces is not yet completed, but it is intended to devote the uppermost one to large groups of hardy plants, the second—which is narrower—to a walk bordered with Irises, Tulips and other hardy herbaceous plants in the "English" style, while the lowest terrace is to be planted with Roses of popular varieties, including Los Angeles, Breslau, Ophelia, Edith Cavell, Irish Fireflame, etc. At the end of the terraces a large orchard of Plums and Apples extends to the commencement of the woods. Round the house large beds of Tulips brighten the semi-shadow of tall trees which have been preserved here and there. A pretty tree-shaded walk leads to an open space, where a charming little residence is situated, reserved for Queen Marie. Here there is an abundance of Tulips, Irises and Lilies. On the left, a paved walk bordered with Irises and Tulips leads to a second little house with a cottage roof, on a slight elevation facing the lake. This is the residence of the Prince Regent Nicholas. Further on, on the edge of the forest, an old fishing house has been comfortably fitted up for the use of Princess Ileana. The gardens are planted with great taste, and most carefully maintained by M. Jeannin, gardener to the royal household.

Appointments for the Ensuing Week.—MONDAY, JULY 9: United Horticultural Benefit and Provident Society meets. TUESDAY, JULY 10: Rounday (Leeds) Horticultural Society Exhibition (two days); Royal Agricultural Society's Exhibition (five days); Selfridge's Grand Flower Show (three days). WEDNESDAY, JULY 11: Guildford Gardeners' Association Exhibition; Sheffield Chrysanthemum Society meets; Cosham and District Horticultural Show (two days); Haywards Heath and Mid-Sussex Show (two days). FRIDAY, JULY 13: Royal Horticultural Society of Ireland meets. SATURDAY, JULY 14: Manchester and District Pansy and Viola Society's Show.

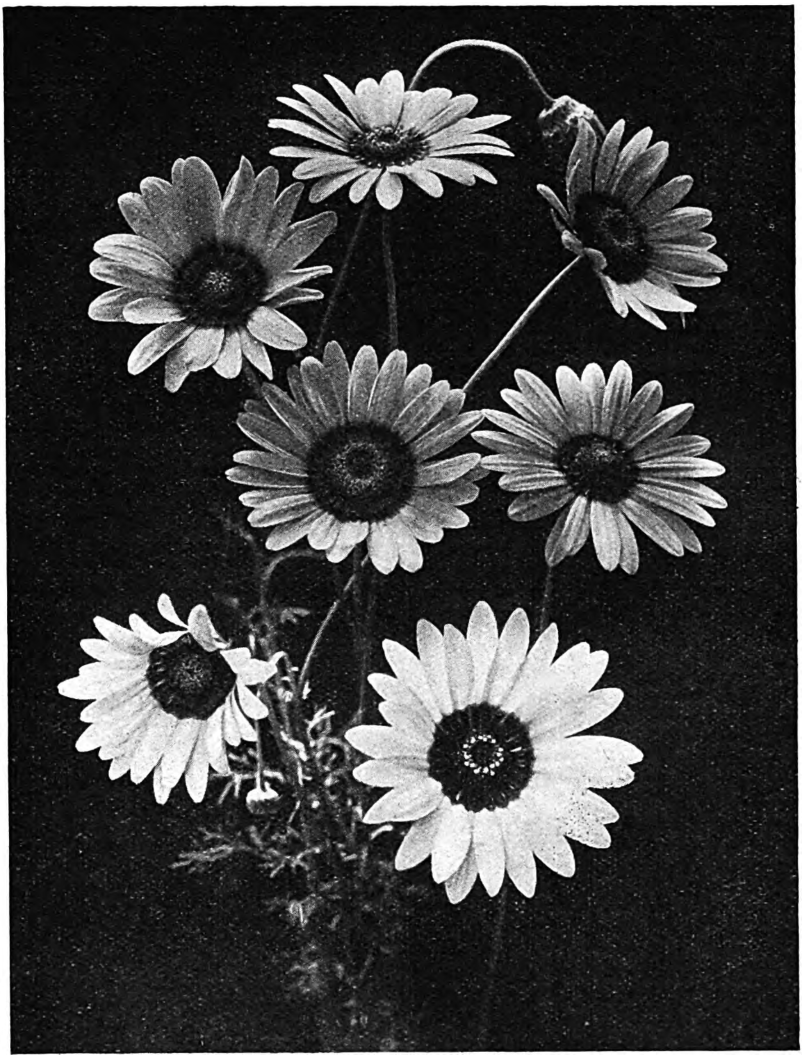

FIG. 1.—URSINIA ANETHOIDES.

R.H.S. Award of Merit, June 26. Flowers orange-yellow, with crimson-purple zone. Shown by Mr. T. Hay, Hyde Park (see p. 9)

"Gardeners' Chronicle" Seventy-five Years Ago.—*Miniature Scotch Fir Tree.*—A fairy-like Scotch Fir Tree grows in an oblique position out of a "slack-joint," of a keystone that closes an architrave which runs up one of the colonnades on the south side of Castle Semple in Scotland. The joint which gave birth to and nourishes this tree is thirteen feet from the ground, making it pretty certain that the roots have no better food than stone and lime, and the only possible way in which it can receive water is by a few drops in time of rain trickling along its trunk to the root. Notwithstanding its hard circumstances, however, it is covered with short green foliage, indicating good health, but its yearly growth is scarcely perceptible. Its length is six feet, and it measures five feet across the branches. The thickest part of the trunk is eight inches in circumference. To behold with close inspection this shaggy, wrinkled dwarf, who has taken all the forms of an old full-grown tree, has the effect of making one (even an ordinary sized person) feel as if he were transformed to twice his real bulk. I, have made several enquiries of very old people in this neighbourhood regarding the history of this curiosity, but they fail in giving any clear account of it; one and all of them, however, corroborate the fact that it has been nearly the same size and in the same health ever since they can recollect. I find that Semple, in his history of Renfrewshire, published in the year 1783, takes notice of this tree at page 153, where he says that it was "considered a great curiosity," it was probably then nearly its present size, which it would, perhaps, take seventy years to acquire; this, therefore, would make the age of our esteemed little tree 140 years. *J. McPherson. Gard. Chron., July* 2, 1853.

Publications Received.—Thirteenth *Annual Report* of the Experimental and Research Station, Nursery and Market Garden Industries' Development Society, Limited; The Cheshunt Press, Limited.—*Scarborough*, by Dell Leigh; The Scarborough Corporation.—*The Romance of the Apothecaries' Garden at Chelsea*, by F. Dawtrey Drewitt, Cambridge University Press, Fetter Lane, E.C.; price 7s. 6d. net.—*Archives de L'Institut Botanique de L'Université de Liége* (Volumes V and VI); edited by A. Gravis. Brussels; Hayez, Rue de Louvain, 112.

The Week's Work.

THE ORCHID HOUSES.

By W. GILDEN, Orchid Grower to Dr. F. CRAVEN MOORE, Manchester.

Epidendrums.—Many species of this genus, such as E. radicans, E. Wallisii, E. Endresii, E. xanthinum, and hybrids derived from them, such as E. O'Brienianum, E. Boundii, E. gattonense, and the variable E. Endresio-Wallisii, should continue to flower for a considerable length of time on the individual spikes, fresh flowers opening as the older ones fade. Some of the taller-growing kinds, such as E. radicans, may be trained against trellises, or around several stakes placed evenly in the pots, and they should make very effective specimens when in flower. Some of those with reed-like growths produce aerial roots and are easily propagated. These Epidendrums thrive when grown in a light position in the intermediate house, where they may be syringed frequently during bright weather; ample supplies of water are required at the roots during the growing season, and the compost should not remain dry for long periods at any time. Osmunda fibre, used in a fairly rough state, with a little Sphagnum-moss and broken charcoal added, makes a good rooting medium.

Phaius.—The robust-growing terrestrial members of this genus, such as P. grandifolius, P. Wallichii, and the beautiful free-flowering hybrids, P. Norman and P. Cooksonae, which flowered during early spring, and were repotted, and are now growing in a light position in the intermediate house, shaded from bright sunshine, require occasional syringings of the undersides of the leaves to keep red spider and other pests in check. Ample supplies of water are needed at the roots, and as the pots fill with roots, occasional waterings with weak liquid manure should assist in the development of fine healthy growths. Similar treatment may be given to the handsome P. Humblotii, which is now producing flower spikes, but feeding should be discontinued as the flowers expand. When growth is complete, cooler and drier conditions should be given to assist the ripening of the bulbs. The epiphytic species, P. simulans, requires warm and moist conditions in a shady position, fastened to a teak-wood raft, with a little A.1. fibre and Sphagnum-moss. Thrips often attack the young growths but may be kept in check by frequent sprayings with tepid water and occasionally with a weak solution of an approved insecticide. Scale should be removed by careful sponging, for the tender leaves are easily damaged on all kinds of Phaius.

Thunias.—Specimens of this graceful and decorative Orchid are now well rooted and producing flower buds on the new growths. They require frequent syringings to keep insect pests in check, and copious supplies of water at the roots, while an occasional application of diluted liquid manure should prove beneficial at this period. As the flowers expand the plants should be removed to cooler and drier conditions, and if shade is provided the flowers may remain in perfection longer. When flowering has ceased, place the plants in a light, airy position to allow the bulbs to develop and ripen, but continue to water and syringe them until the leaves have finished growing, after which the supplies should be diminished gradually; finally, they should be kept dry until growth commences again in the spring.

THE KITCHEN GARDEN.

By ALLAN FALCONER, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Onions.—The weather during June has been very adverse to this particular crop in the northern counties, for so late as the middle of June the temperature dropped to freezing point. Where precautions have not been taken by spraying as a preventive, there is a great risk of this crop developing mildew; prevention is better than cure, and periodical sprayings with Bordeaux mixture should prevent its appearance. Another good preventive consists of equal parts of sulphur and fresh lime, dusted over the plants when the dew is on them.

Runner Beans.—Attention to pinching the laterals at each joint is now necessary, and every encouragement should be given to free growth, by watering and mulching the rows. During dry weather syringe the plants each evening to encourage the flowers to set.

Spraying and Fumigating.—Constant attention should be paid to all crops liable to various pests; periodical sprayings as preventive measures are better than waiting until the pests appear, when it is often difficult to dislodge them, especially in the case of Celery, when aphides get into the centres of the plants; sucking insects soon cripple the plants when young, and unless prompt measures are taken the crop becomes worthless. Clean water applied forcibly is a good cure if persevered with. Bordeaux mixture should be used for spraying Celery at fortnightly intervals as a prevention against disease, and second-early and maincrop Potatos should be sprayed with the same mixture during the early part of July, and again once or twice at fortnightly intervals, care being taken to wet the under-sides of the leaves as well as the tops. It has been proved, however, that in some districts close to large manufacturing towns, the use of Bordeaux mixture is detrimental to the plants owing to the amount of acid in the air.

Catch Crops.—Continue to sow dwarf Beans, Carrots, Turnips and Salads as space becomes available; skeleton frames from which bedding plants and early vegetable crops have been removed may be utilised for many subjects.

HARDY FRUIT GARDEN.

By T. E. TOMALIN, Gardener to the EARL OF BESSBOROUGH, Stansted Park, Emsworth, Sussex.

The Fruit Store.—Now that the fruit room is empty, advantage should be taken of the first wet day to have it thoroughly cleansed and put in order. The walls, ceiling and floors should be inspected carefully, and any defects in these made good. The benches and shelves should be scrubbed thoroughly with hot, soapy water, and all brick or plastered surfaces should be sprayed with fresh lime-wash. The addition of a handful of flowers of sulphur to the lime-wash and also to the soapy water with which the shelves are cleansed, should assist in checking the development of fungi, to which hardy fruits in store are subject.

Newly-grafted Trees.—All grafts should now be examined and given attention where necessary If clay was used for covering the union of the stock and scion, it may be found to have cracked during the recent dry weather. Where this has occurred the clay should be moistened and the cracks filled, after which a covering of damp moss should be tied around it to prevent a recurrence of the trouble. Where the scions are making active growth, the leading shoots should be tied to Bamboo canes and fastened securely to the stocks. Neglect of this precaution often leads to the loss of a valuable leader through high winds and, more often, owing to large birds perching on them and breaking them off.

Strawberries.—In order to have strong young plants ready for August planting, the runners should be secured without delay. Where, as advised in a former article, a plantation has been reserved solely for propagating purposes, and all the flower trusses have been picked off, plenty of strong runners should now be available. These should be layered into small pots filled with good soil, each runner being held in position by a fairly large pebble placed on the stem; the pebble helps to keep the soil beneath it moist, and for this reason is to be preferred to a peg. The small pots should be grouped together so far as possible to facilitate watering. They should be sprinkled every evening during dry weather. When the pots are filled with roots the runners may be severed from the parent plants and placed in a sunny position until the ground is ready for their reception. The earlier they are planted the better chance will they have of becoming well established before winter—an important factor in ensuring a satisfactory crop the following season.

Summer Pruning.—The removal of unnecessary growths from fruit trees at this season not only assists the ripening and improves the colour of the fruits, but what is even more important, by admitting sunlight and air to the interior of the tree, it assists the development and ripening of next year's fruit buds. For this reason it may be readily understood that it is as important to summer prune trees which are not carrying a crop this season as it is to prune those that are laden with fruits, for the absence of a crop often encourages excessive growth, which should be reduced. A start should be made first with the Pear trees on walls, pruning the upper half of each tree first, and leaving the lower half to be treated a week later to avoid checking the sap flow. All lateral and spur growths should be cut back to the fourth leaf, and all growths required for extending the branches should be tied into position, removing the tips only of those more than twelve inches long. When the trained trees on walls, etc., have been pruned, the espalier and cordon trees on fences should be attended to. Bush and standard trees in the open should receive similar treatment.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

New Vineries.—If it is proposed to plant out young vines during the summer months, no time should be lost in doing so. Vine eyes that were inserted early in the year should, if all has gone well, be ready for planting in their permanent positions, if the borders are ready to receive them. A season may be saved by planting them now rather than waiting until the spring, and it is surprising what fine rods may be obtained during the next few months if care is taken with their cultivation. They should be watered carefully, and the house closed early, and with plenty of atmospheric moisture they should grow freely and give good results the first season. The method of planting them closely and allowing only alternate vines to fruit is a very good one; the close planting should not affect the permanent vines. I previously recommended growing the young vines that were to be planted out during the summer months in shallow boxes, so as to lessen root disturbance. All that is needed is to remove one end of the box and slide the contents out. Moreover, by employing this method, the roots do not become congested. The soil in the new border should be moderately moist, to allow it to be rammed firm. Should the weather prove hot after planting shade the vines lightly, but remove the shading material so soon as the Vines have become established. Stop all the lateral shoots at the second leaf, so that all the energy of the plant is directed to the building up of the young rod.

Pot Vines.—Young vines to be grown for early forcing should be given every encouragement to form good strong rods. Continue to feed them and syringe the foliage frequently. When it is noticed that the stems are changing colour the air supply should be increased gradually, and the house kept somewhat drier at night. If the vines are stopped when six to eight feet in length, a few of the laterals may be removed, starting at the base and working upwards, finally leaving one or two near the top to encourage the flow of sap. There may be some difference of opinion with regard to the best methods of ripening the young canes, but in my opinion the house should be ventilated freely.

Ripe Grapes.—Houses in which ripe Grapes are hanging should be kept on the dry side. Air should be admitted through the top ventilators day and night, and during spells of wet weather a little warmth from the hot-water pipes is necessary to expel moisture.

PLANTS UNDER GLASS.

By J. COUTTS, Assistant Curator, Royal Gardens, Kew.

Salvias.—There are quite a number of Salvias that are very useful for autumn and winter furnishing of the conservatory. In the country they are especially useful, but, unfortunately, in the immediate neighbourhood of London fogs usually ruin them, and the same drawback is no doubt encountered in the vicinity of many large manufacturing towns. However, where they are being grown they should now be placed in their flowering pots, which should be fairly large, for they require ample root room and liberal feeding during their growing season. During the summer they should be plunged in a bed of ashes in an open position, or they may be planted out in the open in rich soil, from which they may be lifted and placed in suitable receptacles about the middle of September; but, on the whole, pot culture is the most suitable. Some of the most useful species are S. azurea grandiflora, S. rubescens, S. leucantha, S. involucrata var. Bethellii, S. fulgens and S. Heerii, while some of the good varieties of S. splendens and S. patens are also excellent for autumn flowering.

Primula Forrestii.—This distinct Primula has, unfortunately, not proved hardy in most districts, but it is, however, an excellent plant for the cool greenhouse, and a stock may be raised from seeds sown at this time in a cool greenhouse. It is most attractive in its second year, and young plants that were raised last year should be given a shift into larger pots. This Primula is a native of limestone cliffs and old mortar-rubble should be used in the potting compost instead of sand; if such is not available, a sprinkling of lime should be added. This species is a good perennial, and may be grown on for a number of years if so desired. It may also be increased by dividing the old plants, but plants raised from seeds, which are produced freely, are the most satisfactory. P. Forrestii should be grown in a cold frame or cool greenhouse.

Campanula Vidalii.—This species from the Canary Islands is very useful for conservatory decoration, for it flowers during August, when choice subjects for this purpose are by no means plentiful. It is of a sub-shrubby habit, and is usually at its best the second year from seeds, although it may be grown on for the third year. To maintain a succession of flowering plants it is essential to raise a batch from seeds each year. This is easy as the seeds are produced freely, and they may be sown now in a cool greenhouse, in which also they may be grown at all stages of their cultivation; or they may be grown in a cold frame from which frost is excluded. S. Vidalii grows freely in any good potting compost, and excellent flowering examples are produced in six-inch pots.

Campanula persicifolia.—This species and its many fine varieties are useful for providing a spring display in the greenhouse, and a stock of plants should be grown in the reserve garden, so that good, strong specimens are available for potting during the autumn. During the winter they may be plunged in ashes at the foot of a wall, or given the shelter of a cold frame, removing the lights when weather conditions are favourable.

Hydrangeas.—Early plants of Hydrangea hortensis in its numerous varieties are now passing out of flower, and if it is desired to increase them, the stems should be cut back to prominent buds or side-shoots. The plants may be stood closely together in a shaded corner, and syringed frequently during dry weather to encourage the production of new growths. So soon as these are about three inches long they may be inserted as cuttings in a warm propagating case. Many new and beautiful forms of this plant are now procurable, and by means of chemicals, such as sulphate of iron, so well as various patent compounds, the colours of even the common pink form may be turned into a pleasing shade of blue.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to the DUKE OF DEVONSHIRE, Chatsworth, Bakewell, Derbyshire.

Iris.—Most of the Bearded Irises have passed their flowering stage and may now be divided and replanted if necessary, in well prepared soil, in an open, sunny position.

Rhododendrons and Hardy Azaleas.—As these pass out of bloom, wherever practicable the seed vessels should be removed carefully, thus allowing all the energies of the plants to be devoted to making new growths. This is especially important in the case of young plants and rare varieties, but it is a good practice in all cases. Any extra strong growths may be shortened, but avoid making the bushes formal in appearance. Remove all suckers from the bases of specimen Rhododendrons, and also all growths below where the graft or bud was inserted on the stock. The dry weather in the spring became rather trying to late-planted Azaleas and Rhododendrons, more particularly in ground that is inclined to crack, but the rains in early June saved the situation and growth is now very free, in some cases almost completed. See that hoeing is done regularly, and that the mulching around recently planted shrubs is maintained during periods of dry weather. This should save labour in watering and is undoubtedly more helpful to the plants. If watering becomes really necessary to save the plants in the case of prolonged drought, see that it is done thoroughly, and that the mulching is renewed afterwards. Where leaf-soil or other special mulching material is not available I recommend the use of short lawn grass as a substitute; this is usually available, and much time may be saved by its use.

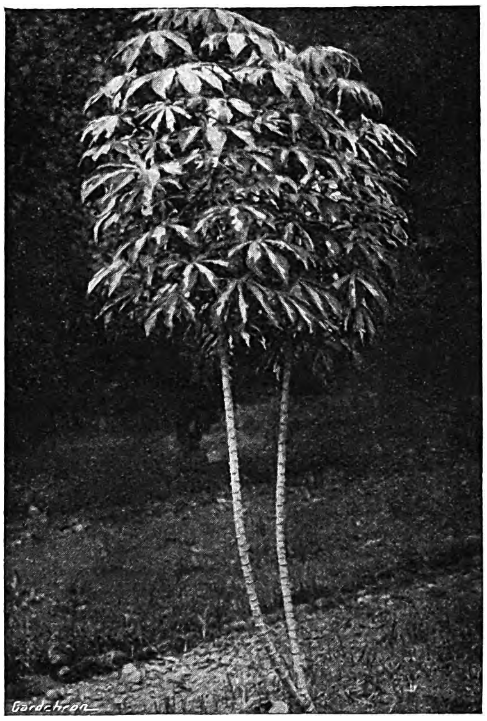

FIG. 2.—A VARIEGATED MANIHOT.

(see p. 6).

Lilies.—These are often planted in conjunction with Azaleas and Rhododendrons, for the soil and conditions generally necessary for growing these shrubs successfully are excellent for many of the hardy Lilies, the shade provided by the shrubs being of great benefit to them, the branches shading the roots from the direct rays of the sun, and supporting the flower spikes in the more natural way. From the many kinds which succeed under such conditions, a charming selection may be obtained to produce flowers in succession throughout the season until late in the autumn. The chances of success are increased materially by the use of home-grown bulbs, and some of our leading growers are now making a special feature of Lilies; orders should be placed early and the bulbs planted so soon as received in the autumn. Probably, when the raising of Lilies from seeds is better understood, it will revolutionise Lily-growing in this country, as seeds are often produced in great profusion, and flowering bulbs may be secured in less than two years from sowing the seeds. L. regale is a notable example. L. candidum, the Madonna Lily, is a universal favourite, but is causing great disappointment in many cases this season, for healthy and vigorous bulbs of last year seem to have lost vigour. L. auratum is another popular species, and where it succeeds it cannot be surpassed, being a most noble Lily with splendid perfume. Of late years, imported bulbs of this Lily have been very disappointing. L. auratum platyphyllum is one of the best of its varieties. The longiflorum group is one of the easiest to grow out-of-doors under suitable conditions, and when once established, they grow and thrive for many years. L. Henryi is usually very satisfactory and should be planted in quantity; it is tall-growing, and should be supported well. L. tigrinum and L. Fortunei are two of the best for autumn effects. L. giganteum is a distinct plant, and where it thrives reaches a height of ten feet or more, producing a magnificent effect, and when in bloom evoking admiration. This strong-growing Lily should be planted in the wild or woodland garden and not crowded together with other plants. When planting Lilies, an important factor to consider is shelter from strong winds, for the fragile blooms are quickly damaged. Timely attention to supporting them should be given where necessary, without producing stiff, formal effects.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener at Jordanhill Training Centre, Glasgow.

Broccoli.—The seedling plants of Broccoli, raised at the end of April, are now ready to be transferred to their permanent quarters, and a start should be made by putting out sufficient of the autumn varieties first. These should be followed by the winter Broccoli, and a fair number of spring kinds, which are usually appreciated most. The ground for the autumn varieties should be in good condition and well manured, for the plants are required to make quick and satisfactory growth in order to produce good hearts before the winter sets in. Winter and spring Broccoli require less manure, and the soil should be made firm by treading or rolling repeatedly. By this means the plants are induced to make sturdy growth, which enables them to withstand the vicissitudes of the winter. When they begin to move again, in March or April, they may be assisted by top-dressings of either farmyard or artificial manures, and the surface soil cultivated. Where only a limited space is available for Broccoli, a few rows of the variety Crisp's Nine Star should be planted, as this produces quite a fair proportion of plants that will produce from six to nine heads of excellent quality.

Layering Carnations.—While it is still too early to layer border Carnations growing out-of-doors, there are many who grow these under glass in cool houses, and here it is possible to make a start with the layering of the young growths. Where the pots in which the plants are growing are large enough the layers may be pegged down inside the pot, and very little disturbance caused to the parent plant; simply remove some of the surface soil and replace it with sandy compost, then, after preparing the layers in the usual way, peg them down into this sandy soil, leaving the tongue well opened, and water them sufficiently to moisten the ball thoroughly. By the time these layers are ready to be severed, the parent plants should have passed the flowering stage, and thus suffer no check.

MAMILLARIAS.

About half-a-century ago Cacti were largely grown in this country, then, after a time, they gradually lost favour, until the only collections to be met with were those in botanic gardens. Within the past five or six years, however, many persons have taken up the cultivation of these plants. Their choice, however, seems to be for the smaller-growing kinds, such as Mamillaria and Echinocactus. To the amateur with little accommodation these miniature Cacti have much to recommend them, as not only are many of curious and beautiful design, but they are easily managed; in fact, any cottager who can devote a small space to them in a sunny window may, and often does, grow them successfully. Another point in their favour is that they do not suffer, as most pot plants do, from a little inattention in supplying water to their roots. It should not, however, be assumed that just because they inhabit dry, desert regions, they require to be kept dry at all times of the year. This is a mistake, especially with the small-growing kinds, for they should receive sufficient water during the spring and summer months to keep the soil in a moist, but not saturated condition; but during the short and sunless days of winter much less water is required. They thrive best in comparatively small pots, as they do not like a large body of soil about their roots.

In the genus Mamillaria there are about two hundred species, most of which inhabit the limestone districts of Mexico. They are plants with short, globose or cylindrical stems, often aggregated together and forming a dense, cushion-like tuft.

Quite recently two very fine specimens of Mamillaria, probably the largest ever seen in this country, were presented to Kew by Mr. Hertrich, of Huntingdon, California. The plants arrived in perfect condition, and they have since been on view in the house devoted to plants of special interest, where they have attracted a great deal of attention.

M. compressa, syn. M. angularis (Fig. 4), is a large, handsome plant about one foot high and twenty inches in diameter, with over one hundred stems, each stem being from two inches to two-and-a-half inches in diameter. The tubercles are of a pale bluish colour, with a tuft of white "hair" at the top, and four or five spines of irregular length.

M. elegans (Fig. 3), although not quite so large as M. compressa, is even more beautiful. The plant is eighteen inches in diameter, with about eighty stems, each being round or nearly so, with white spines tipped with brown, and the tubercles, when young, are woolly at the tips. Both species are natives of central Mexico, therefore, like most of the Mamillarias, they succeed best in a warm, sunny greenhouse. *T. W. T.*

AN ORNAMENTAL MANIHOT.

An interesting form of Mandioc, or Cassava (Manihot utilissima, Pohl.), with a strikingly variegated leaf (see Fig. 2, p. 5), is to be met with in certain parts of Java, cultivated in gardens as an ornamental shrub, particularly in the western portion of the island.

In habit it is similar to the ordinary form, being erect and of rapid growth if left unchecked, and propagation from cuttings is readily effected as would be expected. The young portions of the stems are yellow but turn to a light brown on ageing, and contrast well with the red petioles of the leaves. The most noteworthy feature is, however, the variegation of the leaf segments, which takes the form of an irregular cream-coloured pattern commencing near the apex of each segment and running along the midrib to its point of attachment to the petiole. At the narrowed basal portion of each segment the variegation frequently stretches right across from one margin to the other; it is here that the pink venation of the leaves is seen to good effect.

The origin of this showy garden form of Cassava, which possibly arose accidently as a bud mutant, does not seem to be definitely known. The opinion held by an authority on horticultural matters in west Java is that this variegated form had not been in cultivation for very many years, and that it originated in a native garden. *F. N. Howes, Kew.*

ALPINE GARDEN.

GALAX APHYLLA.

For cool, sheltered nooks on the rock garden or on the margin of the bog garden, this choice little North American evergreen of the Order Diapensaciae, is a worthy claimant, for its foliage alone ensures its lasting favour in our gardens. The distinct, rich green, heart-shaped leaves form close cushions, and rising amongst and above them at the present time and throughout July, the small, white flowers borne in wand-like racemes, add charm to the already attractive effect of the foliage. But here the beauties of this subject do not cease, for in autumn there is another pleasant surprise for the cultivator, as the leaves take on their autumn colours and become varying shades of bronze, orange and crimson.

When once established, Galax aphylla will care for itself and grow freely, and no attention is necessary, other than the occasional removal of the dead leaves and a top-dressing in the autumn or spring with well decayed leaf-soil, while if it is desired to increase it, division during spring should be found a suitable method.

CORONILLA CAPPADOCICA.

Of the members of this genus, this species, which is sometimes described as C. iberica, is, perhaps, the best for cultivating on the rock garden, although it is hardly choice enough to grow on one of limited size. However, on the large rock garden, or on a hot and sunny rock bank, it is quite worthy of a place, for it produces during early summer and for a fairly long period, an abundance of soft, yellow, Pea-like flowers, which, combined with glaucous, bluish-grey leaves, are quite attractive and lasting in their effect.

It is a vigorous trailing subject, flourishing in sunny, rocky situations, and in light, open soil. It is hardy, and may be increased either by seeds, the easiest means, or by cuttings, a percentage of which may root if inserted in sand, in a cold frame during the summer. *M. W.*

IBERIS GIBRALTARICA.

For a well-drained, sunny slope in the rock garden there are few plants which give a finer show over a long period than this species of Iberis from Gibraltar.

It is an old plant, first introduced in 1732 (*Bot. Mag.*, t. 124). The true plant is not often met with in our gardens, however, several imposters being in circulation under this name, notably I. Bernardiana (syn. I. Bubanii), which is a pink-flushed annual from the Pyrenees. Strangely enough, the plants which inspired this brief note came to me as I. Bernardiana.

Half-a-dozen small plants which I put out on a sharply-drained slope, built in limestone formation, about eighteen months ago, have grown into a compact, well shaped mass about nine inches to a foot in height and two feet across, and for the past six weeks this has been a glory of flushed lilac. The individual flowers are of a good size and borne in large heads, three or four inches above the dark green, rather leathery foliage, which has been quite invisible for the past few weeks.

There is considerable confusion amongst the Iberids as to nomenclature, almost all of them hybridise freely with any other species which may be at hand, and this has given rise to a number of garden varieties, which have not tended to lessen the confusion. Although we have no authentic authority upon which to build our surmise, there is, nevertheless, a doubt entertained here as to the indisputable right of the plant I have described above to the name of I. gibraltarica. My father, during a recent expedition in Spain and Portugal collected a much dwarfer plant, similar in all respects except size, which he believes to be the rightful owner of the name; this remains to be proved, however, and whatever may be the rights of the case, the plant described remains one well worthy of a prominent position.

It is not long-lived, but may be increased readily by means of cuttings. *Will Ingwersen, Sussex.*

SAXIFRAGA PRIMULOIDES.

Saxifrages of the London Pride section generally receive a scant amount of favour from the connoisseurs of the race, but even the most critical often make an exception in the case of Saxifraga primuloides, which some authorities suggest is only a form of S. umbrosa, the well-known London Pride. Yet it is far more distinct from S. umbrosa than are many other subjects in different genera.

Instead of the large leaves and rosettes of S. umbrosa and most of its recognised varieties, S. primuloides has small, neat rosettes of deep green, rounded, wavy leaves and forms a compact plant. From this rise during spring and early summer, slender pink stems carrying clouds of small flowers about six inches above the foliage. There are three forms in general cultivation, *i.e.*, the type with pretty, soft pink flowers; that termed Mr. Clarence Elliott's variety, with deeper coloured flowers; and Messrs. Ingwersen's form with still darker blooms. All are very beautiful, especially the two last-named. With me, Elliott's variety has the larger flowers, but both are very pleasing.

S. primuloides is a plant which is remarkably easy to grow; it thrives in sun or shade, in dry soil or that which is moderately moist; at the edge of the border, on the rock garden, or in the moraine. It increases well, but is not rampant, and it is easy to keep within bounds, while it may be increased by division or seeds. *S. Arnott.*

GERANIUM FARRERI.

This western Chinese species, practically the sole reward to the late Mr. Reginald Farrer for a long and arduous climb, is very different from the majority of its rambling and rather coarse-growing kindred. The whole plant does not exceed three or four inches in height, making a flat, light tracery of neat green foliage, faintly woolly and just tinged with a grey sheen which renders more conspicuous the ruddy colouring that here and there penetrates the silvery green tissue. Held immediately above the flat, scalloped foliage are the flowers—large, inch-wide salvers of soft, shell-pink, that greet the light of day wide open, showing the purple stamens and carrying the gardener over half the globe, to that sun-burnt, shingle-slide high up in the mountains of Chino-Tibet, where he whose name it bears found scores of plants haunting the rough, stony ground.

G. Farreri usually flowers during early June, but occasionally again during late summer. It should be given a gritty compost, and thrives at the base of a tilted boulder, where it may receive an appreciable supply of moisture at the roots. Provided there is no risk of the soil drying out for a considerable period, this plant may be afforded all the sunshine possible. It is also an extremely useful species for the alpine house. *L. B. C.*

NEW PLANT REGISTERED.

The plant named below has been registered with the International Bureau of the Fédération Horticole Professionelle Internationale.

Lobelia Marvel.—Raised by Mr. F. W. Beck, Garlands Nursery, East Grinstead. Sussex. It appeared in 1927 as a sport from the variety Katherine Mallard; it has pendulous growths, and double, deep blue flowers of the same shade as those of the parent. Offered for sale by Mr. F. W. Beck, Garlands Nursery, East Grinstead, Sussex, and by Mr. Harry Miles, York Street, Covent Garden, London, W.C.2.

FLOWER GARDEN.

COMPANION FLOWERING PLANTS FOR THE DAHLIA.

THERE is a tendency among those who specialise in any one kind of flower to sacrifice everything in order to obtain extra good results with it. When this happens in a public garden there is usually some very outspoken criticism; on one occasion during the summer of 1927 I heard the remark: "There ought to be a good show here, seeing there have been no flowers in that border since last October." A good deal of thought is necessary in order to carry out a scheme of companion and successional flowering in the Dahlia beds and borders, and there is always the danger, as with other schemes of intercropping, of seriously interfering with the cultivation of the principal crop, in this case the Dahlia.

The Dahlia is, however, a most accommodating plant, and for display purposes is none the worse for a slight check to its vigour, but for those who wish to produce large-sized flowers nothing less than a good kitchen garden, and plants four feet apart, will suffice.

The late Mr. W. H. Aggett, who claimed to have been the first to develop Dahlia culture *en masse* in beds and borders, used to grow Ten-week Stocks and various other annuals as a ground work for the Dahlias, and this kind of companion cropping may be adopted in most places where Dahlias are grown.

It is rarely possible to grow the Dahlia on the crop-rotation principle, and it often happens that Dahlias are grown on the same border year after year. In such cases the cultivation of the borders commences immediately the roots are cleared in November, at which time the ground is deeply and very thoroughly trenched and manured, such manure or other organic matter as is available being placed about twelve inches deep, with a surface dressing of lime and wood-ash after the trenching has been finished. It may be mentioned here that dressings of soot and such other fertilisers as steamed bone-flour, sulphate of potash and sulphate of ammonia, are also given at appropriate times, as considered necessary.

Various spring-flowering bulbs provide the first colour in these borders; the bulbs are massed freely and accompanied by the usual carpeting plant, such as Wallflowers and other Cheiranthuses, Erysimums, Myosotis, Polyanthuses, Daisies and spring-flowering Pansies.

So soon as these subjects have spent their efforts they are replaced by Antirrhinums, Ten-week Stocks, Violas, or other early-June-flowering plants, so spaced as to allow the Dahlias to be planted between them; the Dahlias are then planted at the proper season, and the other plants provide a feast of colour while the Dahlias are still small. So soon as the companion plants begin to overcrowd the Dahlias they are thinned properly, and ultimately the Dahlia is supreme, but by this time the annuals, Antirrhinums, Pansies, etc., have passed their prime.

With a number of the beds much the same procedure is carried out, but here and there the Dahlias are given a little more room, so that the companion flowers form the groundwork with the Dahlias as "dot" plants.

Dahlias, however, are not the most suitable plants for such a purpose, as they grow apace. We often find it better to plant with a view to an ultimate solid bed of Dahlias, and use the earlier-flowering plants as a preliminary crop. It may be readily understood that with such companion cropping it is very necessary that the general cultivation—hoeing, watering, feeding, and control of pests and diseases—should be carried out efficiently.

Details of the colour and plant schemes would prove wearisome reading, but the following plants may be mentioned in addition to those previously referred to, as having proved most useful in association with Dahlias:—Calendula, Ageratum, Clarkia, Petunia (dwarf), Dianthus, Phlox Drummondii, Nemesia, Dimorphotheca, Coreopsis, Chrysanthemum tricolor, Viola, Zinnia, Arctotis, Aster, Balsam and Eschscholtzia with a few grey or other graceful foliage plants.

It may also be mentioned that the Dahlias used in the beds include the older bedding types, such as Crimson Flag, Barlow's Bedder, Dobbie's Bedder, and White Star; the Mignons, Coltness Gem, Paisley Gem, Rotherhithe Gem and Bermondsey Gem; and such varieties as Lemur, Prince of Wales, J. V. Citters, Aimée Barillet, Rène Cayeux, Oriole and Reginald. Godfrey, with not more than about three kinds in a bed, as a general rule.

There seems to be an idea that Dahlias should produce a jazz effect when planted in the borders, and a monochrome effect in the beds, but there are always those who travel on new lines, and it is from such experimenters that changes arise.

While caterpillars, earwigs and red spider may be troublesome at times, there are no serious diseases to interfere with the success of the Dahlia as a garden plant. It would appear however, from some casual inspections of a number of Coltness Gem plants which I made last year in a nursery, and at Wisley, that there is a disease which will have to be reckoned with in the near future. *W. H. Johns, Bermondsey.*

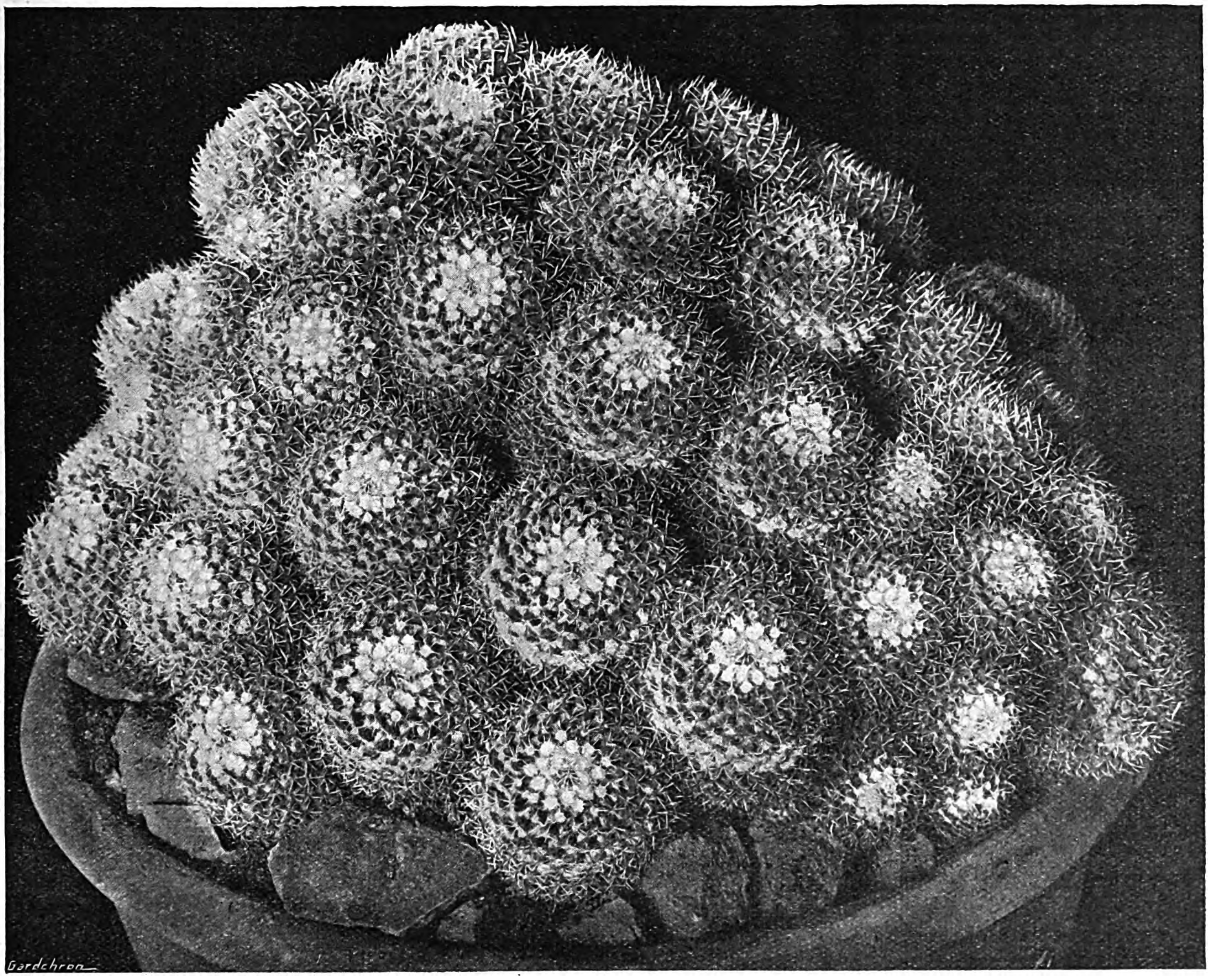

FIG. 3.—MAMILLARIA ELEGANS.

(see page 6.)

THE OENUS PRIMULA.

(*Continued from p.* 454, Vol. LXXXIII.)

BREVISCARPA (Franch.). Short-scaped P.
(Petiolaris-Davidii.).

A dwarf species with thin, membranous foliage and downy stalks and flower stems. Leaves ovate-oblong, tapering to a winged stalk; blades more or less smooth, irregularly toothed on the margins. Flower stem short, bearing five to eight violet blossoms on stalks covered with short, glandular hairs. Corolla salver-shaped, with short, notched lobes.

This species is found on damp rocks near Tchenfongshan, Yunnan, and also in southern Szechuan, western China.

Culture: Fibrous loam, peat and limestone chippings in half shade, with protection from wet in winter, is indicated.

BRYOPHILA (Balf. f.). Mossy-leaved P.
(Nivales-Calliantha.)

This Burmese plant forms a compact rosette of nearly strap-shaped, pointed leaves, from four to six inches long, tapering to a narrowly-winged stalk, at times dilating into a sheath at the base; the recurved margins are more or less entire, and the under side of the leaf is densely coated with yellow meal. Flower stem slender, about three inches tall, smooth, with a cluster of two or three lilac-purple blossoms at its apex. Corolla half-an-inch to three-quarters-of-an-inch across, with nearly wedge-shaped lobes and a hairy disc; tube funnel-shaped, ringed at the mouth, glandular hairy inside, smooth without.

Flowers in May. Found in rocky places amongst dwarf herbage in the Hpimaw Pass, in north-eastern Upper Burma.

Culture: A good, rich loam, in a moist, half-shady position, is indicated; it probably requires protection and is possibly monocarpic.

BULLATA (Franch.). Blistered-leaved P.
(Bullatae.)

A dwarf perennial, with a long, woody stem clothed with the remains of the previous season's foliage towards the top. Leaves one inch to two inches long, lance-shaped, tapering at the base into a distinct, narrowly winged stalk; margins coarsely toothed; upper surface deeply wrinkled, lower covered with yellow meal. Flower stem two to four inches tall, bearing a many-flowered umbel of golden-yellow flowers, each nearly half-an-inch across, on stalks half-an-inch to three-quarters-of-an-inch long. Corolla concave, with rounded, deeply-notched lobes; the calyx and corolla are covered on the outside with yellow meal.

Grows in clefts in damp limestone rocks on the Tali range in Yunnan, western China, at considerable elevations above sea-level.

Culture: As for P. bracteata.

BULLEYANA (Forrest). Bulley's P.
(Candelabra.)

A deciduous perennial of robust habit, forming large tufts of Dock-like foliage. Leaves six to twelve inches long, ovate-lance-shaped, narrowing to a broadly-winged stalk, blunt, finely-toothed, wavy, green with a dull red mid-rib. Flower stem stout, one-and-a-half foot to three feet tall, bearing five to seven superposed umbels of twelve to eighteen, deep, rich orange-yellow, or reddish-orange-coloured, slightly fragrant flowers, each about three-quarters-of-an-inch across, with broadly ovate, overlapping lobes; there are slightly notched, frequently with a sharp tooth in the cleft.

This well-known plant is found in moist or marshy mountain meadows, in various parts of Yunnan, western China, at 10,000 to 12,000 feet above sea-level.

Culture: Rich and somewhat heavy soil, in full sun is required, and treat it as a bog plant during summer; quite hardy.

Introduced in 1908. *Gard. Chron.*, July 10, 1909, p. 15 Figs. 9 and 11.

BURMANICA (Balf. f.). Burmese P.
(Candelabra.)

A very robust, marsh-loving, deciduous perennial with lance-shaped leaves, up to eighteen inches long and two inches wide, broad and rounded at the tip, tapering to a long, narrowly-winged stalk; margins irregularly toothed; surface more or less smooth. Flower stem stout, very finely downy, about two feet tall, bearing about six many-flowered whorls, fairly widely separated. Flowers crimson-purple with an orange eye. Corolla flat, three-quarters-of-an-inch to one inch across, with broadly heart-shaped, entire or coarsely-toothed, notched lobes, and a cylindrical tube about half-an-inch long, with a ring at the mouth.

Flowers in June. This handsome species is found in marshes and wet meadows on the mountains of Upper Burma, below Fengshuiling.

Culture: Plant it in rich, deep loam in full sun and treat it as a bog plant; protection in winter is probably necessary. *A. W. Darnell.*

(*To be continued.*)

A REVISION OF VIOLAS.

(*Concluded from page* 465, Vol. LXXXIII.)

Viola kamtshatica, Gingins, is V. Selkirkii, Pursh, already dealt with fully (*Gard. Chron.*, March 31, 1928). I do not find that Farrer's description of its excessive leafiness is correct; with me it is quite small and delicate, with flowers of a peculiar blueness to their purple. But it does not seem too happy in the places in which I have it; the bog garden, in shade, may suit it better.

V. incisa, Turczaninow, is a very rare member of the pinnata group—which was dealt with in *The Gardeners' Chronicle* of March 10 and 24, 1928. Being of this group, it may hardly be dismissed as of little account. In addition, it is not only rare in nature, being found only in gravelly places in one part of the shores of Lake Baikal, but is almost certainly not in cultivation, so that it is impossible to give any judgment upon it. The leaves, ovate in general outline, are merely incised, unlike the deeply lobed V. pinnata.

V. Gmelini is probably intended to be V. Gmeliniana, Roemer and Schultz. The large flowers of which Farrer writes, and which made him hazard that there might still be some jewels among the "ruck," are more likely to refer to the foregoing; for V. Gmeliniana has minute blossoms, of an intense violet. The species is not far removed from the Patrinii group, and the name given by Gmelin in the *Flora of Siberia* (1769)—"V. acaulis, foliis lanceolatis crenatis hirsutis," *i.e.*, stemless Violet with lanceolate, crenate, hirsute leaves, describes the plant in essentials, although five long words seem a lot for a dwarf not more than five centimetres tall.

The remainder of the species mentioned by Farrer in the paragraph under review belong to the Tricolor section, and, as everyone knows, the Tricolors include worthy and worthless species. V. arvensis, V. modesta, V. occulata, and V. parvula (which, I suppose, Farrer intended by V. "parva"), belong to the Eu-tricolor group; while V. Kitaibeliana, V. hymettia, V. Demetria and V. pentadactyle (not pentadactylis) belong to the Kitaibelianaa group. The name V. bannatica I have not yet been able to trace. V. segetum is Jordan's name for V. modesta; and here it should be said, in view of certain publications on the Violets of England, that the maintenance of the Jordanian classification of Violas has been not only discredited, but is also the cause of confusion. V. ebracteolata also is an alternative name of Fenzl for the same author's V. modesta. Of the eight species already detailed under the two groups, V. Kitaibeliana, V. hymettia, V. modesta, V. occulata, V. parvula and V. pentadactyla are annuals. V. arvensis is annual or biennial or perennial; V. Demetria is in this an unknown quantity—at least, by me. V. arvensis has very small yellow or whitish and sometimes bluish flowers; it extends from Transylvania, through Bulgaria and Asia Minor, to the Caucasus and Siberia, and is also found on the Euphrates, and by some strange freak near Hong Kong; it is naturalized in America. V. Kitaibeliana is found throughout Europe, and spreads to Africa and Asia Minor. V. hymettia is merely a form with larger flowers from the Caucasus and Persia. V. Demetria, Prolongo, has large flowers of a golden-yellow, the upper petals being sometimes violet, and is from the Sierras of Granada and Andalusia. V. modesta has large blue flowers and inhabits woods from Asia Minor to Kurdistan. V. occulata takes up the tale by running from Asia Minor, through Palestine, to Turkistan, and has white flowers with some of the petals violet, on bare places among rocks up to 9,000 feet. V. parvula has similar flowers and inhabits only the south of Europe and Morocco. Lastly, V. pentadactyla has violet flowers, and hails from Syria (as near Aleppo) where it grows in sandy fields.

V. vivariensis, Jordan, cannot be separated from V. alpestris of the western Alps. It takes its name from the Vivarais, a hilly region forming the eastern rampart of the Cevennes Mountains, where they slope down to the Rhone.

V. Walteri, House, represents V. rupestris in the south-east of the United States. The prostrate stems, appearing in summer, bear only cleistogamous flowers, and unlike those of V. rupestris, but like V. odorata and its kin, they root at the tips and form new plants. Otherwise this and V. rupestris are very similar.

V. Wiedemannii, Boissier, does not belong to the palustris section, but is simply V. odorata from Anatolia.

V. Willkommii, De Roemer, is the representative of V. mirabilis in eastern Spain. It shares with that species the condemnation meted out by Farrer; but in Linnaea XXV (1852), Willkmom describes it as "A species with outstanding flowers of a beautiful violet, akin to V. mirabilis from which it differs by the leaves being cordate-ovate and obtuse instead of cordate-reniform and shortly acuminate, by the leaves being much smaller, by the stems being quite glabrous and not pilose, by the flowers being larger and violet instead of pale blue, by being slightly fragrant, and by the much broader sacciform spur." V. Willkommii is a purely limestone plant, and is confined to the provinces of Valencia, Aragon (*e.g.*, on Albarracin at 4,500 feet) and Catalonia, the *locus classicus* being Monserrat near Barcelona, where it is abundant at about 2,000 feet in mossy rock fissures and among shady brushwood on the northern slopes.

V. Zoisii, Wulfen, is usually written V. Zoysii, but the former spelling has priority. Farrer puts this species as merely a form of V. calcarata, and at that as not more than a thin-flowered yellow form with a deep notch in the lower petal. Becker maintains it as a distinct species; Burnat, on the other hand, stated (1892): "We possess specimens from Mont Stou (Carniola) the classic locality of this form, and we are unable to see in what respect it differs from V. calcarata." The principal points of difference are that V. Zoisii is a much dwarfer plant (never more than three-and-a-half inches high), and never takes the tall forms that occur in V. calcarata; the leaves are broadly ovate or nearly round, whereas in the other the upper leaves are lanceolate or elliptical; the stipules are small and few—with merely one lobe on the outer, and either one or none on the inner side, whereas in the other they are usually pinnately divided; the flowers are deep yellow, smaller than in V. calcarata and on shorter stems. It is a purely limestone species, and its area comes not further west than the Karawanken Mountains, from where it spreads southwards to Montenegro and Albania. Like V. calcarata it grows in alpine turf, but, unlike V. calcarata, to my knowledge, it is even more abundant in rock fissures at the highest altitudes. In the Karawankens it is very abundant on Mount Stou (or Stol) from 5,500 to 7,100 feet; and in the Barental at 3,900 feet. In the Julian Alps it is abundant in the Triglav district. I have failed so far to procure V. Zoisii, and these localities are given in the hope that it may be procured now that the Karawankens have come within the orbit of English collectors. In Montenegro, on Dormitor, at 8,700 feet, V. Zoisii occurs with lilac flowers—a fact which seems to throw doubt on any real distinction between the two species. At the same time, I cannot reconcile the very brilliant yellow forms of V. calcarata that illuminate the Mont Cenis towards the end of June, with the authoritative description of V. Zoisii; it may not be too much of a hazard to suggest that V. Zoisii bears to the larger species much the same relationship—so far at least, as habit is concerned—as, say, Gentiana terglovienso or Campanula Zoisii bear to their larger kindred in other Alps. *E. Enever Todd, Lt.-Col., South Lodge, Herne, Kent.*

PLANTS NEW OR NOTEWORTHY.

URSINIA ANETHOIDES.

Although there are sixty species of Ursinia in South Africa, the horticultural acquaintance with the genus is confined to very few of them; the opportunity has occurred of growing three species, and a few others are known from portraits. These are attractive and easy to grow, making first-class border subjects, setting seeds freely and flowering over a long period. They are either unobtainable or ignored, as seed catalogues do not mention them.

The species most often met with is U. anthemioides, a dwarf plant, often bearing flowers of several shades of yellow and orange on the same plant; this is a desirable species useful as a dwarf bedder or edging plant.

U. anethoides, the species under notice (Fig. 1), is a much superior plant, taller in habit, but with all the good qualities already stated; many of the individual flowers are over two inches in diameter, of a rich orange colour, enlivened at the base by a beautiful ring of deep purple with spots of a darker shade; the flowers are carried on long, wiry stems, and promise to become elegant subjects for cutting. Many South African Composites close early in the afternoon, but this Ursinia remains open until dark.

I am indebted to Miss E. Struben, Luncarty, Rhodes Avenue, Claremont, South Africa, an enthusiastic gardener, for seeds of this and other South African plants, and to Kew for its identification. The Hon. Mrs. Ryder, who has recently returned from a visit to South Africa, also brought home seeds of this and many other plants which have been distributed most generously. Whatever new there may be in store for our gardens among the sixty known species of this genus, Ursinia anethoides creates the wish for more. This species obtained an Award of Merit from the Royal Horticultural Society on June 26 (see p. 472, *Gard. Chron.*, June 30, 1928). *T. Hay, Hyde Park.*

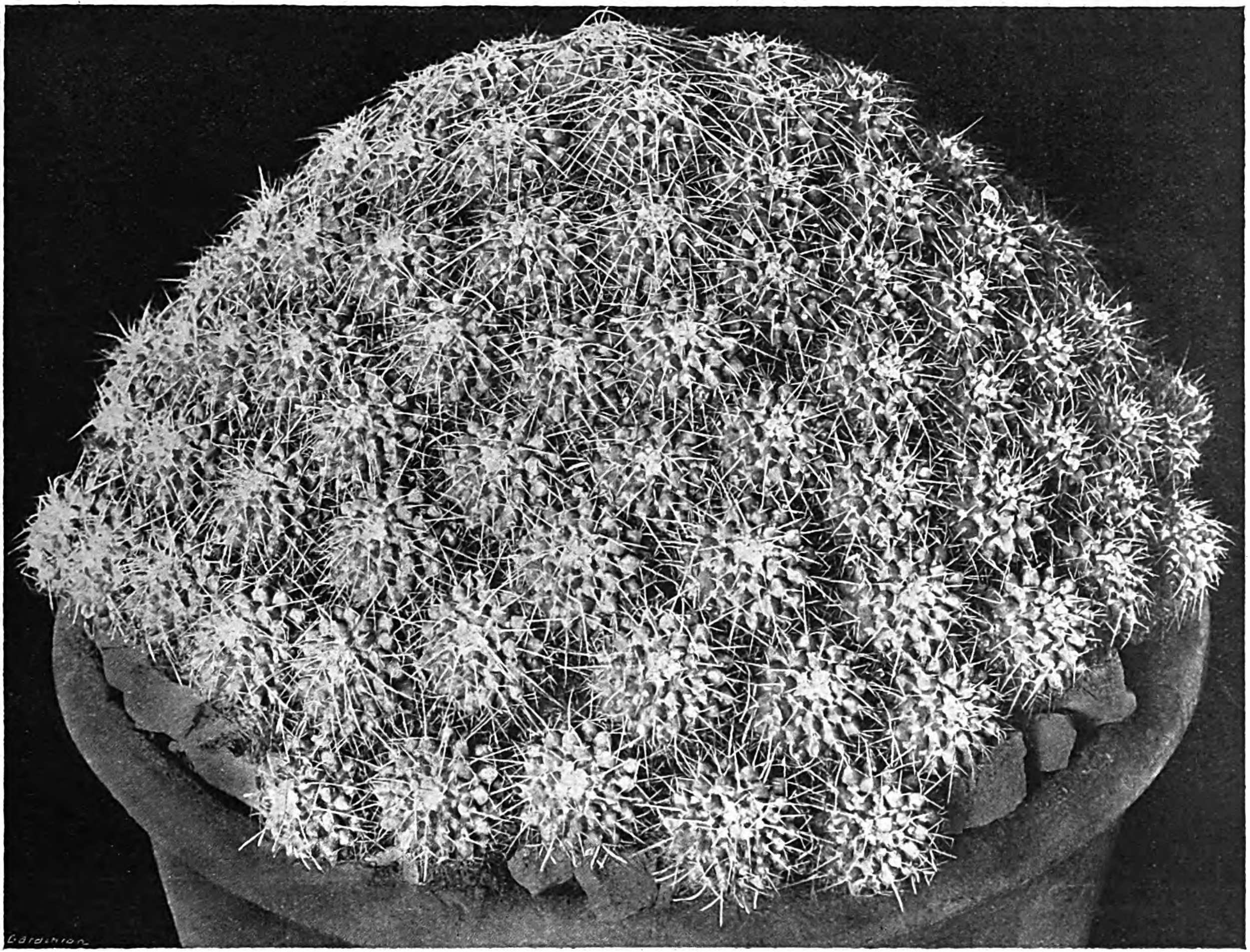

FIG. 4.—MAMILLARIA COMPRESSA
(see p. 6).

TREES AND SHRUBS.

LEPTOSPERMUMS.

That the South Sea Myrtles so generally survived the trials of last winter is one of the facts which help to compensate for losses of other precious things, for among the many fine early summer-flowering shrubs which have come into general use during recent years the Leptospermums rank very high. They are singularly elegant in their slender, whippy growths, beautiful in their flowers and Heath-like foliage, and reliable and abundant flowering subjects, even in such sunless summers as we have recently experienced, while they practically ask for no attention whatsoever.

The commonest of the white-flowered species, L. scoparium, of New Zealand, attains a stature of twenty feet in mild localities, but it is more often seen as a shrub of less than half that height. Its flowers are about the size of those of the Hawthorn, their pure white being accentuated by a dark purple eye. So profusely are these yielded that the whole bush, from base to tip, is often sheeted with blooms, and I am not at all sure that although the most familiar, it is not the most charming of all. L. scoparium comes very freely from seeds, but as the seedlings vary considerably in the size of the flowers, careful selection is desirable.

L. s. Nichollii, is a first-rate variety, the opening buds being a bright ruby-red, and the whole of the foliage bronzy-crimson, which is especially delightful in winter. This is not such a vigorous grower as the type; still it is a good doer and, like the rest of its kind, grows very rapidly, soon making a large-sized shrub. L. s. Chapmannii also has the red-bronze foliage of the foregoing, but its flowers are more of a blood-red, tending to almost crimson-scarlet in some lights. The more recent L. s. Boscawenii is a very lovely variety, the narrow, green leaves having a bluish, or glaucous sheen. In this form the flowers are exceptionally large, the petals being an exquisite shell-pink, pale and clear, with a dark eye. The only other form in general cultivation is L. s. prostratum, a prostrate shrub with glossy, bright green leaves rather broader than those of the type. It has not yet flowered here, and it is said to be a shy bloomer.

L. laevigatum is a Tasmanian species of remarkable beauty. It is an erect, much-branched shrub, more spreading than L. scoparium, and the green, slightly glaucous leaves are broader than those of the latter. The white, dark-centred flowers, are yielded in lavish profusion during June, and these are fully as large as those of any but selected forms of L. scoparium. I have found this species quite as hardy as the last-mentioned. L. laevigatum received an Award of Merit at the meeting of the Royal Horticultural Society on August 3, 1927. Both L. pubescens (lanigerum) and L. stellatum are Australian species with small white flowers, but they are not equal to any of those already alluded to from the point of view of garden merit. The same remark applies also to L. Liversidgei which, however, has a special attraction of its own in the curiously crowded little leaves which are of a bluish-green tint. The flowers are white.

The Leptospermums do not seem particular as to soil, but they evidently enjoy thorough drainage, and appear to flourish in what would mean starvation to many shrubs. They are, therefore, excellent subjects for poor, dry land. I have never known them to be affected by drought, even under most severe trials. They are good wind-resisters and delight in all the air and light they may get. Most of the kinds ripen seeds in plenty, and come fairly true from seeds. I cannot yet speak from experience on this point, but do know that a certain means of propagation is afforded in the striking of cuttings. This is not difficult, and once the plants are rooted growth is very rapid. Many of these better sorts will flower before they are a dozen inches in height. *A. T. J.*

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MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

III.—MANIPUR: AN INTERLUDE.

AFTER Japoo, the Governor of Assam's visit and Kohima in holiday dress for two days. The previous evening, contingents from the various tribes, Angami and Sema and Kacha Naga, marched into headquarters from their outlying villages to dance before the Governor; and as the long files of fighting men wound up the white riband of road, they broke into a deep chant which echoed from hill to hill.

On the great day they paraded, tribe by tribe, with all Kohima looking on. The war-like Sema danced the fire dance, holding hands in a circle and whooping "round and round the Mulberry bush"; but more often they danced brandishing their spears and short hacking knives, which are rarely out of their hands. They wore no clothes, only a short apron in front, stiffly encrusted with white shells, and their barbaric finery consisted of a black bearskin fillet round the forehead, a red baldric of goat's hair across the chest, and a prancing tail, also of red goat's hair. The Angami, who are the best dressed of all the tribes, were magnificent in their head dresses of hornbill feathers, with many furbelows, and they danced more sedately. As for the Kacha Nagas, they had brought a bevy of girls with them—ugly little bronze godesses, who danced with a rattle of bead necklaces; and as they danced they quavered a lament, and clapped their hands to mark the time, their feet thudding in unison on the baked earth. Anon the lament became more lively, and the click-clack of beads grew sharper. The parade ground was now an animated rainbow of shifting colours. A shaft of sunlight, loosed from the piled clouds, glinted on the burnished spears round which the naked Sema whooped and roared their deep throated war cry. "O yáma serai yáma, ho-o-o" went booming up to the high hill tops where the spirits dwell, and came tumbling down again to sink into the deep sunlit valley where the gilded stubble lay shelf on shelf.

Next morning we were off to Manipur with the Governor. Manipur is, of course, famous for its Orchids, but we were going now more because we had been invited than for any other reason.

The day was fine, and the powder-white dust lay inches deep on the road and rose in clouds from under the cars. Here the Manipur roads wind in hairpin bends round the flank of the Japoo range, climbing gradually to Mao, the highest point between Dimapur and Manipur, about 5,500 feet above sea level. The Nagas had crowded from their eyries to cheer the Governor, and formed nodes of colour at intervals. At the frontier post the Political Officer of Manipur, met us, and we now went on ahead in his car with the pilot car, and were able to enjoy the rich scenery unsmirched by dust. The crags of Japoo lay on our right and burst into view whenever we turned into one of the deep re-entrants which score its flank. On our left lay a trough into which the spurs of the range jutted, each headland crowned by a village and approached at its base by flights of golden Paddy steps.

Now came a long, steady descent to the Barak river, with an ugly drop into nothing if the car got out of control and hit the bank, or we took the bends too fast. The slopes were covered with a brown scrubby growth of Castanopsis, and there was not much green about in this scorched southern valley. Finally we reached the Manipur plain and drove through miles of Paddy fields, dotted with villages nestling amongst groves of Bamboo, and herds of cattle wandering everywhere, but chiefly on the road. The Manipuris had turned out in throngs, and we being in the first car, when we had passed they naturally thought "the balloon had gone up," and returned to their homes! At the entrance to Imphal, an arch of Bamboos and tinsel had been erected, and as we passed through the guard sprang smartly to attention and presented arms. We made a suitable reply. Inside, the road was lined with police who saluted, and specials, who salaamed; it only needed the strains of the national anthem and the salute of twelve guns from the citadel, to complete our triumph. However, they husbanded those for the real Governor!

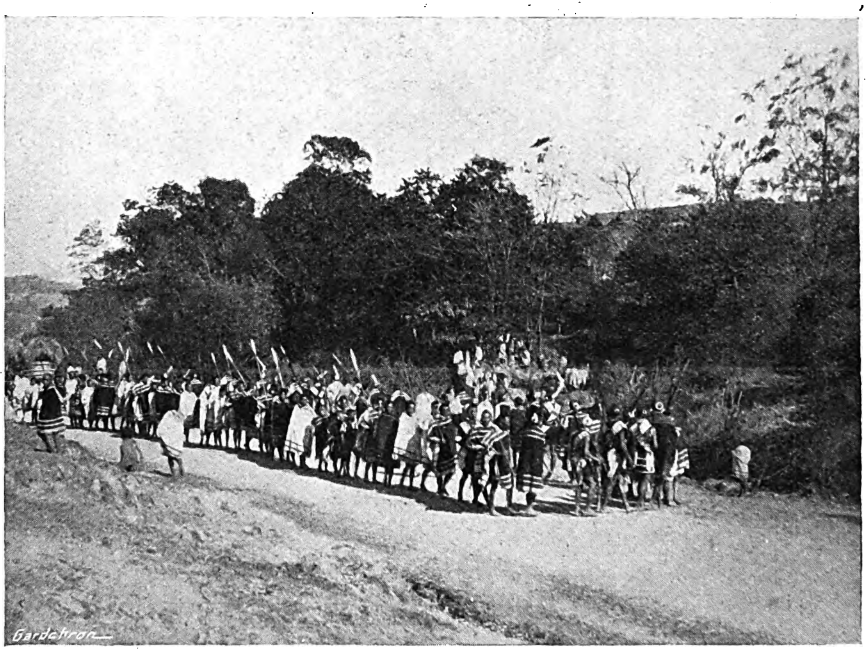

FIG. 5.—PROCESSION OF NAGAS ON THE MANIPUR ROAD.

The roads in Imphal are beautifully laid out and lined with avenues of trees; Silver Oak (Grevillea robusta), Cupressus macrocarpa, Gold Mohur, Ficus, Poplar and Teak. It was interesting to a plant collector to reflect that the Urban District Council, when town planning, had planted their roads almost entirely with alien trees. Grevillea robusta is Australian; the Gold Mohur (Poinciana regia) comes from Madagascar, and even Teak, although found in the Chindwin valley, over the ranges to the east, is not indigenous in Manipur, or even in Assam. Only the Ficus was certainly local; F. hispida or F. obtusifolia probably.

The vale of Manipur bears a remarkable resemblance to the plain of Hkamti Long on the upper Irrawaddy. Like the latter, it is entirely enclosed by ranges of high hills, and both basins are undoubtedly silted up lakes; indeed, the lower end of the Manipur plain is still a lake or marsh.

Imphal, the capital, is not so much a town as a park. There is the fort (before the massacre in 1891 this was the citadel), the night bazaar, the Residency, and the Rajah's palace, all separated by grassy maidans, intersected by quiet, shady roads, and everywhere there are trees. Along the roads are scattered the officers' bungalows and further out are innumerable clusters of huts, which hardly amount to villages, embowered in trees, the whole forming a glorious garden city. There is no traffic to speak of, except for a few bullock carts, or an occasional elephant rolling along, and the hurly-burly of India is absent.

A swift little river winds across the plain, and at the first opportunity I went for a walk in the green country. The earth roads all run along embankments, with ditches on either side. These last are mostly choked with Water Hyacinth, that scourge of Burma and Bengal; other aquatics include Water Ferns (Salvinia, Azolla), the sacred Lotus, Sagittaria, and giant Rush. The huts of the Manipuris are buried amongst bushes and trees, Jack and Cassia, and Bauhinia, and surrounded by hedges of the fragrant Acacia arabica, Bamboo, Euphorbia and Aloe; while at intervals along the banked paths are spreading trees, especially Ficus religiosa and F. elastica. At one place there is an enormous tank, built by a former Rajah, surrounded by gardens and temples, and quiet monasteries. It is a clean, fragrant, aqueous country. By the river, trailing over low-growing bushes of Rosa involucrata, I found in flower a thin-leafed Clematis with medium-sized flowers of a delicate powder-blue; the achenes lack the feathered style of the ordinary Clematis. It is a most graceful winter-flowering species, and should grow well in a cool greenhouse, so I arranged with a friend in Imphal to send me seeds of it later.

In the delightful grounds of the Residency are many sub-tropical trees and shrubs, although there was not much in flower at this season. Notable were some Poinsettias with canary yellow, instead of scarlet, bracts. It is, however, for its wealth of Orchids that Manipur is especially famous. Most of them, of course, come from the surrounding hills, particularly the ranges between Manipur and the Chindwin river of Burma. Vanda caerulea is so common, and its charms so keenly appreciated, that

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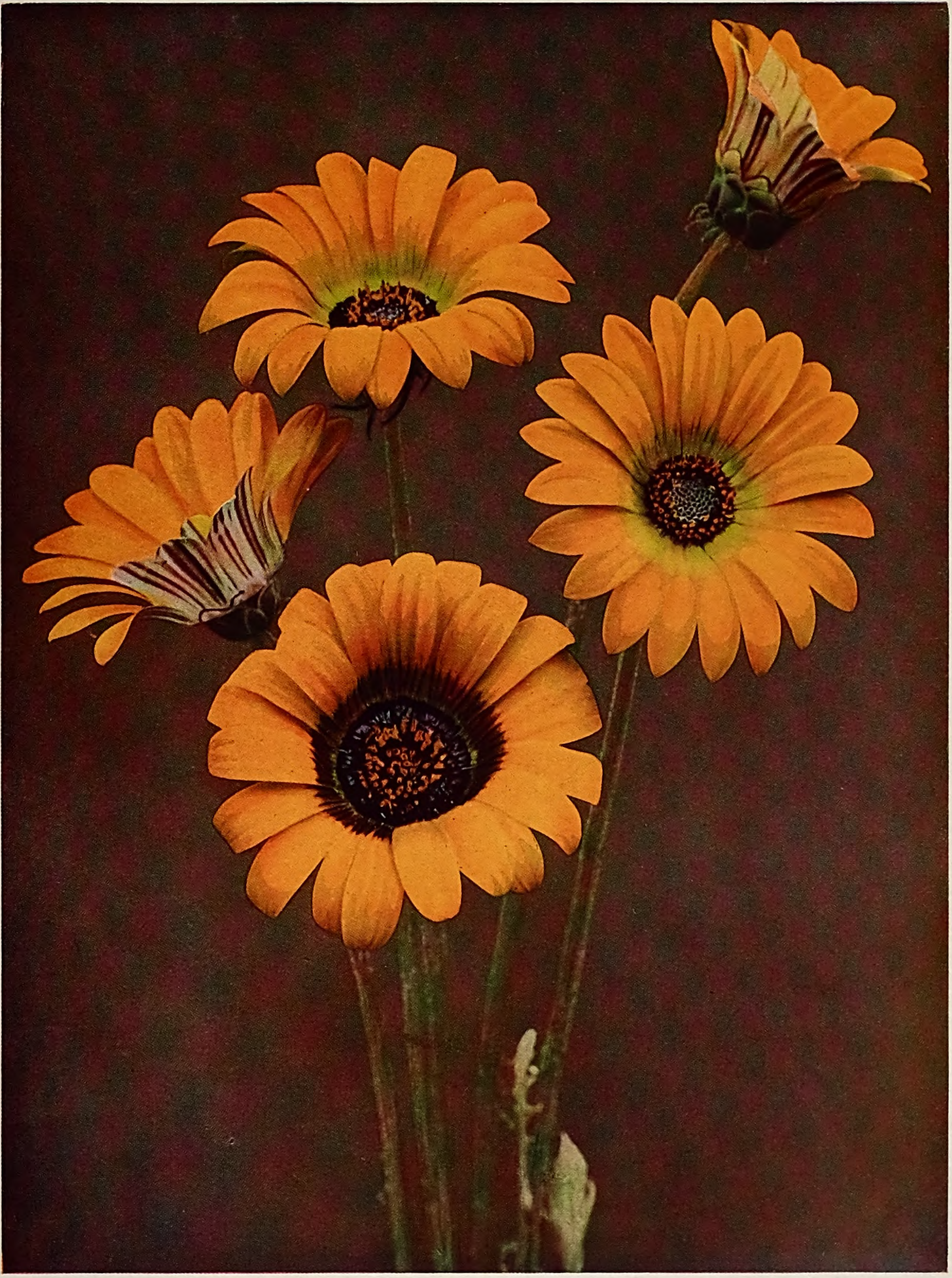
* Previous articles on Mr. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June, 9, and 23, 1928.

Supplement to "The GARDENERS' CHRONICLE."



ARCTOTIS BREVISCAPA.

during the autumn Puja festival, all the Manipuris wear them in their hair. The effect is lovely. In this connection, why does not someone write a descriptive account of flowers as used in religious ceremonies throughout the world? There is one man whose wide knowledge and charming style pre-eminently fits him for the work; I refer, of course, to the Rev. Hilderic Friend, whose articles delight so many readers of *The Gardeners' Chronicle*. Different plants of the blue Vanda differ widely in colour. I have been told that those which grow in sunshine are darker in colour, while those from the depths of the forest are always pale; and certainly one I met with growing on a pole in a Naga village, without a vestige of shade, was so dark in colour as to be almost violet. I secured that particular specimen.

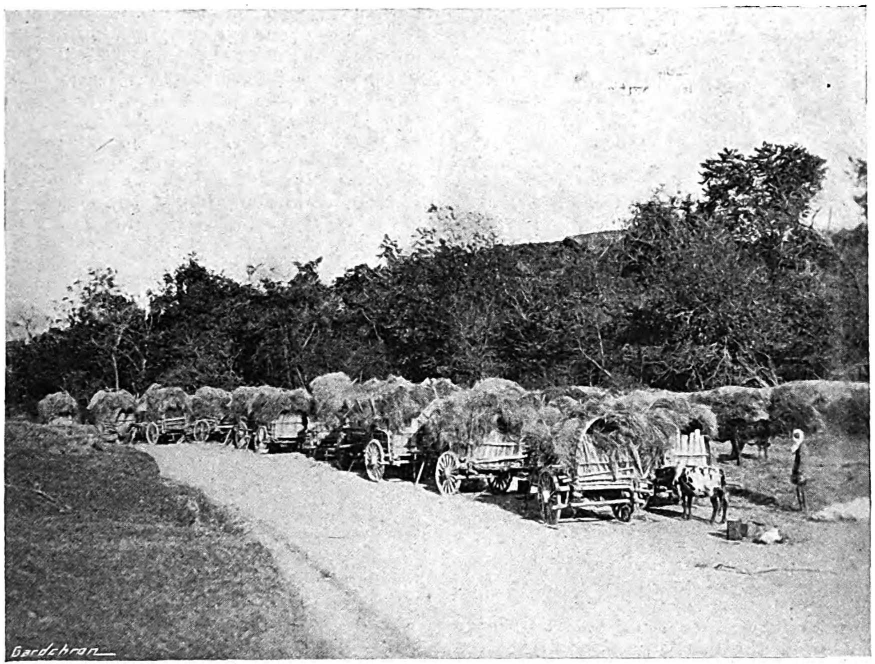


FIG. 6.—THE MANIPUR ROAD; OLD WAY: BULLOCK CARTS RESTING FOR THE DAY.

Other Orchids which may be obtained abundantly in Manipur are Vanda teres, Aerides vandarum, Cypripedium hirsutissimum, Renanthera Imschootiana, Coelogyne cristata, Phaius maculatus and many species of Dendrobium, including D. chrysanthum, D. nobile, D. lituiflorum, D. aureum, D. cretaceum, D. chrysotoxum, D. capillipes and D. infundibulum. Vanda Stangeana, a species I cannot identify, is also found. It is not mentioned in Sanders' *Orchid Guide*, unless it is Aerides odoratum. Unfortunately, none of these were in flower, so it was impossible to judge their merits.

At this season, Manipur is subject to dense clammy mists, which precipitate themselves flocculently soon after nightfall, and by morning are as thick as a London fog, sometimes not dispersing until ten o'clock. The minimum temperature fell so low as 39° one night, and the early mornings were always bitterly cold. But the days were sunny and warm, the maximum shade temperature reaching 64°, and it was quite hot in the sun.

The earliest general account of the flora of Manipur appears to be that by Sir George Watt in *The Indian Forester* previously referred to. After giving a general description of the country, and its climatic zones, he divides Manipur into three botanical areas, as follows: (1) The western wall, *i.e.*, the mountains between Manipur and Cachar; (2) the central undulating region of low hills and valleys, including the plain of Imphal; and (3) the eastern wall, between the plain and the Chindwin river. These he treats in detail. In the light of later knowledge, some of his conclusions seem a little fantastic. Thus he states: "A strong Japanese taint exists in Manipur, since the sacred Star Anise tree of Japan is found in the forests of the north," and again that "a Prunus is found closely allied to a Japanese plant collected by Oldham"; rather sketchy evidence on which to draw up a special comparison within the very general resemblance of the flora from the Himalaya to Japan! The Star Anise Tree (Illicium) of which there are several species, is as much a native of China as of Japan. One species, and this probably the same as the Manipur plant, is widely spread over the hills of far Upper Burma, but it may be doubted whether this is the Japanese species. I. Griffithii occurs in Bhutan, and at the eastern end of the Himalaya generally; and they all look alike in fruit at any rate. It would be more convincing to draw a parallel on broad lines between the floras of eastern Himalaya and Japan; thus we find Albizzia Julibrissin, Buxus sempervirens, Aeginetia indica and Hemiphragma heterophyllum common to both regions, as well as a more diffuse link in the Shortias, Candelabra Primulas, Azaleas, and so on. Indeed, Watt gets much nearer the bulls-eye when he compares the flora of Manipur with that of Sikkim, as quoted in the first article of this series.

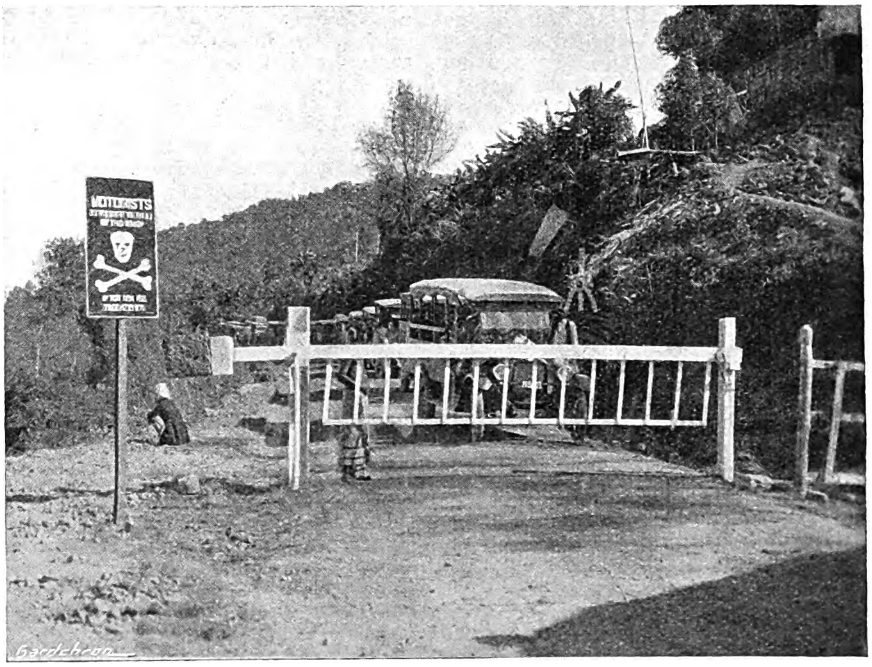


FIG. 7.—THE MANIPUR ROAD; NEW WAY: CARS WAITING FOR THE OPENING OF THE CONTROL GATE.

Watt states that the handsomest plant in Manipur is Acranthera tomentosa, which I was unable to get news of; but as it was discovered by Griffith in the Mishmi Hills, I may yet come across it.

We left Manipur on December 13 and motored back to Kohima in six hours. *F. Kingdon Ward.*

NOTES FROM WISLEY.

BETWEEN the flowering of Erica australis in early May and that of the Scotch and Bell Heathers, which are only just commencing to bloom, there comes a period in the Heath garden which is often devoid of flowers. This may be overcome by the inclusion of St. Dabeoc's Heath, which is scarcely ever out of bloom, and by the planting of Bruckenthalia spiculifolia, a pale pink-flowered Ericaceous plant which flowers early in June. At Wisley it was hoped to provide additional colour at this time by the planting of Thymes, but although the plants have made attractive, bright green cushions of foliage, no flowers are showing at present. Next year, however, the plants having become better established, may, perhaps, flower at a much earlier date. In spite of this there is no lack of flowers in this part of the garden for numerous kinds of Rhododendrons and Brooms are blooming freely. Among the few Rhododendron species which are actually planted among the Heaths is R. myrtifolium, a dwarf-growing species with pinkish flowers. One of the very best of the Brooms which border the Heath Garden, in flower at the present time, is Cytisus leucanthus (syn. schipkaensis) and, unlike most members of this genus, it emits a pleasant fragrance. Others in flower are Genista sagittalis, with its curious foliaceous stems; Cytisus eriocarpus, with flowers of creamy white; and the particularly dwarf C. sessilifolius. Many shrubs in the Field Garden are blooming profusely, including some of the recently introduced Pyracanthas, which are well worth growing for their flowers alone. The same may be written with regard to Pernettya mucronata, which is well-known on account of its ornamental fruits, but is apt to be overlooked as a flowering plant. Berries are already formed on plants of Cotoneaster moupinensis and, although red now, will soon turn black. The Rhododendrons which were planted this spring during the course of developing the Pine wood beyond the Pinetum as a new wild garden, are now in flower, and include hybrids of proved merit, such as the fine red Bagshot Ruby, Monstrous and Professor Hugo de Vries with pink flowers, and G. MacGregor, with old-rose coloured blooms.

Roses are now coming into prominence at Wisley. Most of the hybrid Teas are only just commencing to bloom, but many of the Rose species present a charming picture. Of the latter there is a comprehensive collection planted beside the walk above the river bank. In some cases the flowers are no better, if so good, as those of our British wildlings, but exceptions are seen in the beautiful brick and crimson flowers of Rosa Moyesii and R. Fargesii, and R. pruhonica with similar coloured blossoms. Another attractive species is R. arvensis var. Andersonii, which has large, single, pink flowers, while R. selongena has pink blooms combined with purplish foliage. The flowers of Rosa sericea may only claim distinction on account of their four petals, but this plant appears to be a vigorous and bushy grower, and would no doubt make a splendid hedge.

Interesting Rose species may also be seen in bloom in the borders edging the short walk from the main Rose walk to the greenhouses. Planted with them is a collection of old-fashioned Roses, such as the Maiden's Blush and Rosa gallica. Many of these earlier varieties are still most valuable for garden decoration, as, for example, Fellenberg, a semi-double, deep pink Rose, a plant of which is growing near the foot of the rock garden and every year has attracted the attention of visitors to the gardens. Among the newer varieties Pink Delight, an attractive, single-flowered dwarf Polyantha Rose, flowering well.

In the Trial grounds the long-spurred Aquilegias are now in full bloom. This is now their second year, and they are flowering even better than they did last year. The Bearded Irises are nearly over, but one or two good late-flowering varieties still remain in bloom. One of the most handsome is India, the flowers of which are very large and are considerably enhanced by the length and the velvet texture of the violet-coloured falls. Another good variety is Parc de Neuilly, with violet-blue flowers which are borne very freely. Mention may also be made of Mary Gibson, with pinkish-bronze flowers and bright yellow beards, which is flowering remarkably well, considering that the plants were divided only last autumn. In the plicata section, Midwest, with white blooms, feathered with mauve, is attractive, as is Blue Chintz, which has rather similar colouring. Fascinating and curious markings are seen in Aksarben, which has bronzy-yellow standards and white falls strongly netted with brown and purple.

Many of the Delphiniums in the standard collection at Wisley are now in bloom, including most of those belonging to the Belladonna section. A great advantage of plants of this group is that they usually throw up a second crop of blooms, and sometimes a third, provided that the old flower spikes are cut down before the seeds develop. Among them are many pretty pale blue varieties, such as Persimmon and the still paler Musis Sacrum. Conspicuous among the taller varieties in bloom are Mrs. Townley Parker, Dusky Monarch and Blue Bird, while white varieties in bloom are Delphinium Moerheimii and Beauty of Langport. It is noticeable, however, that none of the white varieties in this collection are particularly robust, and that all the flowers have a greenish tinge, and it seems that a vigorous-growing, pure-white Delphinium has still to be raised. The herbaceous borders which have recently been formed in the centre of the Trial grounds are at present in an immature state. One or two plants, however, are going ahead well, as, for example, a rich blue Delphinium with a white eye named Johan. Bright patches are also formed by Viola Jersey Blue Gem, with violet flowers.

Under glass the Fuchsias on trial are now flowering well and make a very decorative display. Among the most showy are Clipper, with red and purple flowers, and Emile Zola, with flowers of two shades of crimson. Some varieties, such as Pasteur, have enormous blooms, while others make up for the comparative smallness of their flowers by attractive colour combinations. A good instance is Cupid, and the delightful combination of colours which are seen in the flowers make it one of the most attractive Fuchsias in the trial. Quite a number of varieties have a trailing habit and are suitable for use in hanging baskets. Included among the latter are Ronsara, with red and purple flowers, and Marinka with rather striking blooms of cerise and dull crimson. A collection of varieties for which hardiness is claimed has been planted in the open, and it will be interesting to see next year which varieties survive best.

Much of the blossom to be seen on the rock garden at the present time is furnished by Cystuses and Helianthemums. Among the former C. crispus var. Sunset is a vivid-coloured variety, and its bright pink flowers should be kept away from those of C. villosus which, in contrast, appear almost grey in colour. One of the best Helianthemums in the rock garden is the large yellow-flowered St. John's College, while another bright-hued variety is the orange-red H. rubens. In addition to those on the rock garden, a collection of Helianthemums may be seen near the alpine house, among which Watergate Pink with salmon blooms, is flowering well. Another genus of plants which is a source of much colour on the rock garden is that of Mimulus. A bright edging to some of the walks is formed by a yellow-flowered species, M. caespitosus. Mimulus cupreus, with orange-brown flowers, is another dwarf Monkey Flower in bloom, while the boggy portion of the rock garden is overrun with M. Langsdorffi which has become naturalised here and in many parts of England. Another plant in flower in the bog and which grows wild in this country, is Lychnis Flos-cuculi, better-known as Ragged Robin. It is blooming particularly well this year, and is as conspicuous and decorative as many garden plants, both here, and on the river banks, where it grows in company with the red Campion, to which it is nearly related. Many charming rock and alpine plants are in bloom in the neighbourhood of the moraine. One of the most striking is Dianthus Roysii, with large, pink flowers. Also in bloom here are Dianthus caesius, the Cheddar Pink, Dianthus alpinus and D. alpinus Ladham's var., the flowers of which are even larger than those of the type. Another attractive plant which is flowering in a bed just above the moraine is Helichrysum rupestris. It has rather woolly foliage and everlasting flowers of bright sulphur. Noteworthy shrubs in flower on the rock garden include Rhododendron × Gowerianum, a rosy-purple flowered, compact-growing hybrid which is in bloom near the top pool, and Hydrangea scandens (syn. petiolaris), a white-flowered Japanese plant which sprawls over a large area.

In the alpine house many varieties of Saxifraga Cotyledon are still in bloom, although they commenced to flower more than a month ago. The remainder of the plants in flower in this house are nearly all Campanulas, and include C. speciosa, C. rotundifolia var. Mount Cherne, a Harebell with very large flowers; several varieties of C. garganica, and plants of C. cenisia collected from Mount Cenis by Mr. Harris, whose loss this year to the Royal Horticultural Society's rock garden is keenly felt. Other blue-flowered rock plants in or around the alpine house are Phyteuma hemisphaericum, a Rampion similar to our native species, and a fine blue form of Pentstemon heterophyllus.

The surface of the ponds at the bottom of the rock garden is now covered with the leaves and boat-shaped blooms of Aponogeton distachyum, whose perfume scents the surrounding air. The Royal Ferns by the waterside have grown particularly strongly this year, and the fronds of many exceed six feet in height. Unfortunately, the same cannot be said of the Ferns in the newly-made Fernery situated between the field garden and the Pinetum, as they were severely crippled by the succession of late frosts which have been experienced here. On the whole, however, this Fernery, seeing that it is in its first year, is looking very well and is now gay with Foxgloves. *J. E. Grant White.*

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

Would that some ingenious wight would devise a handy English title for Tricuspidaria lanceolata, were it only because visitors, seeing it in flower, so frequently ask for its name, and one has to hurl these ponderous polysyllables in reply. A pretty shrub, even in youth, but when it reaches a height of twenty feet or more, and is hung with hundreds of crimson bells, it justifies the epithet "splendid." Inland, I suppose. it requires the shelter of a wall; but near the sea it is as hardy as Laurus nobilis. Similar conditions apply to another Chilian shrub—Solanum crispum—whereof there are at least two different forms. One of these, the type, flowers in June and July, and ceases to do so as the fruits form; but a variety which I received from Glasnevin many years ago, is barren, and continues in profuse bloom until stopped by autumnal frosts. The individual flowers are smaller than those of the type, but richer in colour.

With all due respect for *M. W.'s* admiration of Coriaria japonica (p. 448, Vol. LXXXIII), I submit that C. terminalis is a far more desirable plant. I mean the Sikkimense form, with yellow fruits, whereof the figure in *Bot. Mag.*, t. 8,525, gives a very poor impression of the beauty of its shining, translucent berries. Mr. Wilson introduced a black-fruited variety from western Sechuan, which I have not seen, and do not want to. C. terminalis justifies its specific title by never failing to bear a raceme of its attractive fruits at the end of every branch and side-shoot. I have read or heard that the berries are poisonous; but robins thrive only too plentifully on them, nor did a schoolboy grandson of mine suffer any ill from surreptitiously devouring a long bunch of them. To enable this plant to display its arching stems to advantage, it should be set on a bank or sharp slope.

What a wayward genus is Roscoea, delaying until well on in June before manifesting any sign of life above ground, and each year causing anxiety lest the plants have come to grief. Then suddenly, up rush sturdy green spikes in desperate hurry to flower, which they accomplish within the space of a few days—the roseate R. Humeana (a gift from the lamented Mr. H. J. Elwes) first, closely followed by the taller sulphur-coloured R. cautleoides. R. purpurea (*Bot. Mag.*, t. 4,630) delays until somewhat later, but, unlike the others, tends to form wide clumps with plentiful blossom. We grow a handsome species under the name of R. capitata, for which I find no sanction in the Kew *Hand List*, so it is probably a misnomer. Growing eighteen inches high, it bears dark violet blossoms in August. Having referred to the Kew *Hand List*, may a perplexed student grumble ineffectively about the arbitrary arrangement of Herbaceous Plants and Rock Garden Plants in separate books.

Tropaeolum polyphyllum spreads very freely, but nobody will grudge it ample space, for its long wreaths of frosted, silvery foliage and pale-golden flowers. Moreover, it is a kindly neighbour for herbs of less robust growth, because so soon as its generous display is past it disappears swiftly.

Dracocephalum Isabellae, a choice newcomer from the far east, asks for no more than modest elbow room, and gives the best effect when three or four are set in a group. A notable addition to our June-flowering herbs, it sends up a cluster of stems about twelve inches high with dense, one-sided spikes of rich violet-blue flowers. Young plants of this species should not be set in the open until spring, being prone to resent our sloppy winters by damping off.

A newcomer is flowering here, behind a label inscribed Rudbeckia flava. I know not whence it came, and as there is no such species recorded in the Kew *Hand List*, it is probably of recent introduction. The lanceolate leaves are very hairy and the flowers, borne solitary on fifteen-inch stems, bear a general resemblance to those of R. speciosa—clear yellow rays round a very dark conical centre. It is a really good thing, and flowers a full month before R. speciosa.

Rhododendron Griersonianum has not yet flowered with me, although healthy plants have passed three winters in the open without injury. In the Rhododendron house of Edinburgh Botanic Garden it was a magnificent sight at midsummer, set freely with shapely trusses of large flowers of a colour difficult to describe—richer than orange, softer than scarlet, stronger than rose. It should come to be reckoned among the choicest species. *Herbert Maxwell. Monreith.*

MESEMBRYANTHEMUM.

(*Continued from p.* 419, Vol. LXXXIII.)

SPHALMANTHUS, N. E. Br.

Succulent perennials, papulose on all the green parts. Rootstock tuberous or fleshy. Stems prostrate, herbaceous, or becoming woody at the base. Leaves alternate or opposite, or those on the flowering part alternate and the remainder opposite, sessile, semi-terete. Flowers solitary and terminal, or by the growth of an axillary branch or branches, 2–6 to a stem and becoming one by one lateral and opposite the leaves, or in lax terminal leafy or bracteate cymes, pedicellate. Calyx produced above its union with the ovary into a short tube, or subequally 5-lobed nearly down to the ovary; lobes with leaf-like tips. Petals numerous, in 3 or more series, united into a short tube at the base, passing into staminodes. Stamens numerous, arising from the tube of the corolla, erect, in several series. Style none; stigmas 4–5. Ovary partly superior, or inferior, 5-celled with axile placentas. Capsule half superior, the upper part very convex or dome-like, with much raised sutures, when young smooth and transparent so that the seeds within it may be seen in the type (but perhaps not in all) species, with usually 5, sometimes 4, valves and cells; valves widely spreading or recurved; expanding-keels, contiguous, forming a central keel, united at the base to the septa and so forming the cell-partitions, with broad, erect and flap-like marginal wings unfolded upon them; cells open without cell-wings or tubercles. Seeds compressed, rounded or horse-shoe-shaped in outline, minutely tuberculate (? always).—N. E. Br. in *The Gardeners' Chronicle*, 1925, Vol. LXXVIII, p. 433.

Species 13 or more, natives of South Africa. The type is S. canaliculatus, N. E. Br.

The name is derived from the Greek, *sphalma*, a mistake, and *anthos*, a flower, because these plants have mistakenly been placed in the genus Mesembryanthemum.

Sphalmanthus differs from Cryophytum by its perennial habit and tuberous rootstock, and from Aridaria by its tuberous rootstock, prostrate stems, more papulose leaves, which are mostly alternate on the flowering part, and rather different flowers, otherwise the general structure of these three genera is similar. I do not know if the unripe fruit of all the species is transparent so that the seeds may be seen within it, as it is in S. canaliculatus, but if it is, this very remarkable character will be an additional distinction.

As the species of this genus are seldom cultivated, I am not able to make a workable key to them, and may only indicate them by the colour of their flowers, which is variable in some species, and as I have not a living flower of the type species, my sketch (Fig. 8) of the floral structure is made from one of S. fragilis.

Petals entirely white or whitish.

1, S. canaliculatus, 2, S, salmoneus, and see **10, S. commutatus.**

Petals white at the upper part, purple at the base.

6, S. oculatus.

Petals pink or purplish, or salmon-coloured.

1, S. canaliculatus, 2, S. salmoneus, 3, S. tenuiflorus, 5, S. carneus, 8, S. laxus.

Petals straw-yellow, or yellowish-buff.

10, S. commutatus: 7, S. fragilis, 9, S. Rabei.

Petals yellow.

11, S. longispinulus: 12, S. caudatus: 13, S. grossus.

Petals green.

4, S. viridiflorus.

1. S. canaliculatus, N. E. Br.—Stems prostrate, sometimes rooting at the nodes, and up to two feet or more long, ¾–1 line thick, with internodes ½–2 inches long, terete, papulose, producing short leafy branchlets or short or elongated flowering branchlets, but commonly bearing the flowers in a terminal cyme. Leaves 4–8 lines long, about 1 line thick, semi-terete, channelled on the upper side, not at all united at the base, sub-acute, glabrous, papulose; crowded on the short branchlets, distant on the main stems. Flowers in terminal cymes 2½–9 inches across, or solitary, or scattered along the branches opposite the leaves, or axillary. Pedicels 2–7 lines long. Calyx more coarsely papulose on the lower part than on other parts of the plant; ovary-part 3–4 lines in diameter; lobes 3–6 lines long, two of them leafy from an ovate base, the others with broad, membranous margins and shorter points. Petals 6–8 lines long, ⅓ line broad, linear, obtuse, varying from white to pink. Stamens about two lines long. Stigmas usually 5, sometimes 4, erect, 1½–2 lines long, filiform. Capsule 2½–3 lines in diameter when closed, and 4–5 lines when expanded, entirely pale ochreus within, otherwise as described for the genus, and before it is ripe smooth and transparent, so that the seeds may be seen within it, as indicated by Haworth.

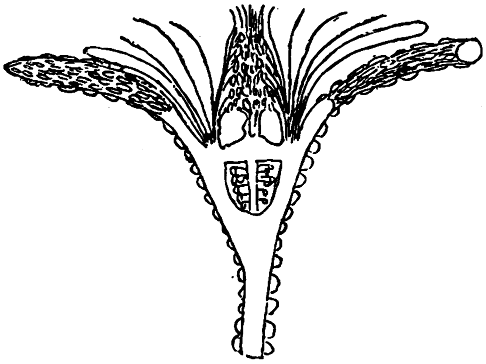


FIG. 8.—SPHALMANTHUS FRAGILIS.
Diagram of flower-structure.

S. calycinus, L. Bolus in *Sth. Afr. Gardening*, 1927, p. 398 and 399, f. 21a, a very poor figure without a description. M. canaliculatum, Haw. *Obs.*, p. 218 (1795), *Misc. Nat.*, p. 57, *Synop.*, p. 253, and *Rev.*, p. 177. M. rapaceum, Jacq. *Frag.*, p. 43, t. 52, f. 1. (1804 or later) M. calycinum, Eckl. and Zey. *Enum. Pl.*, p. 319 (1835), not of Haworth. M. salmoneum, Salm Dyck, *Mes.* § 56, f. 2. Sond. in *Fl. Cap.* Vol. II, p. 451; Berger *Mes. und Port.*, p. 71, not of Haworth. M. longispinulum, Sond., *Fl. Cap.*, Vol. II, p. 449 (excluding the words "flowers pale yellow," and the reference to Salm Dyck, both of these belonging to S. commutatus, N. E. Br.) not of Haworth.

At Kew there is an excellent drawing of the type of M. canaliculatum, Haw., from which I find that the plant Salm Dyck has figured as being M. canaliculatum, and that all subsequent authors have mistaken for that species, is distinct from it. I also find that the plant figured by Salm Dyck as being M. salmoneum is really the same as the true M. canaliculatum, Haw. From which I think it most probable that the two plants figured by Salm Dyck really represent the two species M. canaliculatum and M. salmoneum, but that the names in some way were transposed when they were figured. There is no figure of the type of M. salmoneum, but Salm Dyck's figure of M. canaliculatum agrees fairly with Haworth's description of M. salmoneum, and differs from M. canaliculatum by its Pear-shaped, not subglobose ovary. *N. E. Brown.*

(*To be continued.*)

A NEW CHRYSANTHEMUM PEST.

At the end of August, 1927, I received from Scotland two samples of Chrysanthemum leaves of an unknown variety, which were infested with a leaf-mining maggot. The leaves in question were heavily infested with maggots, and it was noticed that the damage was somewhat different to that usually associated with the common leaf-mining Chrysanthemum fly, Phytomyza chrysanthemi. The maggot was not working in tunnels, but in large "blobs." In some cases the blobs had run together, and the whole leaf was affected. After keeping them for a few days in a glass jar, most of the maggots left the decaying leaves and began to crawl round the sides of the jar. A fresh supply of leaves was obtained and put into the jar, and most of the maggots entered the new leaves and began to feed again, producing the same kind of damage, while the maggots that did not enter the fresh leaves appeared to be fully fed, and within a very short period pupated at the bottom of the jar. In due course, all the maggots left the leaves and pupated.

In appearance, the fully-fed maggot resembled that of the Celery fly, Acidia heraclei; the pupa stage, too, was similar. The specimens were placed in damp soil and kept at ordinary room temperature, except a dozen or so, which were kept under warmer conditions in the hope that they could be induced to emerge last autumn and enable me to get their identification established. This hope was doomed to disappointment, because all the pupae died. Success, however, followed with those kept at ordinary room temperature, and the adults began to emerge towards the end of April, and emergence has now (June 18) become general).

Specimens were submitted to C. A. Cheetham, Esq., who informs me that he is of the opinion that they are Trypeta artemisiae. I understand that T. artemisae feeds on several wild plants and is very often found on the Burdock, Arctium majus. From its specific name, it would appear to feed on the Common Wormwood and Mugwort, Artemisia Absinthium and A. vulgaris, respectively, but I have not observed it doing so. I do not know if there is any previous record of T. artemisiae attacking cultivated Chrysanthemums; in any case, it does not commonly do so, perhaps because the fly is not plentiful enough to need another host, apart from its usual wild ones.

I am indebted to C. A. Cheetham, Esq., Yorkshire, for examining the specimens sent to him. *Somerset.*

GARDEN MANURES FOR JULY.

Probably at no time since the 'forties and following years of last century, when the teaching of Liebig dominated the whole field of scientific cultivation, has there been such an intensive publicity campaign in the use of artificial fertilisers. Then, as now, the use of these fertilisers was based on the scientific hypothesis that the three main classes of substances which matter are nitrogenous, phosphatic, and potassic, and that each of the three has its distinct part to play.

The theory behind the eight-plot test, as it was called, was to ascertain the action of each class of fertiliser singly, of two in combination, and finally of all three together; while, for particular crops and special purposes, the application of a manure containing only one essential plant food may have advantages; there is little doubt that the most intensive feeding of crops may only be attained by giving the proper balance of chemical constituents, and the tendency to-day is not so much to demonstrate the effect of various chemicals individually, as to explore the effect of all three of the main classes in varied proportions. Some recent experiments have shown that applications of nitrogenous manures may be pushed to an almost unheard of degree, provided that the potassic and phosphatic elements are adequately supplied at the same time. In other words, this may be said to be the age of complete manures, and as a consequence new fertilisers containing the three essential elements in various combinations are being constantly offered to growers.

Where complete manures are needed, it is naturally much better that the mixing should be done in well equipped establishments, rather than by the user, as the purchasing of three separate substances and separate handling adds to the cost, and effective mixing is not an easy matter. Moreover, the argument that all crops do not need the same elements in the same degree, is met by the fact that modern complete manures may be graded in their chemical constituents, and thus be made applicable for different crops under different conditions.

For example, nitrophoska, the newly-introduced complete manure, may be obtained in three grades, as follow :—Grade I, containing 17 per cent nitrogen, 12·7 per cent. phosphoric acid, 21·1 per cent potash, total value, 50·8 per cent; Grade II, containing 14·7 per cent. nitrogen, 11 per cent. phosphoric acid, 25·8 per cent. potash, total value 51·5 per cent.; Grade III, containing 15·6 per cent. nitrogen, 32 per cent. phosphoric acid, 16 per cent. potash, total value, 63·6 per cent. The real advantage with many of these newer fertilisers, such as urea, nitrochalk, nitrate of ammonia and nitrophoska, is their quick-acting nature, making them specially suitable for application during the period of active growth.

For the supply of phosphoric acid, finely ground phosphatic rock is being used to an increasing extent by many growers in place of superphosphate, and its apparent cheapness makes it attractive, the unit cost being about 10d. for rock phosphate against 1s. 10d. for superphosphate. Complete success depends largely on soil and climatic conditions, but generally, unless very early application is practised, it would be preferable to provide at least a portion of the phosphate required, in the form of superphosphate, because of its known quicker availability. The fact that the importation of phosphatic rock from northern Africa reached the 5,000,000 ton mark in 1927 shows that there has been considerable growth in the use of this mineral manure during recent years. *W. Auton.*

HOME CORRESPONDENCE.

Ward's Pink Martagon Lily.—Mr. F. Kingdon Ward's "Pink Martagon" Lily, which excited a good deal of interest last year, when a plant from Nymans received an Award of Merit, promises to be a fine garden plant. It seems to spread rapidly by means of stolons, and one of the spikes here has no fewer than thirty-seven flower-buds on it, in spite of the fact that it was raised from seeds sown only in 1925. It is still apparently uncertain whether the plant is L. taliense or L. Duchartrei var. Wardii. *H. D. McLaren, Bodnant, Taly-Cafn, N. Wales.*

Harding Cup for Paeonies.—Now that the third Mrs. Edward Harding Cup for Paeonies has been awarded it seems desirable that the R.H.S. should state definitely whether the Cup is awarded for double or single Paeonies, assuming the Council may be considering the offer of another Cup. When the Harding Cup was first offered and awarded I was unfortunate in staging six double varieties, while my opponent had three doubles and three singles. How singles could beat doubles has always been an enigma to me. There are so many experts acting as judges at the R.H.S. that I cannot imagine such an error could take place. If I had known that single varieties ranked higher than doubles I should have added them to my exhibit. *M. E. Mills, The Gardens, Coombe House, Croydon.*

Prunus Pissardii Fruiting.—Some few months ago records were published in your correspondence columns—mine amongst them—of Prunus Pissardii fruiting. It may therefore interest your readers to learn that during a recent visit to Wisley Gardens I noticed that the large tree near the Rose arch is bearing quite a number of fruits. On examining one of these, I found they were already in the process of stoning, so they should be carried by the tree until ripe. *A. Donald Blaxill.*

SOCIETIES.

CHELTENHAM FLORAL FÊTE.

Without a doubt, the new Cheltenham Floral Fêtes show a marked improvement from year to year, and promise to become as large, interesting and popular as those that were famous in the old days. By the kindness of the Corporation the show this year was held in Pitteville Park, on the opposite side of the town from the Montpelier Gardens, on June 27 and 28. This is a larger open space than the latter and admits of more room for the flower show tents, and also accommodation for some side shows. Mr. Cassidy, the Secretary of the show, is a tremendous worker, and a great deal of the success of these revivals is due to him. Of course, everyone missed the late Mr. John Cypher, but the Cypher family lends every help possible, and Mr. W. Cypher is the Chairman of Committee this year.

The show was a fine one and occupied four large tents. Competition was good, and especially so in the table decoration and other floral classes, where Roses, Sweet Peas and hardy flowers were displayed in excellent condition, and the trade exhibits were, as a whole, of far better quality than last season.

The Fête Committee is fortunate in having numerous handsome trophies at its disposal, and these have been obtained largely by the Cheltenham Chamber of Commerce, which regards the show as one of the best means of advertising the beautiful town of Cheltenham.

Groups and Alpine Gardens.

The new John Cypher Memorial Cup, offered as a perpetual Challenge Cup for the premier exhibit in the show, was awarded to Mr. Elisha J. Hicks for a fine display of superb Roses; his exhibit also won the first prize in the class for a display of Roses arranged on a space twenty feet by four feet, and it contained beautiful pillars and sheaves of Betty Uprichard, Shot Silk, Lady Hillingdon, Emma Wright, Mabel Morse, C. E. Shea, Admiration and Clovelly. With the same exhibit, Mr. Hicks won the Grocers' Association Cup, offered for the best display of Roses in the show, so "t'was a famous victory."

It is no detraction from Mr. Hick's display to state that the John Cypher Memorial Cup would have gone to Messrs. James Cypher and Son, had not the firm decided that for this year, at least, they should be omitted from any consideration for it. The Cypher group of flowering and foliage plants was a fine one, and the arrangement very beautiful, the only thing lacking being a little more colour in the extreme background. In view of the expressed wish of the firm, the judges had no option but to award their group the Cavendish Cup, which they also won in 1924.

The Drapers' Cup was won by Mr. W. H. Walters, Colesbourne, his pleasing group of many interesting and rare hardy plants being considered the best of the hardy plant displays in the show; it contained Lilium Martagon in variety, Spiraeas, Meconopsis, Primulas, Asters, Roscoea alpinum, Cypripedium spectabile, Rodgersias and many other fine things.

The Cheltenham Master Builders' Cup, offered for the best display of Sweet Peas in the show, was won by Mr. J. Stevenson, Wimborne, with the group that secured him the premier award in the class for an exhibit of Sweet Peas arranged on a space of twenty feet by four feet six inches; Mr. Stevenson's exhibit lacked something in artistic effect, but his flowers were very fine, especially those of Nina, Charming, Humour, Magnet, Gleneagles and Venus.

Mr. C. Wall, Bath, was awarded the Sunningend Challenge Cup, offered for the best exhibit of Carnations in the show, and he also won the Cup with a first prize exhibit in the class for a display of Carnations arranged on a space fifteen feet by four feet six inches. He had good blooms of Laddie, White Pearl, Marion Wilson and Gloriosus.

Messrs. C. Engelmann, Ltd., were second, for a display of Carnations, and Mr. A. Young third. Mr. C. Wall, was second for a display of Sweet Peas; while Messrs. English and Co. and Mr. H. Beckett were second and third respectively for a display of Roses.

Four fine groups were staged in the class for a group of hardy perennial plants and cut flowers arranged on a ground space twenty-five feet by six feet, and here the first prize—a Cup offered by the Corporation of Cheltenham—was won by Messrs. W. Artindale and Son, Sheffield, with a very bright exhibit of well-grown Delphiniums Nora Ferguson and Mrs. A. J. Wilson; Eremurus robustus and E. Bungei; Lupins, Campanulas, Lilium Martagon, Paeonies and Oriental and Iceland Poppies; second, Mr. W. Sydenham, Melbourne; third, Messrs. Bowell and Skarratt.

The best rock garden, arranged on a table space twenty-five feet by five feet, was exhibited by Messrs. Bowell and Skarratt, whose contribution was a charming one and included a little pool containing fully opened Water Lilies, groups of Primula Bulleyana, Cypripedium Calceolus, C. spectabile, Saxifraga lingulata, dwarf Conifers, Sedums, Violas, etc.; second, Messrs. Maxwell and Beale, who had pretty groups of Primula Bulleyana, P. Ashmore, P. anisodora, Lychnis Arkwrightii in grand form, and Mimulus Bartoniana and M. Bismarck; third, Mr. W. H. Walters.

Amateurs' Classes.

The Gardeners' Chronicle Silver-gilt Medal for the best amateur's exhibit in the show was won by Mrs. E. V. Butler (gr. Mr. A. J. Collins), Tewkesbury, with the group of plants with which she won first place in the Amateurs' group class; this exhibit was well arranged, and included some fine plants of Dracaena Victoria, Clerodendron fallax, Liliums, Nandina domestica, Codiaeums, drooping Fuchsias and Francoa ramosa; second, Colonel Harford (gr. Mr. F. Clift), The Grange, Cheltenham.

Mrs. Butler was also first prize winner in the classes for six stove and greenhouse plants, and for six Ferns.

Mr. E. J. Coates, Shrivenham, led for a display of hardy flowers arranged on a space twelve feet by four feet, and showed Delphiniums, Campanulas, Irises and Geums in good style; second, Mrs. Mitchell (gr. Mr. A. W. Neal), Postlip; third, the Misses Fawkes.

The best six vases of Delphiniums came from Mr. W. E. Blakeway.

The Abol Cup, offered for the best amateur's exhibit of cut flowers, was won by Mrs. C. W. Blakeway, Droitwich; second, Mr. T. C. Wall, Charlton Wells.

Roses were well shown by Miss Hopcroft (gr. Mr. J. Greder); Mr. E. J. Coates, Mr. F. Trinder, Churchdown; Mr. B. A. Baird, and Miss Robinson (gr. Mr. M. Smith), Castello; all of whom won first prizes in close competition.

Sir Randolf Baker, Bt. (gr. Mr. Usher), Ranston, Blandford, led for a dozen vases of Sweet Peas, showing fine blooms of Sunkist, Magnet, Charming and Purple Monarch. In a local class for a similar number of vases, the premier award was secured by Mr. H. Jarratt Thorpe, Hucclecote, Gloucester, who had fine examples of Goldcrest, Miss California and Valentine. The same competitor also had the best dozen vases of Sweet Peas, in a class open to a limited geographical district.

Decorative Classes.

The classes for floral arrangements provided a large and interesting section of the show, and handsome prizes were offered. There were sixteen entries in the class where any flowers except Sweet Peas and Roses were allowed in the decoration of a dinner table. First prize—Silver Bowl, value fifteen guineas, was won by Miss G. Bould, Cheltenham, with a delightful and dainty design in Sweet Sultans, Vanda teres, Francoa and a few pale yellow Aquilegias; second, Mrs. W. Head, Cherry Garth, Bishops Clieve, also with a very dainty arrangement of Schizanthuses, Miltonias and Violas; third, Mrs. G. H. Grillett, with Oncidium and Gloriosa flowers, and small Codiaeum leaves.

Miss Butler showed the best round-table decoration of Sweet Peas, using mauve and mauvy-blue flowers; second, Mrs. E. L. Jones, with mauve flowers; third, Miss Newsham, Congleton.

Mrs. A. Yates, Droitwich, led for a table decoration in Roses, with a beautiful lot of yellow flowers; second, Miss G. Bould, with

Madame Butterfly; third, Miss Newsham, with yellow blooms.

In a local class for a table decoration, Mrs. D. Read led with a design in GloriosaRothschildiana and Aquilegias; second, Miss G. Bould, with mauve Delphiniums and pink Carnations; third, Miss Butler, with three beautiful vases of yellow and blue Spanish Irises.

Medal Awards.

Large Gold.—To Messrs. James Cypher and Son; Messrs. W. Hopwood and Son and Mr. W. Wells, junr.

Gold.—To Messrs. J. Kelway and Son; Messrs. Blackmore and Langdon; Mr. W. H. Walters and Messrs. W. H. Simpson and Son.

Silver-gilt. — To Messrs. Toogood, Mrs. Wheeler, Mr. G. Prince and Messrs. Fuller and Maglam.

Silver.—To Messrs. Bowell and Skarratt, Messrs. F. Rich and Co., Messrs. Hewitt, Mr. Case; Messrs. Scott and Merriott; Mr. Clarke, Mr. J. Stevenson, Mr. Covill, Messrs. Rich and Cooling; Messrs. A. White and Son and Mr. A. Barnfield.

NATIONAL ROSE.

June 29 and 30.—The summer Rose Show, held on these dates, this year in the grounds of the Royal Hospital, Chelsea, was yet another triumph for the National Rose Society. The show was opened at 12 noon on the Friday, and the tents were soon packed with visitors, so much so that it was extremely difficult to view the exhibits, which, despite inclement growing conditions, were in the majority of instances, very creditable.

While the judging was in progress, Her Majesty The Queen visited the show and found much to admire, while another distinguished visitor was H.R.H. Princess Mary, Viscountess Lascelles.

The trade was well represented, especially in the classes for groups of various sizes, which formed one of the chief attractions of the exhibition, while the amateurs were equally so well represented, the competititon for the various trophies being, in several instances, very keen.

The competition for the Nickerson Prize was especially good. The conditions required not more than thirty-six stems of any new Rose, of British or American origin, sent out between June 1, 1921, and December 31, 1926, staged in a fan-shaped stand. An exhibitor was allowed to make three exhibits if he wished, but of distinct varieties. In all there were fourteen exhibits, and the Nickerson Cup was awarded to Messrs. B. R. Cant and Sons for a stand of the beautiful Lady Roundway.

An Edward Mawley Memorial Medal was offered for the best bloom in each of the two sections. In the nurserymen's classes the medal bloom was a magnificent specimen of F. J. Harrison, shown by Messrs. F. Cant and Co., while an equally good example of Florence Forrester won the medal in the Amateurs' classes for Dr. R. C. Turnbull, Colchester.

New Roses.

Many new Roses were submitted for awards, but comparatively few were sufficiently distinct or beautiful to arrest special attention. These varieties were exhibited in a screened off portion at one end of the great tent and, as usual, crowds of visitors flocked to see the novelties. One Gold Medal and seven Certificates of Merit were granted.

Gold Medal.

Chaplin's Pink Climber.—This climbing hybrid Wichuriana variety was splendidly shown, the exhibitor staging six pillars composed of large handsome clusters of rich, lively pink colour, each bloom with a small central cluster of golden stamens and anthers. Shown and raised by Messrs. Chaplin Brothers.

Certificates of Merit.

Souvenir of the Old Rose Garden.—An extraordinarily vigorous H.T. variety with handsome leafage and very big, broad-petalled flowers of a lovely shade of pink. It is sweetly fragrant and the only fault we could find was a certain pale streakiness on the outer petals. Shown by Messrs. Benjamin R. Cant and Sons, Ltd.

Advocate.—A handsome, richly-scented crimson Rose of fine form; it has broad petals, and although not densely double, is of good size. Shown by Messrs. Alex. Dickson and Sons.

Portadown.—A particularly beautiful Rose in form and colour, broad-petalled and making a lovely and effective bud. The colour is clear cherry-crimson; slightly fragrant. Shown by Messrs. Samuel McGredy and Son.

Swansdown.—This is a very clean ivory-white H.T. variety of lovely broad-petalled form and carrying shapely buds on long stems. Foliage good and dark; slightly fragrant. Shown by Messrs. Alex. Dickson and Sons.

Daily Sketch.—A large, vivid orange variety with gold-shaded base to the broad petals. There are two or three rows of petals and a cluster of deep gold stamens; very fair scent. Foliage dark. Shown by Messrs. Benjamin R. Cant and Sons.

Miss Nellie Perkins.—A very distinct and attractive H.T. Rose of pretty imbricating form. The colour is creamy, with an orange buff glow that shades up on the outer side of the inner petals; fair scent; dark foliage.—Shown by Messrs. Alex. Dickson and Sons.

Waltham Cross.—A brilliant velvety-scarlet, single H.T. variety that appears to be an improvement on K. of K. It has a little fragrance and promises to be useful for bedding purposes. Shown by Messrs. Chaplin Brothers.

Other Novelties.

Hilda is a strong-growing H.T. variety of good form and size; the colour is deep pink, but pales towards the edges of the petals, suggesting that it needs kindly weather to retain its colour. Shown by Messrs. Benjamin Cant and Co.

Lady Leslie is a large H.T. Rose that opens well and should make a good exhibition sort. The colour is bright rose-red, the outer petals being the rosiest and the inner ones the brightest red. Shown by Messrs. Samuel McGredy and Son. James Rea, deep, dark pink, also shown by the Messrs. Samuel McGredy, is a fine Rose.

Lily Kemp is a charming bedding H.T. variety that has a couple of rows of broad petals and a few prettily crumpled inner petals, and golden anthers. The colour is light orange-vermilion, with gold shading at the base of the inner petals. Very fragrant and delightful in the bud stage, when an intense orange colour is displayed. Shown by Messrs. Henry Morse and Sons.

A brilliant H.T. variety named Royal Scot is of deep gold, rich orange-vermilion colour. This should be a good bedding Rose, as we understand it is unusually vigorous in growth and free-flowering. The deep orange colour is shown as a wide margin to the gold petals. Shown by Messrs. Dobbie and Co. The same firm showed Duchess of Atholl, a variety that is doing well at Kew.

Jarvis Brook, a dwarf H.T. of brilliant orange and salmon-pink colouring, is a promising variety for bedding; it is handsome in the bud stage and the flowers have rather large foliar calyces. Shown by Messrs. Stuart Low and Co. Brownie, shown by Messrs. Wheatcroft Brothers, is orange-coloured, and very pretty in the bud stage.

Nurserymen's Section.

As in previous years, a large tent was confined to this section, and in several classes the competition was keen, but in others the blooms were not in first-class condition. However, the general effect was very fine, and the exhibits in the competition for the Championship Trophy were imposing in their arrangement and in all cases very admirable.

Messrs. Chaplin Brothers, Ltd., Waltham Cross, Herts., won the Trophy, and deservedly so, for their exhibit was beautiful in arrangement, while in most instances the blooms were in fine condition. In the centre they had three giant pillars of Chaplin's Pink Climber, and in the background such good climbing sorts as Paul's Scarlet Climber and Erecta, while there were smaller pillars of Lady Sydney Eardley Wilmot, a richly-coloured and scented sort; Royal Scarlet, an attractive scarlet variety; Betty Uprichard, Ellen Terry, Mrs. H. Morse, Golden Emblem and Mrs. Tresham Gilbey; those marking the front corners of the group were Waltham Cross and Lady Inchiquin, both in excellent condition. The ground work of this exhibit was composed of masses of Mars, Fascination, Emma Wright, Pearl White, a variety of recent introduction; Florence Izzard, Hortulanus Budde, a very popular sort; Los Angeles, Mrs. J. Hudson and Captain Ronald Clerk, to mention but a few of the outstanding.

Mr. Elisha J. Hicks, Hurst, Berks., was second with a spectacular bank of Roses, the background being composed of numerous climbing sorts. To the front there were pillars of Angele Pernet, Shot Silk, a variety that was much in evidence; Pax, Clovely, Emma Wright and Betty Uprichard, another very popular Rose; while there were large vases of such beautiful varieties as Mrs. H. Stevens, Covent Garden, Mabel Morse, the most prominent yellow Rose in the tent; Mrs. E. Hicks. Dainty Bess, Richmond, Cuba, the famous Frau Karl Druschki and Golden Emblem.

Messrs. John Waterer, Sons and Crisp, Ltd., Twyford, Berks., were placed third, but their group, although arranged with taste, was rather thin. There were large baskets of Violet Stevenson, an attractive novelty with medium-sized, golden blooms, and Lamia; while the pillars were of Isobel, Lady Pirrie, Paul's Scarlet Climber and Madame Abel Chatenay. Other fine varieties in this group were Gwyneth Jones, Mrs. H. Morse, Hortulanus Budde, Hawlmark Crimson and Lady Inchiquin, in exceptional condition.

In the next class, for representative groups of cut Roses, covering a space twenty-four feet by four feet, Mr. George Prince, Longworth, Berks., was the successful exhibitor with a fine bank of blooms. He had pillars of Paul's Scarlet Climber, Gwynne Nash, Albert Chandler and I. Zingari in the background, and lovely baskets of Gwyneth Jones, Etoile de Hollande, deep velvety crimson; Emma Wright and Angele Pernet, while other outstanding varieties which he displayed were Mrs. Courtney Page, Golden Ophelia, Mabel Morse and Mrs. Herbert Stevens, white. The second prize was awarded to the Dowty's Nursery, Wokingham, Berks., who showed fine examples of Paul's Scarlet Climber, Mrs. Herbert Stevens and Betty Uprichard, together with Hortulanus Budde, Mabel Morse, Shot Silk, Lady Inchiquin and Hadley; Messrs. D. Prior and Son, Ltd., Colchester, were placed third, their most notable varieties being Arthur Cook, Ophelia, Etoile de Hollande and Betty Uprichard.

Messrs. Jarman and Co., Chard, Somerset, arranged the best group in the third class, Hortulanus Budde, Mrs. Henry Morse and Mabel Morse being the most striking sorts, while we also noticed choice examples of Shot Silk, Ophelia and Lady Inchiquin. Mr. J. Mattock, Headington, Oxford, was second, his group having a fine basket of Toison d'Or in the centre, and on either side such fine sorts as Padre, Shot Silk, Mrs. Tresham Gilbey and Madame E. Herriot.

In the class for seven baskets of cut Roses, seven distinct varieties and not more than thirty-six stems of each, Messrs. Alex. Dickson and Sons, Marks Tey, Essex, received the first award for fine examples of Shot Silk, Emily Dodd, Betty Uprichard, exceptionally good; May Wettern, Lady Inchiquin, Lady Worthington Evans and Mrs. Henry Morse; while the best of Mr. Henry Drew's second prize collection were Admiration and F. J. Harrison.

The Dowty's Nursery was first in the next class with lovely blooms of Lady Ashtown, Souvenir Claudius Pernet and Lady Inchiquin; and in the one for three baskets of Polyantha Roses, Messrs. W. Cutbush and Son, Barnet, Herts., were first with lovely sprays of Frank Leddy, Locarno and the brilliant Salmon Queen.

In the section for exhibition Roses in boxes, Messrs. F. Cant and Co., Colchester, had the best collection of forty-eight blooms, among which the finest were of George Dickson, Florence Pemberton, The General, Kathleen Butler, Golden Emblem, F. J. Harrison and Richmond, but the exhibits in this section were not up to standard; Messrs. B. R. Cant and Sons were second and showed good blooms of Lady Forteviot, Souvenir of the Old Rose Garden, Hortulanus Budde, Nellie Parker and Mrs. Bertram Walker.

In the class for twenty-four blooms, the entries were more numerous, the first prize going to Messrs. Jarman and Co., whose finest blooms were Mrs. George Marriott, Alex. Emily, Mabel Morse and Earl Haig; while the best in Mr. Elisha J. Hicks' second prize collection were Mrs. H. Winnett, Patience and Premier.

For eighteen blooms, distinct varieties, Tea or Noisette, Messrs. G. Longley and Sons, Rainham, Kent, received the first award, Nita Weldon, Lady Plymouth, Mrs. H. Stevens and Dr. F. Guyon being amongst their best blooms; while for twelve blooms of new Roses distributed since January 1, 1924, Messrs. B. R. Cant and Sons, Colchester, and Messrs. F. Cant and Co. shared the first place. The former firm showed fine examples of Mrs. Beatty, Shot Silk, Bedford Crimson and Mrs. R. Barraclough; while Messrs. F. Cant and Co. showed F. J. Harrison, which was awarded a Silver-gilt Medal as the best Rose exhibited by a nurseryman; and several other good sorts.

Mr. George Prince showed the best twelve blooms of a new Rose distributed since January 1, 1924, his variety being the lovely yellow R. E. West; while Messrs. B. R. Cant and Sons, the only other exhibitors, showed Lady Forteviot.

In class seven, for thirty distinct varieties, Messrs. A. Warner and Son, Boxted, Colchester, were first with a fine collection, which included Joyous Cavalier, Clarice Goodacre, Rose Marie, Lamia, Hortulanus Budde, Chastity, Lady Roundway, Emma Wright, F. J. Harrison, Golden Gleam and Sunstar; Mr. George Lilley, Cippenham, Slough, was second, his finest blooms being of Golden Gleam, Hortulanus Budde, Los Angeles, Christine and Lady Roundway.

Messrs. G. Longley and Sons showed the best basket of fourteen blooms of an H.T. Rose, their variety being the glowing red The General; Messrs. Jarman and Co., who were placed second, showed the lovely pink Mrs. H. Bowles.

In class fourteen the exhibits were poor in quality, Mr. George Prince being the first prize winner, while in the next class, Mr. J. Mattock was first with a basket of Maud Cuming, and Messrs. G. Longley second, with Marcia Stanhope.

Messrs. Alex. Dickson and Sons led in the class for one basket of a decorative Rose not yet in commerce, with grand flowers of the brilliant and fragrant Flamingo; Messrs. J. H. Pemberton, second, with Fortuna, and Mr. George Prince third, with Duchess of Marlborough.

Amateurs' Classes.

The exhibition and decorative Roses in the Amateur section fully maintained the high standard of former summer shows, and if the Tea and Noisette varieties were not equal to those of last year, the fault was that of the weather, for they evidenced signs of expert cultivation, although the outer petals were often sadly bruised and stained.

The Champion Trophy, offered for a representative group of cut Roses, arranged on a space not exceeding six feet by four feet, was won by J. N. Hart, Esq., Potters Bar, with a very effective display. His chief varieties were Lemon Pillar, Norman Lambert, Penelope, J. B. Clark and Paul's Scarlet Climber. G. W. Burgess, Esq., Tonbridge, who was second in this important and well contested class, had beautiful blooms of Mrs. G. W. Burgess, A. Emslie and W. C. Clark. The first prize exhibit of a group on a space measuring four square feet was of very high quality, and well worthy of the first prize awarded to G. Marriott, Esq., Carlton, who had beautiful pillars of Mabel Morse, Emma Wright and Mrs. Henry Morse, with generous vases of Betty Uprichard, Shot Silk and The Queen Alexandra Rose. H. Robins, Esq., Ingatestone, Essex, was second.

The Amateurs' Baskets of Roses were also of very good quality, with very good examples of Lady Pirrie and Golden Emblem. G. Marriott, Esq., was first in the class for two baskets, and Dr. R. C. Turnbull, Soveralls, Colchester, was a good second, with Shot Silk and Betty Uprichard. W. E. Moore, Esq., was first with one basket of eighteen stems, and W. P. Pankridge, Esq., had the best with twelve stems. A. N. Rogers, Esq., showed an especially good basket of Roses grown within a radius of five miles of Charing Cross, and W. P. Pankridge, Esq., had the best basket of eighteen stems in the class for amateurs who grow their own Roses. L. P. Roberts, Esq., Dorking, was first with a basket of not more than twelve stems, and R. H. Hall, Esq., was the most successful of those who had not previously won a first prize.

The only exhibitor of twelve varieties in vases was G. Marriott, Esq., and he was awarded the first prize and the Mattock Cup for an excellent exhibit which included Mrs. May Marriott, Mrs. Beckwith and Shot Silk. A. L. F. Cook, Esq., Hayes, Middlesex, had six splendid vases of such varieties as Lemon Pillar, Cupid and Emma Wright and won the first prize and Holroyd Cup fairly easily. Mrs. Warren Cribb, Northwood, won the first prize with six varieties in the class for small growers, with a worthy exhibit.

The class for six varieties grown within ten miles of Charing Cross induced very good competition. J. N. Stuart, Esq., Harrow, showing such varieties as Purity, K. of K., and Isobel, was first. Mrs. E. E. Pulford, Horley, was the most successful of the amateurs who grow and stage their own Roses, and her six varieties included Independence Day, Ophelia and Etoile de Hollande. W. E. Moore, Esq., was second. Mrs. D. Walker, Northwood Vicarage, Middlesex, showing such varieties as Betty Uprichard, Golden Emblem and Etoile de Hollande, was first in the similar class for smaller growers, and S. E. Tattershall, Esq., Orpington, was second.

The exhibition Roses attracted a deal of well deserved admiration. The Edward Mawley Challenge Cup was won by Dr. R. C. Turnbull with twenty-four especially good varieties, which included Florence Forrester, Mrs. C. Lamplough, E. J. Hodgson and Nellie Parker. F. H. Fieldgate, Esq., Colchester, who was second, had a magnificent bloom of J. C. Glassford, and he had the best exhibit of two baskets of exhibition Roses, that of Mrs. Arthur Coxhead being particularly fine.

In Division B the chief prize was won by the Rev. F. R. Burnside, Great Stanbridge, whose twelve blooms included particularly good specimens of William Shean, Mrs. Henry Bowles and J. B. Clark. S. W. Burgess, Esq., showing Admiration, of high quality, was first with a basket of any one variety.

The principal exhibitor in Division C was W. P. Pankridge, Esq., who won the Ben Cant Memorial Prize with twelve excellent blooms. The very best were Mabel Morse, Mrs. T. Roosevelt, Madame Jules Gravereaux and Mrs. A. R. Barraclough. Rev. G. Danbeney, Herne Bay, Kent, was a good second in this large class, and his outstanding varieties were Hortulanus Fret, Mrs. C. Norwood and Mrs. Henry Bowles. Many members staged a basket of not more than two varieties, and the first prize was won by H. F. Spicer, Esq., Hitchin. E. T. Gann, Esq., Tankerton, was first with six blooms in Division D, and R. White, Esq., Thame, Oxford, was equally successful in Division E; both exhibitors staged particularly meritorious blooms.

As we have remarked, the Tea and Noisette Roses suffered somewhat from the inclement weather, but the principal exhibitors staged very creditable blooms. The Trophy was won by W. E. Moore, Esq., whose twelve blooms included white Maman Cochet, Lady Plymouth, Molly Sharman Crawford and Mrs. H. Stevens. S. W. Rogers, Esq., was second. W. P. Pankridge, Esq., won the Prince Memorial Prize, and his six blooms included Madame Jules Gravereaux and Molly Sharman Crawford of great excellence.

The classes for amateurs who had not previously won a first prize at the Society's shows were well filled. Dr. G. E. Deacon, Brundall, Norwich, was first, with six superb blooms which included Admiration, Mrs. C. Lamplough and Earl Haig. H. F. Spicer, Esq., was a very good second. W. E. Moore, Esq., was first with twenty-four blooms in the class for amateurs who grow their own Roses and, although a little weather-stained, his blooms were of good size and form. The best sorts were Mrs. Foley Hobbs, Lemon Pillar and Dame Edith Helen. In the same section, W. P. Pankridge, Esq., was decidedly first with twelve varieties, amongst which he showed Venus, Madame Jules Gravereaux, Mrs. T. Roosevelt and Mrs. A. R. Barraclough. O. E. J. Cook, Esq., had six excellent blooms of exhibition varieties, and J. W. Roft, Esq., showing Frau Karl Druschski and Mrs. C. Lamplough of high quality, was first in the class for smaller growers.

In the Metropolitan classes, the first prize winners were F. Spencer, Esq., Harrow, and J. W. Stuart, Esq., in the outer radius, while within the five miles radius A. N. Rogers, Esq., H. F. Metcalf, Esq., Putney Hill, and W. R. Cummins, Esq., Muswell Hill, won the first prizes.

Artistic Classes.

Evidently the Dinner Table exhibits were not so numerous as was expected, for there were empty tables in the special tent set aside for the artistic displays. But, even so, there were many very attractive arrangements in the various classes. The great popularity of the variety Madame Butterfly, where permissible, and sprays of Rosa sericea pteracantha rather tended to monotony, but this is unavoidable.

In the open class the best Dinner Table decoration of cut Roses was arranged by Mrs. L. R. May, Waltham Cross, who used the variety Madame Butterfly and the foliage abovenamed very effectively. Mrs. A. T. Chaplin, who was a good second, employed the variety Roselandia. In the Amateurs' section the first prize table of single-flowered Roses was an exceedingly beautiful arrangement of Dainty Bess, by Mrs. Courtney Page, Haywards Heath, and Mrs. A. Yates, Warwick, was second, with Irish Elegance. Mrs. Oakley Fisher, Sudbury, Middlesex, was first, and Mrs. Courtney Page was second in the class which debars the use of the single varieties; both ladies used Roselandia.

There was a class for lady amateurs who grow and stage their own Roses, and here the best table was of Emma Wright and Angèle Pernet, arranged by Mrs. Courtney Page, who was also first with a bowl of cut Roses under similar conditions. Using Madame Butterfly with great taste, Mrs. E. T. Cooper, Warlingham, was first in the Dinner Table class for those who had not previously won a first prize at one of the Society's shows.

In the Nurserymen's Section, Mrs. C. A. Tisdall, who showed a well-balanced bowl of Golden Ophelia, was first, and Mrs. L. R. May was second with a pretty bowl of Madame Butterfly. Mrs. Tisdall also won the first prize with a beautiful basket of Madame Butterfly, and Mrs. A. R. Bide was a good second with Roselandia. The best amateur's basket of Roses was that of Madame Butterfly, arranged by Mrs. Courtney Page with considerable taste, and Miss M. Woolven, East Grinstead, was second with Roselandia. Mrs. M. Hancock, St. Albans, using Madame Butterfly very effectively, was first in the class for a bowl of Roses, and Mrs. Charlton, Yewsley, was second. Mrs. Courtney Page was first with a bowl of mixed varieties in the class for ladies who grow their own Roses, and Mrs. E. T. Cooper was equally successful in the class for novices.

NATIONAL SWEET PEA.

The annual outing of the above Society took place on Thursday, June 28, when about eighty members visited the establishment of Messrs. E. W. King & Co., Ltd., at Kelvedon, Essex, to inspect the Novelty Trials. They were entertained to luncheon by Mr. E. W. King, who, in a short speech, welcomed the visitors, and gave a brief outline of the way in which the trials had been conducted, praising Mr. G. Burt in particular, who has been responsible for the actual growing of the plants.

Mr. C. H. Christy, in proposing a vote of thanks to Mr. King, congratulated him upon the success of the trials. He was seconded by Mr. A. Ireland, supported by Mr. J. S. Brunton. Mr. William Cuthbertson spoke of the history of the Sweet Pea Society, and the prominent part that Mr. King had played. He also spoke of the popularity of the Sweet Pea in America, and emphasised the fact that American growers must not be allowed to eclipse English growers in the matter of raising new varieties.

It was announced that the following varieties, most of which have yet to be named, had been given Awards of Merit by the Floral Committee: No. 13, Idyl, sent by Messrs. C. C. Morse and Co.,a strong-growing variety with pink,on cream, flowers; No. 24, with fine blooms of deep blush, almost lilac, sent by Messrs. R. Bolton and Sons; No. 31, Flaming June, a fine variety which has been reserved for the Gold Medal next year, with vivid and large, cerise-scarlet flowers, sent by Messrs. Ireland and Hitchcock; No. 34, with deep pink flowers, the standards being darker, from Messrs. R. Bolton and Son; No. 56, deep blue, large and very effective, with standards of deep rose-purple, entered by Messrs. E. W. King and Co., Ltd.; No. 69, a blue variety from the same raiser; and No. 81, Montrose, with well-shaped, deep cerise-pink blooms, sent by Messrs. R. Bolton and Son.

It was also announced that the shows to be held by the Society during the year 1929 had been fixed for July 2 and 3, at the R.H.S. New Hall, and July 11 and 12, at Norwich.

During the afternoon, the party inspected the trials, which were found to be in wonderful condition, and reflected great credit upon Mr. King and his staff; and also the extensive grounds of Messrs. E. H. King's establishment, where the raising of plants for seeds is carried out on a large scale. The outing was a very pleasant and extremely successful one, and great praise is due to Mr. A. C. Bartlett, the able Secretary of the Society, to whose lot fell the organisation of the outing.

ROYAL HORTICULTURAL.

July 3.—The meeting of the Royal Horticultural Society, held at Vincent Square on this date, was moderately well attended, and the hall was well filled with a large variety of exhibits. Delphiniums formed the chief feature of the show, and a section of the hall was devoted to exhibits of Roses, while fruits and vegetables were also represented. All the Committees sat and Members of the Floral Committee, as usual, had a large number of novelties before them; twelve Awards of Merit were recommended by the Floral Committee, and one by the Orchid Committee; no novelties were placed before the Fruit and Vegetable Committee. A large group of Anthuriums was one of the most striking features of the show; Orchids were represented by a few small collections, and alpine and herbaceous plants in general were well displayed. The Clay Cup, for scented Roses, which was competed for at this meeting, was not awarded, and will therefore be held over until next year. The Second Annual Show of the London and South of England Viola and Pansy Society was held in conjunction with the R.H.S. meeting, and formed quite an interesting feature of the event.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Mr. Gurney Wilson (Hon. Secretary), Mr. Fred J. Hanbury, Mr. Lionel de Rothschild, Mr. F. K. Sanders, Mr. T. Armstrong, Mr. G. C. Cowan, Mr. A. Dye and Mr. R. G. Thwaites.

Award of Merit.

Odontoglossum Omega, The Node var. (O. Aglaon × O. St. James).—A distinct and attractive Orchid, the plant shown having a tall spike of several good blooms, rose-purple in colour, shaded paler; lip of the same colour fringed with a white margin, the throat being golden. Shown by Mrs. Carl Holmes (gr. Mr. W. G. Penton), The Node, Welwyn, Herts.

Groups.

Messrs. Sanders staged a small group which included good specimen plants of Laelio-Cattleya Arras, Dendrobium thyrsiflorum, Miltonia, Butterfly var., Dendrobium infundibulum, the lovely Cattleya Kienastiana Sanderae and the charming little Cypripedium niveum.

Another small group was arranged by Messrs. Stuart Low and Co., and included, amongst other beautiful sorts, Laelio-Cattleya Gladiator, L.-C. Aphrodite, L.-C. Aphrodite var. Eclipse, L.-C. Jacquinetta and L.-C. Dolomite, together with Selenipedium Schröderae and the lovely Brasso-Laelio-Cattleya Everest.

Mrs. Carl Holmes (gr. Mr. W. G. Penton), staged a collection of Odontoglossums in variety, Odontiodas and Cypripediums; while Messrs. J. and A. McBean included Laelio-Cattleya Profusion, Miltonia Charlesworthii and several Odontoglossums in their interesting collection.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. J. F. McLeod, Mr. Arthur Turner, Mrs. Ethel M. Wightman, Mr. H. J. Jones, Mr. J. M. Bridgeford, Mr. W. Howe, Mr. M. C. Allwood, Mr. D. Ingamells, Mr. J. T. West, Mr. J. B. Riding, Mr. W. B. Gingell, Mr. D. B. Crane, Mrs. H. Lindsay-Smith, Mr. C. E. Pearson, Mr. George Churcher, Mr. Courtney Page, and Mr. W. D. Cartwright (Secretary).

Section B.—Mr. G. W. E. Loder (in the chair), Mr. J. Hudson, Mr. W. J. Bean, Mr. Amos Perry, Mr. G. Harrow, Mr. Reginald Cory, Mr. E. Marsden-Jones, Mr. F. G. Preston, Mr. E. H. Wilding, Lady Beatrix Stanley, Mr. C. T. Musgrave, Mr. T. Hay, Sir William Lawrence, Bt., Mr. R. C. Notcutt, Mr. W. B. Cranfield and Mr. N. K. Gould (Secretary).

Awards of Merit.

Alströmeria Ligtu var. angustifolia.—An attractive hardy herbaceous plant with flowers of a delicate shade of pale rose-pink, marked with orange. The type plant was figured in the *Bot. Mag.*,, t. 125. Shown by Lt.-Col. Messel (gr. Mr. J. Comber), Handcross, Sussex.

Anthurium Andreanum Mrs. J. de Rothschild.—A striking hybrid, fine in growth, with large, long, deep green leaves and light red spathes, the spadix being large and yellow in colour.

Anthurium Andreanum Versaillense.—A hybrid of French origin, with spathes of medium size and white in colour, the spadix being palest pink.

Anthurium Andreanum waddesdonensis.—This free-growing Anthurium has long, pointed leaves and striking inflorescences; the spathes are of medium size, and rich, glossy-red, while the spadix is pale cream, tinted pink.

Anthurium Andreanum Yvonne Johnson.—The spathes of this variety are large and crinkled and glossy, light red in colour, while the well-shaped spadix is pale lemon. All these were shown by J. A. de Rothschild, Esq. (gr. Mr. G. F. Johnson), Waddesdon Manor.

Helenium Bolanderi.—A useful herbaceous plant which flowers over a period of about three months, commencing in late June. It is a native of California, is free in growth, and produces numerous flowers, each about two-and-a-half inches across, rich gold, with large, brownish-purple cones. Shown by Mr. N. K. Gould, Ripley, Surrey.

Rose Cherry.—A useful variety for cutting, with well-shaped blooms, deep rose-red, flushed salmon, in colour.

Rose Portadown.—A charming Rose, suitable for cutting, the flowers being of medium size and of a rich velvety-crimson. This variety, and the preceding one, was shown by Messrs. Samuel McGredy and Son, Royal Nurseries, Portadown.

Rose Lucie Marie.—An attractive variety suitable for decorative work when cut, of a charming shade of apricot-yellow.

Rose Swansdown.—The blooms of this variety are of a lovely creamy-white shade, with large petals, and of good shape in the opening stage. These two varieties were exhibited by Messrs. Alex. Dickson and Son, Ltd., Hawlmark, Newtownards.

Rose Chaplin's Pink Climber.—A striking sort that has already made its mark in the Rose world, for it is of outstanding merit. A profuse bloomer, the specimen shown carried masses of large, rich rose-red flowers. It is the result of a cross between American Pillar and Paul's Scarlet Climber, and does infinite credit to its famous parents. Shown by Messrs. Chaplin Brothers, Ltd., Waltham Cross.

Triptilion spinosum.—A charming half-hardy annual from Chile, of very dainty appearance. Its delicate growths are clothed with minute, rich glossy-green, spiny leaves, and terminated with heads of vivid blue, Forget-me-not flowers. Shown by Lt.-Col. Messel (gr. Mr. J. Comber).

Groups.

As previously stated, Delphiniums were much in evidence at this show, and some of the groups were of considerable magnitude and spectacular in arrangement. Such an exhibit was that set up by Messrs. H. J. Jones, a towering bank of magnificent spikes, which included such fine dark-flowered varieties as Peacock, Mrs. A. A. G. Cross, The Shah, Pannonia, Lord Derby and William Kelway, while varieties of lighter shades were Ariel, Ludwig Wulmer, Glory, Delightful, and Queen Mary. Ovidus, with bright, rich blue flowers, was especially noticeable.

Of similar dimensions, and arranged with excellent taste, was the group staged by Messrs. Blackmore and Langdon, the large spikes of Sir Douglas Haig, Lady Augusta, The Shah, Millicent Blackmore, Doris, The Alake and Lady Edith being of outstanding merit, while other sorts of note were Blue Queen, Lorenzo de Medici, Mrs. Shirley, Mrs. Townley Parker and Phyllis; also Marjorie Ferguson.

In Messrs. S. J. Goodliffe's group we noticed fine spikes of Lord Curzon, Dusky Monarch, Progress, Galicia and the massive, pale lilac Triumph; while the large collection staged by Messrs. T. Bones contained such choice varieties as Clarissa, Lord Derby and Dusky Monarch; also several good seedlings.

Messrs. R. H. Bath, Ltd., included both Delphiniums and Paeonies in their exhibit, the latter being represented by Solange, Marie Lemoine and Claire Dubois, to mention but a few.

Daily Mirror, Rose Marie, King of the Delphiniums, King George and Rev. Charles Storr were merely a selection of the numerous Delphiniums staged by Messrs. Hewitt and Co.; while in the small group arranged by Messrs. Carlile the best spikes were those of Lord Derby, Iris Carlile and Mrs. T. Carlile.

Carnations were staged by Messrs. C. Engelmann, Ltd. and Messrs. Allwood Brothers, both the groups, although small, containing many choice varieties.

Indoor plants were exhibited by Messrs. L. R. Russell, Ltd., the group containing specimen Codiaeums in variety, Dracaena Victoria, Alocasias, and fine plants of Mussaenda frondosa, Alpinia Sanderiana, Clerodendron fallax and Maranta insignis.

The many varieties and specimens of Anthurium Andreanum exhibited by J. A. de Rothschild, Esq. (gr. Mr. G. F. Johnson), Waddesdon Manor, reflected great credit upon those responsible for their culture, for the plants were in all instances in exceptional condition, especially the specimens of var. album, var. Monsieur Hardy, var. erythropensis, var. waddesdonensis, var. Perfection and several striking seedlings.

Messrs. Sutton and Sons, Ltd., staged a small group of their double-flowered, fringed Petunias, good specimen plants in shades of deep rose-pink, white, and white and pink; they also exhibited a group of a fine strain of Godetias.

Bulbous subjects, including several Ixias, Gladioli, Brodiaea laxa and Irises, were displayed by Mr. H. Prins, while a small collection of herbaceous plants came from the Boggison Nurseries.

Messrs. J. Robinson and Son arranged a miniature rock garden, on which were good patches of Viola Clarence Elliott, Thymus coccineus, Campanula pulla G. F. Wilson, Androsace lanuginosa and Arabis Sundermannii; while Messrs. Tuckers (Oxford), Ltd., also showed alpine plants, among which we noticed Campanula pulla lilacina, Arenaria gracilis, Scutellaria indica japonica, and Primula minima.

On the attractive rock garden set out by Messrs. M. Prichard and Sons, we noticed Erythronea diffusa, Campanula Billardi Miranda and Campanula pulla G. F. Wilson, together with several other charming alpine Harebells; also patches of Lychnis Lagascae, Erigeron mucronatus, the uncommon Odontospermum maritimum and several Violas.

Messrs. F. G. Wood showed herbaceous plants, such as Eryngiums, Prunella grandiflora, Anchusa Picotee, and Solidago nana praecox; while the exhibit staged by Messrs. B. Ladhams, Ltd., besides containing a large collection of hardy Pinks, included such popular herbaceous subjects as Coreopsis auriculata superba, Eryngiums and Salvia virgata.

Herbaceous plants were also staged by Messrs. G. W. Miller, notably Paeonies, such as Asa Gray, Marie Lemoine and carnea elegans; and Achillea Cerise Queen, Sidalcea Rosy Queen and Delphiniums in variety. Messrs. Barr and Sons showed numerous choice bulbous Irises; Messrs. A. T. Dutton exhibited the famous Carnation Mrs. A. J. Cobb; the Central Garden Supplies and Mr. Stephen Sims staged miniature rock gardens suitable for table decoration; and Mr. R. A. Foster showed an attractive collection of hybrid Alströmerias. Messrs. Harkness and Sons arranged a striking group of richly coloured Lupins.

Mr. Amos Perry had a bed of choice mixed subjects set in peat moss amid rocks. There were fine plants of Brodiaea californica alba, several Campanulas, Liliums, Alliums, Ixias, and good specimens of Primula capitata.

The exhibits of Roses were quite numerous, and several of them were really good. Messrs. Alex. Dickson & Sons, Ltd., had large baskets of Betty Uprichard, May Wettern, Lady Inchiquin, and Shot Silk, surrounded by vases of Lady Worthington, K. of K., Dame Edith Helen, Lady Helen Maglona and Mrs. Henry Morse, together with many others. A really fine group.

Messrs. A. Warner and Son staged a group which included good blooms of Golden Emblem, Emma Wright, Shot Silk, Padre, Hortulanus Budde and Etoile de Hollande; and Mr. George Lilley included Mabel Morse, Golden Emblem, Betty Uprichard, with sprays of dwarf Polyanthus varieties, such as Coral Cluster, Golden Salmon, Mistress Pat and Orange King, in his exhibit.

A small collection of old-fashioned sorts, and species, was set up by Messrs. George Bunyard, Ltd., and Messrs. S. McGredy had fine examples of Desmond Johnston, Lord Charlemont, Emma Wright, Lady Leslie, Mrs. Stewart Paton and Norman Lambert. Hortulanus Budde, Betty Uprichard, Mrs. Henry Winnett, Shot Silk and Golden Gleam were outstanding sorts in the small group arranged by Messrs. E. B. le Grice; while in the small collection staged by Mr. W. E. B. Archer and Daughter, Dainty Bess, an extremely attractive Hybrid Tea, single-flowered variety, the *Daily Mail* Scented Rose, Joyous Cavalier, Irish Elegance and Lady Hillingdon were outstanding.

Messrs. Benjamin R. Cant and Sons, Ltd., showed Madame Edouard Herriot, Madame Jules Bouche, K. of K., Mabel Morse, I. Zingari, Lady Roundway and Mrs. Henry Bowles, together with many others; while the best of those staged by Messrs. Frank Cant and Co., Ltd., were Princess Elizabeth of Greece, Roselandia, Empire Queen, Mrs. Betty, Courage and Sovereign.

Mr. J. H. Pemberton's Roses were arranged in a closely packed mass, the notable sorts being I. Zingari, occupying a central position; Columbia, Anne and Rev. Page Roberts.

Fruit and Vegetable Committee.

Present: Mr. Joseph Cheal (in the chair), Mr. P. C. M. Veitch, Mr. G. F. Tinley, Mr. P. D. Tuckett, Mr. A. W. Metcalfe, Mr. E. Laxton, Mr. C. G. A. Nix and Mr. A. N. Rawes (Secretary).

Groups.

A moderately extensive collection of seasonable vegetables and salads, in natural condition, was staged by Messrs. Barr and Sons. There were dishes of the Potatos Ashleaf Immune, Field-Marshal, and Irish Elegance; Onion Minchaur Park, and Turnips, Cucumbers, Tomatos, Carrots, Cauliflowers and Lettuces, all in several varieties.

Strawberries, as would be expected, were staged by Messrs. Laxton Brothers, there being large baskets of lovely fruits of such varieties as King George, Empress, Prolific and Abundance.

Amateurs' Show.

The Amateurs' Show held on June 26 was a great success, and competition was excellent.

Cut Flowers.

In the majority of the cut-flower exhibits the blooms were staged in excellent condition, and in some of the classes the competition was exceptionally keen; the Sweet Peas were especially noticeable and in all instances reflected great credit upon their cultivators.

In division A, open to all amateurs, Mrs. Duncan, Limpsfield, Surrey, was awarded the first prize for Antirrhinums of good quality; and Mr. J. Fairlee, Esq., Acton, was successful with his six vases of border Carnations, showing fine blooms of Ben More, Snowflake, Delicosa, Ravenswood, Flamingo and Mary Murray.

Sir William Lawrence, Burford, Dorking, was the only exhibitor in the class for six vases of plants grown from bulbs or corms, his collection including Tulbaghia violacea, Eucharis burfordiensis, ephyranthes verecunda and Brodiaea laxa maxima; Sir R. Baker, Blandford, showed the best perpetual-flowering Carnations, and Mrs. Hamilton, Claygate, the best twelve vases of Delphiniums, most of which were seedlings.

Miss M. C. Crossfield, Reigate, was first for twelve vases of flowers raised from seeds; and Lionel de Rothschild, Esq., Exbury, Southampton, received a first prize for his group of twelve uncommon, flowering hardy subjects which included Alströmeria chilensis, Razzia orientalis, and Allium Schubertii. He was also first in the class for six Rhododendron species, showing R. crassum, R. discolor, R. didymum, R. Griersonianum R. decorum, and R. calophyllum; and for six Rhododendron hybrids; while he was the only exhibitor of a bowl of Water Lilies.

Several choice blooms were staged by Mr. C. Luckin, East Grinstead, in his first prize-winning collection of Irises; and W. B. Cranfield, Esq., Enfield Chase, showed the best six vases of Paeonies, his varieties being Emperor and Orion, singles; and Mons. C. Leveque, E. G. Hill, Claire Dobos and Madame Bollett. R. Morton, Esq., Woodside Park, showed the best six vases of hardy Pinks; and Miss Shirley, Reigate, the best Poppies, all distinct and named Shirley varieties.

The Sweet Peas in the class for twelve vases were of fine quality, C. B. Krabbe, Esq., Calcot Grange, Reading, being the successful exhibitor; while A. D. Bates, Esq., Stony Stratford, Bucks., showed the best twelve pans of Violas.

The Roses in the various classes were in most instances of choice varieties in excellent condition. The finest show-box of Rose blooms was arranged by Charles H. Rigg, Esq., St. Albans; and Mrs. L. A. Tilley, Northwood, received a first prize for her outstanding exhibit of six vases of rambler Roses, which included François Juranville, Erecta, Aglaia, Emily Gray and Tea Rambler. Mrs. Cribb, Northwood, showed the best single Roses, and C. H. Rigg, Esq., St. Albans, excelled in the class for twelve Tea, Hybrid Tea or Pernetiana Roses.

Class thirty-four, for twelve vases of hardy shrubs in flower, was well contested, and the groups were all really fine. G. W. E. Loder, Esq., Wakehurst Place, Ardingley, was placed first, his exhibit including wonderful sprays of Senecio laxifolius, Desmodium serriferum, Cornus Kousa, Styrax japonica and Leptospermum scoparium Nicholii; while in the other groups from Lionel de Rothschild, Esq., and Sir Wm. Lawrence, we noted fine examples of Abutilon vitifolium, Magnolia hypoleuca, M. nigra, Viburnum Henryi, Buddleia alternifolia and Escallonia G. F. Ball.

There were also quite a number of entries in the class for six vases of shrubs in flower, Mrs. Desborough, Broadstone, Bucks., who staged the best exhibit, including fine sprays of Embothrium coccineum, Tricuspidaria lanceolata and Styrax japonica in her collection.

Division B was open to those amateurs who do not regularly employ more than one gardener and one boy or part-time man. Mrs. Wightman, Bengers, Hants., secured first prizes for her six vases of hardy flowers, and for three vases of single Roses; while Miss Crossfield, Reigate, was first in the classes for Antirrhinums, and flowers raised from seeds.

W. Staley, Esq., Gosport, Hants., showed the best perpetual-flowering Carnations, fine blooms of Topsy, White Pearl and Scarlet Carola; and C. Luckin, Esq., East Grinstead, was first in the class for Irises. R. Morton, Esq., showed Harmony, Mrs. Pryor and Princess Elizabeth in his prize-winning collection of hardy Pinks.

In the section for Roses, the first prize winners were T. Spencer, Esq., Harrow, with a show-box of twelve choice blooms; F. A. George, Esq., Red Hill, Worcester, with perpetual-flowering climbing sorts; Mrs. Wightman, for Polyantha Roses; and Mrs. Pulford, with rambler Roses; and again in the class for Tea, Hybrid Tea, or Pernetiana Roses.

Mrs. Desborough staged the best collection of cut sprays of hardy shrubs in flower; and A. E. German, Esq,. Hornchurch, Essex, exhibited the best six pans of Violas, the blooms being very well selected.

It must have been a difficult task for the judges to decide which was the best collection of Sweet Peas, for the numerous entries were all first-class; the exhibit set up by W. Huffey, Esq., Tonbridge, was adjudged the best.

In Division C., for amateurs who employ no gardeners, J. Fairley, Esq., Acton, showed the best Antirrhinums; W. Staley, Esq., the finest perpetual-flowering Carnations; Mr. C. Reynolds, Bognor, the best three vases of Delphiniums; and G. S. Mills, Esq., Sutton, the best single vase of Delphiniums.

The first prize for three vases of flowers raised from seeds during the last twelve months, went to Captain R. A. Damey, Faversham; and Mr. F. J. Cashnella, Bath, staged the best three vases of hardy flowers. He was also successful in the classes for three vases of Sweet Peas, and three vases of Sweet Williams.

F. W. Stacey, Esq., Kingsbury, was awarded the first prize for Irises; C. Luchin, Esq., for Paeonies; R. W. Spicer, Esq., Alton, Hants., for Fancy Pansies; and A. H. Pullen, Esq., Wallington, for hardy Pinks; while Captain R. A. Damey was successful with single Roses; and R. H. Day, Esq., Brentwood, with his show-box of Rose blooms, and perpetual-flowering climbing Roses. W. P. Panckridge, Esq., was placed first among the several exhibitors of show-boxes of six Rose blooms, and Mrs. Wightman received the premier award in the class for single vases of Polyantha Roses; C. W. Page, Esq., Clapham, was first in the rambler Rose class.

Other exhibitors who received first prizes in this division were G. Holden, Esq., Oxted, for magnificent Sweet Peas; A. D. Bates, Esq., Stoney Stratford, and G. Lockwood, Esq., Goodmayes, Essex, both for Violas.

Plants in Pots.

The classes for growing plants, in the three divisions, provided for a wide range of subjects, and the quality generally was highly creditable to all concerned.

In Division A there was a class for a group of flowering and, or, foliage plants arranged on a floor space measuring sixty square feet. This induced good competition. The best of the four groups was exhibited by A. P. Brandt, Esq. (gr. Mr. J. W. Banks), Bletchingley Castle, Bletchingley, who had a very tasteful group of Palms, Codiaeums (Crotons), Dracaenas, Lilium tigrinum, Lilium longiflorum, Spiraeas, Hydrangeas and other decorative plants. It was fortunate for Sir William Lawrence, Bt., Burford, Dorking, that the pointing as set out by the schedule allowed more points for rarity and variety of plants than for arrangement, otherwise we suspect that his group would have been placed third, instead of second, for the arrangement of the group of H. C. McAlpine, Esq., Holmdale, Nutfield, Surrey, was much more pleasing. His plants of Hoya bella and Browallia speciosa major were especially well grown. Sir WILLIAM LAWRENCE had a good variety of Anthuriums, Clerodendron fallax and Haemanthuses.

In the class for six foliage plants in pots not exceeding eight inches in diameter, A. P. BRANDT, Esq., was again first, and he had very well-grown specimens of Caladium candidum, Aralia elegantissima, Codiaeum Prince of Wales, and Dracaena Fred. W. Wolseley. Sir WILLIAM LAWRENCE was second.

The class in Division A for nine flowering plants created considerable interest. Sir WILLIAM LAWRENCE was a good first, and he included plants of Allamanda Schottii, Haemanthus Katherinae, Hydrangea Domoti and Pancratium speciosum. A. P. BRANDT, Esq., in his second prize exhibit, included Liliums, Spiraeas and Hydrangeas. In the class for three foliage plants, in Division B, A. M. GENTLE, Esq. (gr. Mr. B. Walker), The Capstone. St. Albans, was first with well-grown varieties of Rex Begonias. J. H. JENKINS, Esq., showing such plants as Fuchsia, Heliotrope and Calceolarias was first with six flowering plants.

Ferns were shown in considerable number, and most of the plants were well cultivated. C. H. MANDER, Esq. (gr. Mr. C. Wood), Blacketts, Chorley Wood, was the only exhibitor of twelve stove or greenhouse varieties, and was awarded the first prize. The exhibits of twelve British Ferns were admirable, and the first prize was won by W. B. CRANFIELD, Esq. (gr. Mr. J. Parkinson), East Lodge, Enfield Chase, who had excellent plants of such rare sorts as Scolopendrium vulgare crispum nobile, Lastraea felix mas cristata and Polystichum aculeatum gracillimum. C. LAYMAN, Esq. (gr. Mr. H. Ware), Ardgowan, South Woodford, was second.

In Division B. the best six British Ferns were shown by H. FISHER, Esq. (gr. Mr. T. Finch), Down's View, Purley, who had very good Lastreas and Athyriums; and J. H. JENKINS, Esq. (gr. Mr W Davies), Ravenswold, Kenley, Surrey, was a very good first with six greenhouse varieties, which included Nephrolepis Marshallii, N. Whitmanii and Adiantum cuneatum.

In Division C., Mr. C. HENWOOD won the first prize with excellent plants of the British varieties of Scolopendrium vulgare crispum nobile, Lastrea Felix-mas cristata, and a seedling Polystichum, while Mr. F. J. CASHNELLA, Bath, was first with three good greenhouse varieties.

The class in Division A for twelve Orchids did not induce the competition that was hoped. F. J. HANBURY, Esq. (gr. Mr. Farnes), Brockhurst, East Grinstead, was awarded the first prize and Lindley Medal for a very good collection which included beautiful varieties and hybrids of Laelio-Cattleya, Dendrobium, Miltonia and Cypripedium. In Division B, the first prize for six Orchids was awarded to E. R. ASHTON, Esq. (gr. Mr. C. V. Kent), Broadlands, Tunbridge Wells, who showed excellent plants of Brasso-Cattleyas, Cattleyas and Miltonias. With a good plant of Odontioda Meteor Mr. E. H. ATKINS was first with one Orchid in Division C.

The class for a vase or a pot of a new garden plant raised since 1923 was of only moderate interest. Lady LINDSAY SMITH (gr. Mr. Langridge), Ashfold, Handcross, was first with a good pot of Primula Florindae, and Sir WILLIAM LAWRENCE was second with a spray of Mutisia retusa var. glaberrima.

In Division A, MARK FENWICK, Esq. (gr. Mr. F. Tustin), Abbotswood, Stow-in-the-Wold, was first in the class for six alpines in flower, showing Campanula garganica Mrs. Paine, Acantholimon venustum, Stachys corsica and Saxifraga Tumbling Waters. Sir WILLIAM LAWRENCE, who was second, had a good pan of Roscoea Humeana and a dwarf, yellow Calceolaria sp.

T. CRAWFORD, Esq. (gr. Mr. J. G. Whiting), The Limes, Whitehall, Bristol, was first with six splendid plants of tuberous Begonias, and LADY BRODY HENDERSON, Epping House, Little Berkhamstead, was first with equally meritorious Streptocarpus. Dr. HUGH ROGER SMITH, Hampton, had a very interesting collection of Succulent plants. Campanula genista, shown by Mrs. E. TORKINGTON (gr. Mr. G. Bristow), Maidenhead, was the best plant not mentioned in the schedule.

The many hanging baskets suspended at the entrance to the Orchid and the Tea Annexes were very effective. In Division A, W. H. MCALPINE, Esq., was first with a beautiful basket of Hoya bella, and T. CRAWFORD, Esq., was second with a basket of Achimenes, Coleus and Asparagus Sprengeri. In Division B, the best basket was that of a salmon-coloured pendulous Begonia, Calceolarias and Panicum variegatum, shown by T. CRAWFORD, Esq.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE Annual Festival Dinner of this Charity was held at the Savoy Hotel, Strand, on Thursday, June 28, when Viscount Lascelles presided over an influential gathering, and was supported by Lord Lambourne, Sir G. Sutton, Sir J. S. Young, Sir Jeremiah and Lady Colman Mr. and Mrs. E. Sherwood, Mr. Leonard Sutton, Mr. Gerald Loder, Mr. and Mrs. George Monro, Mr. Gordon Selfridge, Mr. Frank Ridley and Colonel Durham. Others present included Mr. and Mrs. McLeod, Mr. and Mrs. G. H. Barr, Mr. J. M. Bridgeford, Mr. Hicks, Mr. N. E. Barnes, Mr. C. H Cook. Mr. and Mrs. Tinley, Mr. W. Howe, Mr. Harry Miles, Mr.&Mrs.Linford, Mr. and Mrs. Robins, Mr. and Mrs. J. Collingridge, Mr. Stuart Monro, Mr. Donald Monro, Mr. A. Monro, Mr. and Mrs. F. Secrett, Mr. Last, Mr. and Mrs. Ingamells, Mr. and Mrs. C. H. Curtis, Mr. W. Wood, Mr. Bullock and Mr. and Mrs. J. Poupart.

After the loyal toasts had been duly honoured, the Rt. Hon. Viscount Lascelles, K.G., D.S.O., proposed "The Gardeners' Royal Benevolent Institution," and after expressing pleasure at the heartiness of his reception, said he did not deserve it because he had come with one object only, and that was to pick their pockets. He hoped those present would disgorge readily so that he need not go to extremes. The gardener's occupation was the production of the good and beautiful, and there was no profession which had made such strides during the last few years as that of gardening. They had only to walk into any public garden, such as Hyde Park or Regent's Park, within a very short distance of that spot, to realise the enormous difference there was now from what there used to be a very few years ago. The men who had assisted in making those great strides deserved a great deal from those who enjoyed the fruits of their efforts. No one was incapable of enjoying beautiful flowers, therefore all owed a great debt of gratitude to the gardening profession. No profession had been more successful in bringing a sense of beauty of colour, beauty of form, within the reach of every class in the country, both in the towns and in the rural districts, consequently those who had worked in this profession and who had, perhaps, not made money at it, in other words, those who had grown old without growing rich, and who had left widows and dependents behind them, deserved consideration. The Gardeners' Royal Benevolent Institution was founded ninety years ago. It is the only one of its kind in the United Kingdom. Its object is to grant relief by means of annuities to aged gardeners, market gardeners, nurserymen and others formerly engaged in horticultural pursuits, and to grant annuities to their necessitous widows; to give gratuities to candidates who are on the waiting list and immediate benefit to cases of necessity. At present 250 old people are on its books and, said the Chairman, there are forty more really urgent cases on the waiting list. In order to carry on the work of the Institution, a sum of £5,500 a year is required, and only £1,200 is assured income. The obligations of this Institution multiply, therefore there was the need for liberal donations.

The toast was coupled with the name of Mr. Edward Sherwood, Treasurer.

Mr. Edward Sherwood said it was a great privilege to respond to the toast which the Chairman had proposed in such felicitous terms, and which touched a chord that could not but appeal to all present who loved their gardens. All branches were represented in the Gardeners' Royal Benevolent Institution, and it sometimes appeared not to be generally known that not only was the fund enjoyed by gardeners and their widows, but also by all branches of the horticultural trade. Mr. Sherwood gave examples of the assistance rendered, and read one letter of grateful thanks from an annuitant, and said that the assistance given was received as a joyous blessing, but as it was more blessed to give than to receive, he trusted all present would do their utmost to make the Festival a great success, because the Institution could only continue by their generous support and the activities of the Committee were only limited by amounts donated.

Sir Jeremiah Colman, Bt., proposed "The Visitors" in a pleasant little speech, and to this Mr. Frank Ridley responded.

Lord Lambourne—who had a fine reception—in a delightful and humorous speech, proposed the health of "The Chairman." "Long may he live, and long may he weed his garden, or set some one to weed it for him."

In response, Viscount Lascelles said: "I have to thank you most heartily and sincerely for the support which you have given the appeal which I made to you. I should like especially to thank Mr. Ingram for the efforts which he has made on behalf of the Institution, which I hope he will think have been well responded to by everybody present. I feel, Lord Lambourne, that you have left me a very little character, and I hardly dare to stand up to address the company, after all the dreadful things you have said of me. I have to thank you very much ladies and gentlemen, for the very kind way in which you drank my health, and I know you would like to join me in expressing our grateful thanks to the ladies and gentlemen who have supplied the very beautiful flowers which form the decoration of this room. As Lord Lambourne told you, I am not a great expert, and I do not really know a Carnation from a Calceolaria, but without being an expert in horticulture I can appreciate the beauty of flowers. I think we also wish to join in a very hearty vote of thanks to Mr. Miles who arranged the decorations. I thank you most heartily for the very kind way in which you drank my health and still more the very kind way in which you supported the appeal which I made to you."

Lord Lambourne then asked Viscount Lascelles to accept the office of Vice-President of the Institution; Viscount Lascelles accepted with pleasure.

The principal contributions were as follow:—Viscount Lascelles, Chairman, £50; Messrs. Rothschild, £105; Messrs. Hurst and Son. £105; Mr. Gordon Selfridge, £105; Messrs. W. Wood and Son, £100; Royal Horticultural Society, £52 10s.; Sir Jeremiah and Lady Colman, £52 10s.; Sir James Slade, £55; Major G. Churcher, £25; Sir George Sutton, £25; Messrs. Corry and Co., £25; Mr. W. Honess, £25; Mr. N. F. Barnes, £21; Mr. F. Chittenden, £20; Mr. C. Grahame-White, £15; Mr. E. Hazelton, £14 14s.; Mr. and Mrs. Felton and Staff, £15 15s.; Mr. Bernard Crisp, £17 17s.; Mr. Charles H. Cook, £12 12s.; Mr. T. Finch, £12 12s.; Mr. E. Beckett, £13 13s.; The following gave ten guineas: Lord Treowen, Sir J. Smith-Young, Mr. W. J. Jefferies, Mr. Arthur Dye, Mr. Duncan Tucker, Mr. W. Cuthbertson, Mr. H. Miles, Messrs. C. Kinnell and Co., Mr. D. Ingamells, Messrs. Barr and Sons, Mr. M. Larsen, Mr. H. G. Alexander, Mr. A. Bullock, Mr. J. Collingridge, Messrs. J. Collingridge, Mr. W. Auton, Mr. George Cobley, Mr. B. G. Broome, Mr. A. Bedford, Mr. J. Cull, Mr. J. P. Rochford. Major E. G. Monro's list totalled £275 (including Major Monro, £25; Mr. George Monro, £25; Mr. T. J. Poupart, £25; Messrs. Wills and Segar, £15 15s.; Messrs. George Monro, Ltd., £10 10s.; Mr. Arthur Stevens, £10 10s.; Messrs. E. Stevens, Ltd., £10 10s.; Mr. A. Watkins, £10 10s.; and Mrs. Watkins, £10 10s., and five guineas from Mr. George Monro to celebrate the birth of a granddaughter); Mr. J. Collingridge's list amounted to £170; Mr. F. A. Secrett's list to £46 18s., including a donation of £10 from Mr. A. Poupart); and Mr. Charles H. Curtis's list to £41 (including £21 from W. Laurence Bradbury, Esq., and £5 5s. from *The Gardeners' Chronicle, Ltd.*).

Obituary.

Mr. F. G. Parkinson.—We very deeply regret to record the sudden death of Mr. F. G. Parkinson, for twelve years secretary to Mr. George Monro, C.B.E. Mr. Parkinson had a very wide working knowledge of legal matters and was an ideal private secretary. He was well-known and highly respected in Covent Garden, and his sudden demise on Tuesday, July 3, due to pneumonia, has come as a terrible shock to his many friends.

Professor Jinzo Matsumura.—It is with great regret we learn from Professor B. Hayata, Director of the Botanic Gardens, Tokyo, of the death at his residence, Akebonocho, Hongo, Tokyo, on May 4, of Professor Jinzo Matsumura, formerly Director of the Botanic Gardens, Koishikawa, and a member of the Imperial Academy, who had reached the venerable age of seventy-three years. The son of a Samurai family, the deceased gentleman entered upon a career as a botanist in the Botanic Gardens, Koishikawa. Professor Matsumura was for nearly thirty years the Director of the same Gardens, and Professor of Botany in the Imperial University of Tokyo. The funeral in the precincts of the Kichijoji, was very largely attended, and a fine tribute was paid to the respect and esteem in which ProfessorMatsumura was held. Mrs. Matsumura died seventeen years ago. The only son, Dr. Akira Matsumura, Assistant Professor of Anthropology in the Imperial University of Tokyo, and his family, are left to mourn the loss of a fine personality.

ANSWERS TO CORRESPONDENTS.

Brown Marks on Fig Leaves.—*M.* No parasitic fungus or insect pest was present which was likely to produce the markings, which are in the nature of some physiological trouble. The addition of a little—one ounce—of sulphate of potash sprinkled round the tree and lightly worked in may do some good.

Double Rocket.—*Edam.* The Double Rocket may be propagated by division of the unflowered basal shoots, which may usually be detached with roots attached; if such is the case, they may be lined out directly in the open ground, planting them firmly and watering them in. Propagation may also be effected successfully by means of cuttings of the lateral shoots developed on the stems; these should be taken with a heel, and inserted in a cold frame; when rooted, they should be lifted and transferred to the open ground. The successful cultivation of this plant is by no means easy, as it flowers so freely and over such a long period that it is, as a rule, not easy to get stock from it. The best method is to keep a quantity of stock plants, and not allow them to flower; these should then develop plenty of shoots from the base, which may be detached for propagating purposes. Usually the Double Rocket succeeds better in the north, and this, no doubt, is partly due to climatic conditions, and also to the fact that its successful cultivation is more generally understood.

Fig Tree Diseased.—*H. R. T.* The Fig tree is suffering from an attack of canker due to the fungus Phomopsis cinerascens, which attacks the branches. From want of nourishment the developing Figs have been attacked by Botrytis cineria. Cut out all the diseased shoots and branches, and any dead wood, and afford more ventilation.

Names of Plants.—*W. H. D.* Fagus sylvatica var. heterophylla.—*J. C.* 1, Plagianthus Lyallii; 2, Escallonia macrantha; 3, Rosa Moyesii; 4, Berberis polyantha; 5, Olearia macrodonta; 6, Ribes speciosum (fuchsioides); 7 and 8, too withered to identify; 9, Taxodium distichum.—*L. H. M.* 1, Scilla peruviana; 2, Linaria maroccana.

Nectarines Diseased.—*W. W. N.* The brown blotches are due to some insect injury (possibly thrips or red spider) in the very early stages of setting. The cracking is due to forcing while the fruits were stoning. Nothing may be done at present, but next year take precautions against insect attacks when the fruits are quite young, and be careful not to force the trees while the fruits are stoning.

Peach Trees Dropping Leaves.—*G. B.* Judging from the material sent us, your trees are in a very unhealthy condition, both red spider and shot-hole fungus being present, and no doubt responsible for the falling of the leaves. Spray the trees at intervals with ammoniacal solution of copper carbonate, and then frequently with clear water.

Phlox and Delphinium Diseased.—*E. H.* Your plants are probably suffering from an eelworm attack.

Pinks Diseased.—*Pinks.* Your Pinks are attacked by the fungus Septoria dianthi. Spray the plants affected with liver of sulphur, or dust them with sulphur-powder.

Potato Duke of York Failing to Grow.—*J. L. I.* Two of the four tubers sent were rather deeply pierced by wireworms, but at the opposite end from the growing one, so that would not have prevented them from growing. There was no sign of disease. We are under the impression that the seed had been grown once or twice in the south or east of England. We have had similar results from seed sets grown in the southern half of England, and also from seed of our own saving, although clamped in the open. It would appear that the trouble is physical, that is, there is a weakening of the power of the tubers to grow. If they were not grown in southern England, we would suggest that they may have been kept under dry and warm conditions, which would have an over-ripening effect upon them. The variety was put into commerce thirty-seven years ago, but although old for the life of a Potato it still gives good crops in the north of Scotland and should do so in England for one year at least.

Potato Great Scot Failing to Grow.—*A. E. R.* All the tubers sent were cut open and the flesh looked quite sound. It would appear to be a case of over-ripening. Either they have been grown once or twice in the south of England, or kept under rather dry and warm conditions exposed to the air all the winter. The flesh of the tubers was tinted with green, in several cases, but they may be greened to a greater extent on purpose, without injury, if dug before they are quite mature. We have had similar experience from tubers after they have been grown in the south of England, and also from tubers kept in a warm place exposed to the air all the winter, but the failure was not so extensive as in your case. We had no failures with seed Potatos grown in Scotland and Ireland, and are under the impression that dry and warm periods during the growth of Potatos in the south have a weakening effect upon their growth, if planted a second season.

Robinia (Acacia) with Hollow Trunk.—*A. P.* The measurements you state suggest that the tree is comparatively young and, this being so, we consider that it would be well worth while to treat and fill the cavity. It is important to remove all decay and to dress the cavity with Stockholm tar or some other suitable preparation. Whatever material is used for the filling it must be made waterproof, otherwise renewed decay is likely to set in. Ordinary cement is not an ideal filling, and it is practically impossible to to make a union between cement and wood. If, as your letter suggests, you are able to use rubber effectively, this would be an excellent material for the purpose, on account of its resiliency. Asphalt is also very good, but there are difficulties attendant on its use, and these may prove to be insuperable. Failing such materials as those mentioned, recourse generally has to be made to a cement aggregate and we recommend a bulk mixture composed of one part cement, two parts each of sandy gravel and the cork chippings which are often used in packing Almeira Grapes. Slightly moisten the cork and mix it with the cement, then well mix this with the sand and gravel, and make the whole into a wet paste which will readily slide off a shovel. Finish off with a good, high crown to throw off all rains readily. The finishing layer should be rough cast. The addition of cork chippings to the aggregate makes the filling more elastic and helps towards forming a union with the cavity.

Rhododendron Leaves Spotted.—*S. S.* The spots on the Rhododendron leaves received for examination are caused by colouring matter (anthocyanin), similar to that contained in the leaf-stalks, and is not due to disease. Some of the leaf-cells in the vicinity of the patches appear to be dead, which may be due to the presence of the colouring matter. The occurrence may be regarded as a freak, which has previously been noted on several occasions in seedlings that have R. Fortunei as a parent.

Rust Fungus on Currants and Gooseberries.—*L. S.* Both the Gooseberry and Red Currant are infected with the same Rust fungus, viz., Puccinia Pringsheimiana, which is fairly common in the Fens and Broads and other places where the alternate host of the parasite abounds. This other host is Carex, of which about four species are known to bear the winter stage of this rust fungus. The infected leaves and fruits should be picked off, but the only real preventive is to grow the bushes so far away as possible from Reeds and to exterminate the latter in the neighbourhood.

Seedling Rhododendrons Dying.—*H. A. M.* The roots of the young Rhododendrons received for examination appear as though they may have been gnawed by cockchafer grubs. There is some fungus present, but this seems to be of a secondary character. If you dig up the ground and make a careful examination of the soil you should be able to find the grubs or larvae if they are the cause of the trouble.

South African Seeds.—*W. R. J.* Without knowing the names of the plants, seeds of which have been received from South Africa, we are unable to advise you concerning the periods for sowing them, as the terms "summer rainfall" and "winter rainfall" would have little significance in this country. If you know them to be annuals you may treat them as for the general run of half-hardy annuals; some of them, if sown now, should flower during the autumn. The perennial subjects should be sown at once in a cool greenhouse; they should germinate and provide sufficiently advanced plants to pass through the winter safely; they will require cool greenhouse treatment. The terms "summer" and "winter rainfall" no doubt indicates that the plants in question appear and flower at or after the rainy periods indicated; that in fact is how many of them behave in South Africa.

Strawberry Fruits Diseased.—*L. S.* The fruits have been attacked by the mould-fungus Rhizopus nigricans, a saprophyte, which sometimes causes a good deal of damage to ripe fruits during wet weather. The disease should diminish under dry conditions; otherwise try powdering the young fruits with sulphur. You can do nothing with the mature fruits.

Tomato Plants Diseased.—*R. W. R.* From the description and the specimen sent the trouble is probably the "sleepy disease"; but to make sure cut open a stem. A brown discoloration from top to bottom indicates this disease. Raise the temperature of the house to above 77°, and give water very sparingly to the roots.

Communications Received.—H. B. M.—R. B. S.—F. C. S.—W. H. W.—G. W.—A. B.—W. H. M.—H. F. B. —L. S.—F. E. S.—J. B.—W. W.—G. Y. I.—W. S.—W. E. I.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 63.2°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, July 11, 10 a.m. Bar. 34. Temp. 60°. Weather, Warm and Sunny.

Carbon dioxide and Crops.

As readers of these pages know, experiments have now been in progress for some years at the Experimental Station of the Nursery and Market Garden Industries' Development Society, Ltd., Cheshunt, in order to ascertain whether an increase in the amount of carbon dioxide in the atmosphere brings about an increase in the yield of crops. General consideration indicates that there should be such an increase. For, as all know, carbon dioxide is the raw material out of which all the carbon compounds of plants are made. It is present in the atmosphere in minute proportions, say, at the rate of four parts in 10,000 of air. Therefore, in spite of the high efficiency of the absorptive mechanism by which carbon dioxide is introduced into the manufactury cells of a leaf, it would seem probable that were larger supplies of carbon dioxide available the rate of manufacture of sugar and starch, the first "finished products," would be accelerated. For, despite the fact that the stomatal pores through which carbon dioxide enters the leaf are almost incredibly numerous—several millions may be counted on the surface of a single leaf; the pores are of microscopic size, and the process of diffusion which leads the gas into the intercellular galleries of the leaf is notoriously slow. However, general considerations, although invaluable as initiations of investigation, are of no other use in science. The last and only decisive word is experiment. That word would seem to have been spoken by the experiments carried out at Cheshunt and reported in the *Annual Report* for 1927. Technical difficulties in the way of supplying increased quantities of carbon dioxide to greenhouse plants have apparently now been overcome. In the older experiments the gas was produced by the interaction of a bicarbonate with an acid. The simpler method now in use, which consists in producing carbon dioxide by the combustion of coke in a Cardyox, stove is now employed and has proved satisfactory. By burning fuel twice daily, from 9 a.m. to 11 a.m., and from 3 p.m. to 5 p.m., it was found possible to increase the concentration of carbon dioxide in the glasshouses to the very respectable figure of 0·18 per cent.—between four and five times that present in ordinary air When this simple method of forcing was applied to Tomatos and was continued throughout the season, it resulted in a crop increase of nearly thirty per cent. in 1926, and just about thirty per cent. in 1927. Detailed examination of the results obtained in the latter year show that the effect of carbon dioxide is to speed up crop production. That is to say, it shortens the period between pollenation and picking. It is noteworthy also that the percentage of Grade A fruits produced by treated plants was somewhat higher (six per cent.) than that yielded by plants growing in an ordinary atmosphere. The main conclusion drawn by Mr. H. L. White, who has carried out these experiments, is that enrichment of the atmosphere with carbon dioxide benefits the plant by helping it to bear stressful periods with greater success than it can encompass with Nature's meagre supplies of this gas. The Tomato grown commercially experiences two such periods of stress. The first after the plant has been stopped and is developing side-shoots for the formation of the "top" and at the same time is carrying a heavy crop of fruits on the bottom trusses. With larger supplies of carbon dioxide the time which these bottom trusses take to mature their fruits, and particularly those borne at the end of the truss, is materially reduced. The second period occurs toward the end of the season when exhaustion gradually overtakes the heavily-cropped plant. At this stage the increased supply of carbon dioxide helps the fruits to swell better. Further experiments along this interesting line of enquiry will doubtless show whether forcing by carbon dioxide is likely to prove of immense advantage to growers. It certainly looks as though it may !

Gardeners' Royal Benevolent Institution.—At the annual festival dinner of this Charity held at the Savoy Hotel on June 28, the names of the two brothers, Mr. T. H. Cook, of Sandringham, and Mr. Charles H. Cook, of Windsor, were confused. The former contributed £12 12s.; the latter sent in a list amounting to £160, including £68 5s. 1d., the proceeds of two whist-drives; £10 10s. from Mr. Ernest Thomas, £55 from the Southport Flower Show Committee, £52 10s. from Messrs. Waterer, Sons and Crisp, and £5 from Messrs. Rd. Sankey. Further, Messrs. Sutton and Sons gave a donation of £105. This error and omission in our list on p. 19 were due to the fact that Mr. G. J. Ingram, the Secretary of the Institution, was taken seriously ill after the Festival and we had no means of checking the amounts given. We regret to learn, as we go to press, that Mr. Ingram is still in a very critical condition.

Park Superintendents' Outing to Southend.—The members of the Association of Parks and Botanic Gardens Superintendents (London and District Branch) spent a most enjoyable day touring the Southend parks, pleasure grounds and boulevards on Friday, the 29th ult. The party proceeded by charabanc from the Elephant and Castle, at 9.30 a.m., and reached the Priory Park at about 11.15 a.m., where they were met by the Parks Superintendent, Mr. A. A. Keeling, and members of his staff. The tour through this park and the old Priory building proved most interesting; the Roses were magnificent and other features of interest were the nursery department, flower beds and borders, fine old trees and a beautiful collection of living birds. From Priory Park the party proceeded to Southchurch Hall Park and to the famous tramway Boulevard, which is three miles long and so constructed that the almost continuous shrubbery and tree borders are quite close to the tram-lines, forming an avenue which is quite unique in many respects; in this avenue were noted some very fine specimens of Mountain Ash, Prunus Pissardi, Crataegus, Laburnums, Lilac and Berberis. Many of the avenues of street trees were also seen, in which the Silver and Golden Poplar, double-flowering Cherries, Prunus Pissardi and Pyrus Aria were striking features; it was stated that there are over 25,000 street trees in Southend. The Cliff and Terrace Gardens were visited next, and here were remarkable beds of Roses, old specimens and still older varieties, but the thousands of very fine blooms amply justify their retention for decorative display. Lunch was provided, and presided over by the Chairman of the Parks Committee, who welcomed the visitors. Mr. Ashmore, of Peckham Rye Park, thanked the Chairman and Mr. Keeling for their kind hospitality. After lunch, the party proceeded to Chalkwell Park, via some of the new housing schemes, in which a portion of the space normally allotted to the footway was devoted to borders for the cultivation of shrubs and trees; these subjects were doing remarkably well and form a beautiful feature on either side of the road. Before alighting at Chalkwell Park, several fine recreation grounds and sports pitches were noted, and it was stated that these, with most of the other pleasure grounds and sports pitches, were the result of generous benefactions. At Chalkwell Park all the usual features of an up-to-date park were seen, but Roses were again a remarkably fine feature. The twelve feet high pillars of Paul's Scarlet Climber were the envy of all those present. The Cliff Gardens extend from Westcliff to Leigh, and quite a feature has been made by introducing small rock gardens, lawns and shrubberies at different points along this well-wooded coast line, in close proximity to which stands the noble War Memorial flanked by Sea Buckthorn and faced with grass plots containing two large beds devoted to carpet-bedding. The Municipal Golf Links were visited and tea was provided at the Golf House. During tea-time the thanks of the party were again expressed by Mr. W. H. Johns to the Chairman, Mr. Keeling and the other members of the Corporation and the staff, who had done so much to make the day's outing a source of education and pleasure; he also stated that for the future the word Southend would convey a different impression than it had previously, the new one being "Southend for Roses." The Chairman stated that quite a number of Southenders had not seen Southend as the visitors that day had done, and there were many people who did not realise that there were something like four hundred acres of pleasure grounds, with over one hundred tennis courts, numerous football and cricket pitches, a very fine swimming pond, and many other features which go to make an up-to-date pleasure resort.

Tamar Valley Research Work.—Judging by the first *Report* of the Cornwall Tamar Valley Experimental Station at Ellbridge, extensive experimental work is already in progress. So far, much of the work done has been merely of a pioneer nature, but a certain amount of work is being carried out in conjunction with the Royal Horticultural Society and the National Institute of Agricultural Botany, while an effort has been made to experiment and demonstrate with the main crops grown in the Tamar Valley, and the cropping at present is fairly representative of the intensive industry of the district. About 180 young Apple trees have been planted, bush and half-standards only being used; some ten varieties of American origin are included. Five different stocks for Plums are being tested, and the influence of the various types is already apparent, while in addition to the popular commercial varieties of Black Currants, trials are being conducted with such new varieties as Davison's Eight, Laxton's Mite Free, and the Raven; incidentally, nearly one thousand young bushes have been propagated and distributed under the County Horticultural Committee's "Soft Fruit Distribution Scheme." Gooseberries are being grown with a view to discovering their varietal values under local conditions, and a fairly comprehensive collection of Raspberries has been planted. Extensive trials are being conducted with Strawberries, and the reports of the various vegetable trials, including early and maincrop Potatos, Cabbages, Peas and Lettuces, show that good work is being done in this direction. Flowers have also come within the scope of the Station, especially Gladioli and Narcissi, and we look forward to hearing of further achievements from this, one of the youngest of the Horticultural Experimental Stations in this country.

John Duncan, Weaver and Botanist.—The fine work done for botany by John Duncan, weaver, was recalled the other day by Lord Forbes at the distribution of prizes in the public school serving the little village of Alford, Aberdeenshire. It is a fascinating story, and reminds us of other famous Scottish working men whose fine work in the sciences they followed has shed lustre on their native land. There is Hugh Miller, geologist and author; Thomas Edward, naturalist; Robert Dick, geologist and botanist; and John Duncan. The last-named was born in Stonehaven, the county town of Kincardineshire, in 1794. His parents were very poor and hence unable to give him any schooling. The first pence he earned were for gathering Rushes to make wicks for the crusie lamp, the ordinary light of the common people in those far-off days. It was during the time thus spent that Duncan acquired a love for all that grew around him, and which in later years developed into a passion which no obstacle could restrain. At fifteen he was apprenticed to a weaver, and it was his master's wife who first taught him to read. When about thirty years of age he went to the district known as the Donside Valley (Aberdeenshire). Here he started in earnest his life work, the botanising of the Don Valley. He lived for periods at the villages of Monymusk, Tullynessle, Auchleven and Alford, all in the valley of the Don, and in their surroundings Duncan found admirable scope for his ruling passion. With meticulous care he "botanised" the whole valley from Monymusk to Towie, and also the district surrounding Bennachie, an Aberdeenshire mountain dominating the countryside through which the River Don flows. The magnificent collection of plants, Grasses and Lichens, Duncan acquired during many years wandering was thought so valuable that it was offered to and willingly accepted by Aberdeen University. Although far from being a rich man, Duncan stipulated in his will that whatever money he left should be used to form a fund to provide prizes for the study of science, especially botany, among the youth, both boys and girls, living in the Vale of Alford. This sum has lain in abeyance for many years, but has now become sufficiently large to enable the trustees to put the terms of the will in force, and the prizes were distributed this year for the first time. The children rose splendidly to the occasion, and the beautiful collections they entered for the competition would surely have warmed the heart of old John Duncan, weaver and botanist. As Lord Forbes stated, it was a delight to see the magnificent response the scholars had made to the trustees of the Duncan Trust, and he warmly congratulated all who were concerned in the fine work. Lady Forbes added special honour to the awards by presenting them personally to each of the recipients.

Sutton Bonington Students' Successes.—In the recent examinations for the Junior Certificate of the Royal Horticultural Society, Mr. John P. Hudson, of Chapel-en-le-Frith, Derbyshire, who was trained at the Midland Agricultural and Dairy College, obtained first position in all England, and has been awarded a Silver Medal. A similar medal was also won last year by a Sutton Bonington student, Mr. E. C. Wray, of Humberstone, Lincolnshire. Mr. F. A. Roach, of Toft Newton, Lincolnshire, who was trained at the college and won a scholarship last year to take him to Cambridge, has recently won an open scholarship, value £85 a year, for three years, to train for the degree in Horticulture at the Reading University.

Mr. G. E. Roden.—After leaving the Masonic School at Bushey, Hertfordshire, where he had taken a keen interest in gardening, Mr. G. E. Roden decided to take up gardening as a profession, especially as an indoor life did not suit him. He served an apprenticeship under Mr. George Mullins, at Eastnor Castle Gardens, Ledbury, where the cultivation of indoor and hardy fruits was a special feature. From Eastnor he went to Grimsthorpe Castle Gardens, under Mr. Foster, and thence to Grimston Park Gardens, Tadcaster, as first journeyman, under the late Mr. Bound, where he obtained a wide knowledge of stove plants and Orchids. In August, 1914, he joined the army, was wounded, and subsequently discharged early in 1916. After this experience, he went to Baldersley Park Gardens, Thirsk, as general foreman, under Mr. J. E. Hathaway, where he remained five years before becoming gardener to Mr. Holland Martin, at Averbury Court, Tewkesbury. Here he remained for three-and-a-half years, and during that time carried out extensive alterations and improvements in the gardens and estate. Desiring to take up municipal work, he applied for and obtained the position of Superintendent of the Folkestone Parks and Pleasure Grounds, in 1925. Previously there had been no Park Superintendent and the parks came under the care of the Borough Engineer. On his appointment, however, the parks and pleasure grounds were made into a separate department and reorganised. During the past few years, Folkestone has greatly extended and improved its parks and open spaces; about five years ago land was purchased for sports grounds and afterwards laid out at a cost of over £50,000. Last year the famous Leas were improved by the removal of hurdles, levelling the lawns and putting in curbs, and by making flower beds. During the past winter, more greenhouses were erected for the cultivation of the plants needed for the pleasure grounds and in June of this year the new area known as Kingsnorth Gardens was opened to the public by Viscountess Folkestone with due ceremony. The Kingsnorth Gardens were planned by Mr. Roden, and laid out entirely by unemployed labour on a site presented to the town by Viscount Folkestone. They contain an Italian garden (Fig. 9), Lily pond, pergola, fountains, Rose garden, flower borders and a very fine Weeping Ash.

MR. G. E. RODEN.

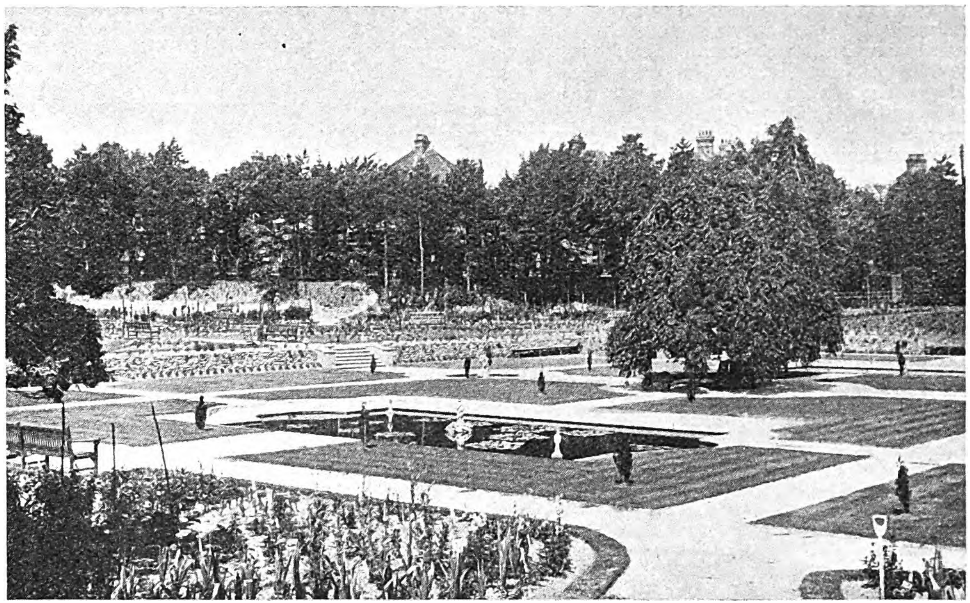
South African Flowering Plants.—Part 29, Vol. VIII, of *The Flowering Plants of South Africa*, contains descriptions, together with excellent coloured illustrations, of Aloe hereroensis var. Orpeniae, t. 281; Euryops multifidus, t. 282; Begonia Sutherlandii, t. 283; Gasteria obtusifolia, t. 284; Euphorbia bubalina, t. 285; Aloe grandidentata, t. 286; Buddleia salvifolia, t. 287; Euphorbia trichadenia, t. 288; Cotyledon decussata, t. 289, and Haworthia Bolusii, t. 290. Aloe hereroensis var. Orpeniae is found in the Cape Province and the Orange Free State, and is described as a beautiful, sub-caulescent plant with a basal rosette of leaves which are ovate-lanceolate, tapering to a long pungent apex, whitish-green fading to pale purple-mauve in the upper portion; the coral-red flowers are produced in large corymbs. This subject was described and illustrated in *The Gardeners' Chronicle* in 1905 (Vol. XXXVIII, p. 385, Figs. 144, 145, 146) as Aloe Orpenae sp.n. Euryops multifidus is a member of a characteristic South African genus, although, judging by the illustration, it is hardly worthy of a place in cultivation. It is a woody, perennial bush, much branched, with narrowly-divided leaves and small, yellow, composite flowers. Begonia Sutherlandii, native to Natal and Transvaal, is figured and described in the *Botanical Magazine*, t. 5,689. It is tuberous-rooted, has obliquely-ovate, acuminate, two-lobed and red-veined leaves, and brick-red flowers. Gasteria obtusifolia, of the Order Liliaceae is found in the Cape Province. It has thick, fleshy basal leaves and long, slender spikes of pink and green tubular flowers. Euphorbia bubalina is a spineless shrub with a dark green, simple or branched, stout, succulent stem, leafy towards the apex. The leaves are sessile, alternate, oblanceolate or oblong-lanceolate; the inflorescence is a simple or compound umbel, with a pair, or usually three bracts at the base of the umbel. The bracts are green, margined with red. Aloe grandidentata has a basal rosette of broad, succulent leaves, with large-toothed margins; the flowers are orange-red. Buddleia salvifolia is a handsome subject worthy of cultivation. It is an erect shrub, with Salvia-like leaves, slightly tomentose above and densely so beneath. The flowers are described as yellowish-white, with an orange throat, although the illustration depicts them as pale lilac in colour. Euphorbia trichadenia, belongs to the small section which have large, tuberous root-stocks. Its growths are sub-erect, woody at the base, clothed with fleshy, glabrous, lanceolate-linear leaves, while the flowers, borne either singly in the forks of the branches or in terminal cymes of three to five, are pale yellowish in colour. Cotyledon decussata is the name adopted for this succulent, under which it is described in the *Flora Capensis* and in the *Botanical Magazine*, t. 2,518. It is a short-stemmed perennial, with long, narrow, fleshy leaves and pendulous, yellow, mottled with red flowers. Haworthia Bolusii is a Liliaceous subject of no especial decorative value, with racemes of greenish-white flowers.

Scottish Sweet Pea Trials.—The trials of new Sweet Peas, not in commerce, conducted by the Scottish National Sweet Pea, Rose and Carnation Society, at Helensburgh, were open for inspection on Saturday last. There were seventy-eight varieties, the majority of which were sown towards the end of September, and the remainder in spring, but all were grown on the single-stem principle. Not only were the autumn-sown plants in a more advanced stage of growth, but they suffered less from bud-dropping. Compared with preceding years there was a marked decline in the quality of the seedlings, and the number of stocks that were lacking in purity was an unfavourable feature of the trials. The presence of single rogues was quite common, while several varieties were badly mixed, and in some instances the raiser's colour classification was not in accordance with the results. Although no definite conclusions could be formed regarding the merits of the varieties on trial, opinion was general that few, if any, of the seedlings were distinctive in colour or showed an advance on existing sorts, and unless the blooms indicate improvement from now until the date of the show on August 1, it is obvious that not more than half-a-dozen varieties will qualify for an award. The outstanding example was an orange cerise variety (No. 78) of vigorous growth. The flowers were large and of good form and substance, with four blooms nicely placed on long stems. Other promising examples were a lavender-lilac (No. 18), flushed cream-pink (No. 37), deep blue (No. 15), and a cerise (No. 34). Of the various colour classes, pink shades predominated and accounted for about one-third of the total entries. Five blue examples belonged to the too-much-alike category, while the orange shades were disappointing and reflected the bad weather conditions. A novel bit of colour of the Lady Gay type appeared in No. 30, but the row was badly mixed.

International Rose Conference.—The great International Rose Conference, organised by the National Rose Society, commenced with the opening of the Summer Show in the Royal Hospital Grounds, Chelsea, on June 29, and terminated on Thursday, July 5, when the delegates and members visited the Rose nurseries of Messrs. Chaplin Brothers, Messrs. Walter Stevens, Ltd., and Mr. Arthur Stevens. On Sunday, July 1, visitors and members attended a reception at the residence of H. R. Darlington, Esq., and spent a very pleasant hour inspecting the gardens at Park House, Potter's Bar, Hertfordshire. On the Monday there were five lectures, given at Caxton Hall, Westminster. Mr. A. Osborn, Kew, spoke on "Rose Species," and illustrated his address with examples of several choice species. Major C. C. Hurst, Trinity College, Cambridge, addressed the meeting on "Genetics of the Rose" (see p. 35), and was followed by Mr. H. R. Darlington, who dealt with the "Future of the Rose." After lunch, the first lecture was by Mr. G. M. Taylor, Edinburgh, on "The Future of the Rose as a Decorative Flower." This paper was originally to have been given by Messrs. George Monro and George Shawyer, but they were unable to be present. The last lecture was by Mr. J. Ramsbottom, who gave an interesting and exhaustive review of "Diseases of the Rose." In the evening, about two hundred members and visitors attended the banquet at the Savoy Hotel, which was followed by an excellent musical programme. Kew Gardens were visited on the Tuesday afternoon by about one hundred members, and the visitors were entertained to tea by the National Rose Society. On the Wednesday, a party of about one-hundred-and-eighty members motored to Colchester, where the nursery of Messrs. Frank Cant and Co. was visited. Unfortunately, Mr. F. Cant was ill, so Captain Cant conducted the party over the establishment. From there, the party proceeded to Messrs. Benjamin R. Cant and Sons, Ltd., and, after lunch at a Colchester hotel, a return to London was made, Messrs. Dobbie and Co.'s seed farm at Marks Tey being viewed on the way, where tea was provided.

The late Mr. W. J. Chittenden.—The Committee of the National Dahlia Society wish to record their sorrow at the death of their late Honorary Secretary, Mr. W. J. Chittenden, and their appreciation of the way in which he carried out the duties of his office. His quiet, persistent efforts on behalf of the Society resulted in a considerable increase in membership and in general interest in the Society, and his services will long be remembered with gratitude.

Further Gift to the Nation by Mr. H. G. Younger.—In February, 1925, Mr. H. G. Younger presented to the Forestry Commission his estate of Benmore, Argyllshire, subject to certain reservations, and a report of this gift was given in *The Gardeners' Chronicle* for February 21, of that year (Vol. LXXVII, p. 121). The gift was for afforestation purposes and education in sylviculture, as well as a national arboretum and botanic garden, the reservations in the main consisting of Benmore House and offices, policies, gardens and shrubberies. Mr. H. G. Younger has now supplemented this gift by another one, to the same Commission, the new gift being the residue of his estate, as specified, reserving only for his private use Eckford House, a small villa, and the river Eshaig, which links Loch Eck to the sea. The supplementary gift should prove of great value to the Forestry Commission, for it embraces many acres of interesting woodlands, an arboretum and gardens, where for the last fifty years successful experiments have been carried out with a variety of exotic timber trees and herbaceous plants. Benmore House, a fine mansion, is to be used as a college for students in all branches of forestry, and it is understood that the present Forestry School at Beauby will subsequently be transferred to Benmore House, which will be vacated by Mr. Younger in November. It will be borne in mind that it is on this estate, in Puck's Glen, that the memorial to the late Sir Isaac Bayley-Balfour has been erected, and it is hoped that in time Benmore will become the National Botanic Garden of Scotland, for already some thousands of Rhododendrons have been planted throughout the policies, and the shrubbery has been enlarged.



[*Photo: Adcock.*

FIG. 9.—KINGSNORTH GARDENS, FOLKESTONE: THE ITALIAN GARDEN.

Accident to Mr. W. Auton.—It is with great regret that we record an unfortunate accident to Mr. W. Auton, a well-known horticulturist and regular contributor to *The Gardeners' Chronicle*, who, while travelling to Ascot on Wednesday, June 27, fell from the train and was later found unconscious on the track. Mr. Auton was taken to Windsor Hospital, and enquiries show that he is suffering from a broken collar-bone, and shock, but we are pleased to learn that he is progressing favourably. We join with all his friends in wishing him a speedy and complete recovery.

Appointments for the Ensuing Week.—SUNDAY, JULY 15: Sligo Cathedral Carnival (eight days). TUESDAY, JULY 17: Royal Horticultural Society, Committees meet; National Carnation and Picotee Society's Show; Kent County Agricultural Society's Exhibition at Folkestone (three days). WEDNESDAY, JULY 18: Yorkshire Agricultural Society's Exhibition (three days); Surbiton, Tolworth and District Horticultural Society's Show; Reigate, Redhill and District Gardeners' Mutual Associations' Exhibition. THURSDAY, JULY 19: British Carnation Society's Exhibition (two days); Brentford and Chiswick Horticultural Society's Show. FRIDAY, JULY 20: Birmingham Floral Fête (two days); Sussex County Agricultural Society's Exhibition (two days). SATURDAY, July 21: Elstree and District Horticultural Society's Fête.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Timber Seasoned in Lime-water.*—As the publication of the following memoranda, drawn up by my gardener, and stating to me the results of experiments in seasoning young timber by immersion in lime-water, may be interesting and useful to many of my brother landowners, I send them, together with the specimens referred to by him. I should add that timber intended for roofing, gates, etc., should first be shaped and fitted, and then taken to pieces and placed in the lime-water, as the wood, when taken out of the pit and dried, becomes so hard and the grain so gritty that it cannot well be cut or planed, and if placed when tenoned and framed together in the pit, would swell and burst the joints. My gardener says, "The specimens of timber now submitted for inspection are the result of some experiments carried out in 1843 and 1849. Pieces of the wood, as labelled, were soaked for fourteen days in strong lime-water, and after being taken out and allowed to dry, were placed with other pieces not soaked upon a grub-eaten floor, and the results are what the specimens now exhibit. While the piece of young Larch, No. 1, is perfectly sound, No. 2, a piece of the same tree, but not soaked, is completely perforated by grubs. No. 3 is a piece of Sycamore plank, soaked in lime-water; and No. 4 a piece of the same plank, not soaked. No. 5 is a specimen of Lime tree plank, soaked; the wood quite green when put to soak; No. 6 is a specimen of Lime tree, the wood quite dry when put to soak; the grub has not attacked either of them, and it appears that the lime-water penetrates the green wood as deeply as it does the dry. No. 7 is a specimen of peeled Larch, soaked in 1843; and No. 8 is a specimen of the same tree, not soaked in lime-water. No. 9 is a specimen of unpeeled Larch, soaked in lime-water in 1843; and No. 10 is a specimen of the same tree, not soaked. Moreover, I may remark, that the timber which is soaked is harder than that not soaked. The tank for soaking timber here is twenty-six feet long, five feet wide, and four feet deep; dug out of the clay, and the sides and bottom lined with wood, at an expense of about 70s., exclusive of the value of the timber in the rough. *J. Wilson.*" *J. L., Leaton Knolls.* [The specimens to which our obliging correspondent refers entirely confirm the accuracy of his description of them.] *Gard. Chron., July* 9, 1853.

The Week's Work.

THE ORCHID HOUSES.

By W. GILDEN, Orchid Grower to Dr. F. CRAVEN MOORE, Manchester.

Cypripediums.—Many of the warm-house Cypripediums, such as C. Rothschildianum, C. Sanderianum, C. Stonei, C. Lowii and C. philippinense, that have bloomed recently, are commencing to grow again, and any necessary repotting may be done. These Orchids soon deteriorate if left in a pot-bound condition, or when the compost has become impoverished. Well-drained pots are the best receptacles, and equal parts of fibrous loam and A.1. fibre, cut moderately fine, with one part Sphagnum-moss and sufficient crushed crocks to keep it porous, makes a suitable rooting medium. The compost should be pressed moderately firmly between the roots, and water should be applied carefully and sparingly until the plants are re-established, when ample supplies are necessary during the growing season. Shade the plants from direct sunshine, especially for a few weeks after repotting, and maintain a humid and buoyant atmosphere. Light sprayings overhead are beneficial during hot weather, care being taken to avoid allowing the water to collect in the axils of the leaves. Some of the tessellated-foliaged Cypripediums, such as C. Lawrenceanum var. Hyeanum, C. callosum var. Sanderae, and the free-flowering hybrid derived from them, C. Maudiae, may receive attention at the roots after flowering. Loam is not necessary for this section, and as they are surface-rooting, pans form quite suitable receptacles. The drainage should be ample and the compost of fibre and Sphagnum-moss should be worked in carefully among the thick, brittle roots, finishing off with a layer of fresh moss. C. Maudiae should produce two crops of flowers each year, but if the plants are divided when repotting it is advisable to pinch out the flowers and allow the plants to root well.

The Cattleya House.—Many plants in this house began to grow freely during the bright sunny weather experienced about Whitsuntide, but during the last three weeks of June, owing to the very wet and dull conditions experienced in the north, growth has not been so rapid, and every encouragement should be given the plants, especially those that are now forming their flower sheaths, such as Cattleya Hardyana, C. gigas, Laelio-Cattleya Profusion, and many other sorts. Give them a light position and so much sunshine as the leaves may enjoy without injury; avoid great fluctuations in temperature so much as possible, and maintain a humid and buoyant atmosphere, with a free circulation of air. As the growths and roots advance more water is required at the roots, although this should be given with discretion, especially during dull weather. Allow the compost to become fairly dry between each application. C. gigas, which should be growing in a light position at the warm end of the house, requires watering very sparingly until the flower sheaths are showing, when a liberal quantity may be given. Other varieties that pass out of flower and commence to grow after a short rest may be repotted if necessary, using good Osmunda or coarse A.1. fibre, with a little Sphagnum-moss, as a rooting-medium. Black thrips are often troublesome at this season and the house should be fumigated occasionally to keep them in check, while scale insects should be removed by careful sponging so soon as detected. The new growths should be supported if necessary by a neat stake, allowing sufficient room for the bulbs to develop.

THE KITCHEN GARDEN.

By ALLAN FALCONER, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Turnips.—In southern districts the maincrop may be sown to produce roots for storage for winter use. Ground which has been manured and cultivated well suits this crop admirably, while a good dusting of soot and wood-ash previous to sowing the seeds is very beneficial to this crop. If possible, sow the seeds when the ground is moist, as quick growth is essential to avoid the young seedlings being attacked by the Turnip fly. Should the ground be dry, it may be advisable to water the drills before sowing. Immediately germination takes place frequent dustings of soot and wood-ash and plenty of moisture are necessary. Further sowings may be made until the middle of September, and those which fail to mature will be found useful to withstand the winter to produce green tops in the early spring. Short lawn-mowings, scattered over the bed when the seeds are sown, should keep the ground moist and deter the Turnip fly. Applications of artificial manure in the early stages are also beneficial. The seeds should be sown in shallow drills one foot apart, and the seedlings should be thinned so soon as possible, in two operations, eventually leaving them nine inches apart in the rows. On light soils it is advisable to grow them in a partially shaded place.

Carrots.—A sowing of the Shorthorn type should provide material for use during the autumn, and in some favoured districts in the south they may withstand the winter and be useful when the maincrop Carrots are deteriorating. Ground for this crop should be raked down to a fine tilth, and if of a heavy nature, dressed with good soil and wood-ash. Sow the seeds in shallow drills one foot apart, and give the young seedlings every encouragement to make quick growth.

Beet.—Turnip-rooted varieties may be sown now as a catch crop for use in the early autumn, but in my opinion these are not to be compared for quality to the long and intermediate types of Beet.

PLANTS UNDER GLASS.

By J. COUTTS, Assistant Curator, Royal Gardens, Kew.

Ficus macrophylla.—This Australian species is a useful plant for general decorative purposes, being of a lighter and more elegant appearance than the more common Ficus elastica, while there is a variegated variety which is not so robust as the type. Both are propagated easily by means of cuttings, which root readily in a warm propagating case, and grow freely in any good potting compost.

Senecio Petasitis.—Young plants that were propagated earlier in the year and are intended for growing on into large specimens should be potted on as they require it. In a small state this plant is useful for furnishing the stages of a large conservatory, and for this purpose cuttings should be rooted now, the resultant plants being flowered in six-inch pots. This subject requires cool greenhouse treatment and thrives in any good potting compost.

Senecio grandifolius.—Large specimens of this robust species, which has handsome, dark green foliage and huge corymbs of yellow flowers, are also very useful, and may be grown under the same conditions as advised for S. Petasitis.

Senecio glastifolius.—This species is attractive in the conservatory during spring and early summer and may be propagated easily at this season by means of cuttings. It grows in an ordinary greenhouse temperature, and should be stopped several times to secure a bushy habit. If propagated now large specimens may be produced, but if smaller plants are required cuttings may be inserted towards the end of August.

Celsia Arcturus.—This beautiful and graceful greenhouse plant is raised easily from seeds which, if sown during August, should provide a batch of plants for flowering early next year. Plants raised early this year are now providing a good display. It is easy to cultivate and good flowering examples may be produced in five-inch pots.

HARDY FRUIT GARDEN.

By T. E. TOMALIN, Gardener to the EARL OF BESSBOROUGH, Stansted Park, Emsworth, Sussex.

Apples and Pears.—The final thinning of these fruits should now be completed. The usual falling of the smaller fruits during June has not been nearly so heavy as usual, therefore a good deal of thinning remained to be done after this had taken place. No hard and fast rule may be laid down as to the number of fruits to leave on each spur; much depends on the habit of the tree and the size of the fruits of each variety. On some closely-spurred varieties of Apple, such as Allington Pippin and Cox's Orange Pippin, one fruit to each spur may be too heavy a crop to leave, but on varieties such as King of Tomkins County and Loddington, where the spurs are more scattered, two fruits to each spur should not be too many for the tree to carry, but in all cases, if exhibition fruits are desired, the thinning should be more drastic than for an ordinary commercial crop. Young trees carrying fruits intended for exhibition should now be assisted with frequent applications of well-diluted liquid manure, and an occasional dressing of a reliable fruit tree fertiliser, the latter being watered in thoroughly should the weather be dry at the time. The efficacy of each watering is increased greatly if the surface soil around the tree is hoed lightly a few hours after watering, and a light mulch applied afterwards.

Supporting the Branches.—The effect of the weight of crop on standard fruit trees should be observed closely from now onwards, and timely support given to overladen branches by placing forked sticks under them. Apples of weakly or brittle growth, such as Lane's Prince Albert and Lord Grosvenor, to name one of each type, are especially liable to damage in this respect, and neglect of this aid may occasion the loss of valuable branches..

Damsons.—The crop of Damsons is particularly heavy in this district, and to enable the trees to bring the fruits to maturity they should be kept free from aphis, to which pest they are very prone, by a final spraying of Quassia and nicotine wash. The branches are very brittle and should be supported directly any tendency towards bending is noticed.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Melons.—The second batch of Melons, growing in heat, is now ripening its fruits, and so soon as the fruits commence to colour a little air should be admitted through the top ventilators. See that the fruits do not break away from the main stems; some varieties are more liable to do so than others, but if the fruits are supported with nets, and are cut when they show the first signs of cracking around the stem, this possibility may be avoided.

Melons in Frames.—These should now be growing freely, but if the weather is inclined to be cold, it may be wise to reline the frames with some fresh fermenting material. Attention should be given to the regulating of the growths to avoid overcrowding. Some growers favour stopping and pinching out all the shoots which are formed after sufficient fruits have set, but I allow two or three to grow unchecked. This, I am sure, encourages root action. The roots should be given alternate copious supplies of water and liquid manure while the fruits are swelling, but when they are approaching the ripening stage these applications should be slightly reduced and the liquid manure withheld altogether. Canteloupe varieties require more air than is required by other Melons, and the fruits should be raised above the foliage so that they may be watched carefully.

Cucumbers.—Cucumbers in frames are now fruiting freely, and to keep them in a healthy condition they need applications of liquid manure and frequent light top-dressings of rich compost.

Plants that have been producing crops in heated structures may now be discarded and the houses cleansed thoroughly with a view to replanting to secure a succession of fruits. If seeds are sown now good strong plants may be secured, which should produce good crops during the autumn months. The plants should be allowed to become well established before allowing them to crop to any extent; avoid overcrowding the young shoots, and remove all male flowers as they appear.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to the DUKE OF DEVONSHIRE, Chatsworth, Bakewell, Derbyshire.

Pruning Shrubs.—The pruning of shrubs is undoubtedly a much misunderstood operation. The annual indiscriminate lopping and shearing of trees and shrubs, the effects of which are often seen in suburban and other gardens, is doubtless considered to be a necessary process, but mutilation best describes this work, which is a glaring example of "how not to do things." To be able to undertake the pruning of flowering shrubs and trees, a knowledge of their habits of growth and time and mode of flowering, whether on last year's or the current year's growths, must be understood, together with an intelligent interpretation of the purpose for which the shrubs were planted. The early spring-flowering shrubs such as Chimonanthus fragrans, Forsythias and Ribes sanguinea, to name a few, should be pruned immediately the flowers have fallen. These all flower on the previous year's growths and the old flowering wood should be cut out to allow the subsequent shoots to have the full benefit of sunshine and air. Naturally, recently planted and undeveloped shrubs should be treated lightly—it is more the reducing of the old wood on mature specimens that is suggested. Deutzias, Diervillas, the stronger-growing Philadelphuses, Prunus triloba, and all the Peach and Almond family, are examples of this class, which flower best on the young ripened shoots of the previous year. Some of the new hybrid Philadelphuses do not make very strong growths, and these should not be cut too severely—a careful and moderate thinning should suffice. Buddleia variabilis and its several varieties are deservedly popular shrubs; these flower on the strong shoots of the current year's production, and should be pruned severely in the early spring. They start into growth very strongly, and a number of the weaker shoots should be removed. This shrub repays liberal treatment and plenty of water during a drought. B. globosa should only have superfluous or weak growths removed. Tamarisks should be pruned back to hard wood in winter or spring. The various Brooms should be watched and kept within reasonable limits by removing any undesired shoots when in quite a young state. It is practically impossible to induce old and leggy specimens to break if cut back too severely. Many shrubs are grown for their ornamental foliage, notably the Japanese Acers, Rhus typhina and the Sambucuses. The Acers rarely make very strong growth, and little pruning is necessary, but in the case of the Rhus, by pruning fairly hard, the growths come stronger and finer, and the foliage colours well in the autumn. In the cases of slow-growing, evergreen shrubs, the pruning consists of removing irregular growths, to keep the plant shapely, or in its allotted space, bearing in mind that an over-pruned shrub of this nature bears no comparison with one which has been allowed sufficient space to develop. The popular Golden Privet colours much better if a certain amount of pruning or thinning is done before growth commences in the spring.

Ceanothus Gloire de Versailles.—This favourite shrub and other varieties of Ceanothus of similar habit, may be pruned severely in the spring, cutting the growths back to the old wood. When growth commences the new shoots should be reduced to a moderate number if the finest heads of blooms are required. Liberal treatment is necessary with these to secure the best results. Although often grown as a wall plant in the colder districts, this shrub is seen at its best when grown in a group on a lawn, especially if seen in conjunction with a good pink climbing Rose.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener at Jordanhill Training Centre, Glasgow.

Strawberry Runners.—The disease which has of recent years attached the Strawberry and is now widely known as the Lanarkshire Strawberry disease, has worked untold damage over a wide area, and those who have not yet made its acquaintance may consider themselves fortunate, for where it is really bad there are very few runners to carry on a succession. However, where healthy runners are available they should be secured by layering into pots or turves. These early runners are necessary where the forcing of Strawberries is practised, and sufficient should be secured at an early date to provide for the earliest batch of plants. Supplies of runners for extensive plantings out-of-doors should also be secured so soon as they are ready, and if taken off with a portion of the creeping stem, they may be inserted securely in any moderately rich soil, where they should make better plants for setting out during August than if left to struggle alongside the parent plants, on soil that has been trodden hard in the process of picking the fruits. So far, no cure for the above disease has been forthcoming, but experiments are still proceeding in various parts of the country, and I believe that in course of time a remedy will be discovered; meanwhile those who have clean, healthy stock should give their plants the best possible cultural treatment, and avoid introducing runners from affected sources.

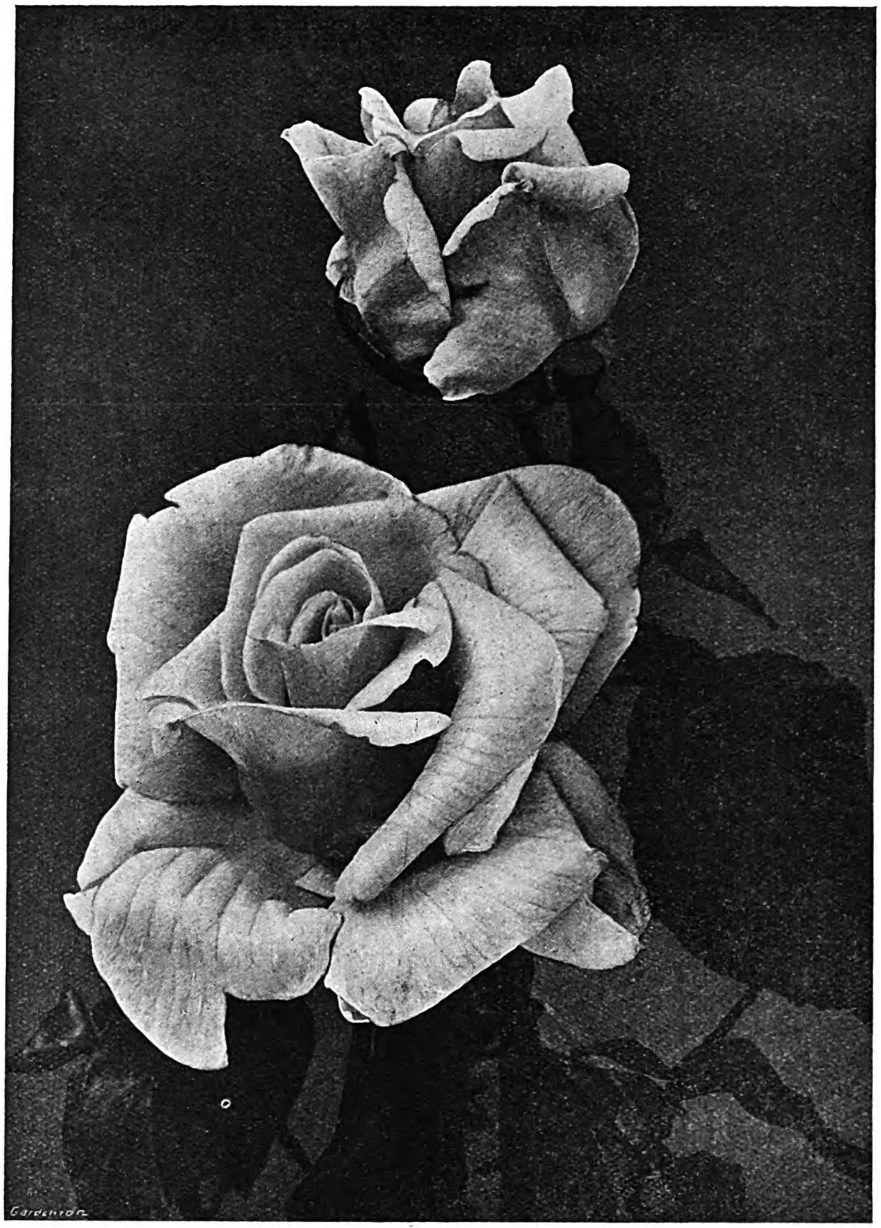


FIG. 10.—ROSE EDITH NELLIE PERKINS.

N.R.S. Certificate of Merit, June 29.—Flowers cream and orange buff. Shown by Messrs. Alex. Dickson and Sons. (see p. 15).

Cabbages.—To produce early Cabbages next spring it is necessary to make a sowing about the middle of July, and although the actual date may vary with the different localities, the main point is to secure good, sturdy plants, ready to set out in their permanent quarters early in September. Seeds should be sown thinly in drills one foot apart, and when the seedlings are showing their first pair of real leaves they may either be thinned, leaving the remaining plants from two to three inches apart, or they may be lifted and pricked out in nursery rows. This latter method may take a little more time, but it undoubtedly produces better plants, which is the main point, as these plants have to withstand the winter unprotected, and the twice transplanted seedlings are not only shorter-jointed, but also have a greatly improved root-system which enables them to take to their permanent quarters in a few days after being planted.

HARDY FLOWER BORDER.

DRACOCEPHALUM ISABELLAE.

This comparatively new Chinese species is very lovely, the drooping and somewhat large flowers being coloured a rich shade of velvety-purple or bluish-purple. Like certain of its relatives, it is, in some districts, difficult to keep for any length of time, and is, perhaps, happiest in a cool, moist, but well-drained soil. I have seen excellent pot-grown plants, and when any difficulty arises, perhaps a cold frame or alpine house treatment may satisfactorily solve the problem.

It is a subject well worth attention, the richly-coloured blossoms and greyish-green foliage harmonising pleasantly, and the flower stems arching and drooping in a manner reminiscent of some Onosmas.

ANEMONE RIVULARIS.

This summer-flowering Windflower is conspicuously lovely, and the abundant display of flowers is particularly welcome at a time when the majority of its congeners have passed to rest. The rather small, white flowers, with purplish-blue anthers and blue reverse are of that type of beauty which never fails to please, and the quiet and lovely colouring is in perfect harmony with almost any scheme.

The plant grows about eighteen inches or rather more high, the villous leaves being three-lobed, and the lobes trifid; the plant is deciduous and late to appear. It prefers a damp situation in the border, or it may be planted in a bog, or at the streamside; while it is often happy when grown in a cool nook on the rock garden. It often perpetuates itself by means of self-sown seedlings. A. rivularis was introduced from the Himalayas in 1840, but it has never been too plentiful in gardens. *Ralph E. Arnold.*

CARDAMINE MACROPHYLLA.

Comparatively few of the Cardamines deserve inclusion among the best hardy flowers, as most of them have a modicum of coarseness in their general appearance. A few, however, should not be neglected, and among them may be named C. macrophylla, an eastern Asiatic plant, not by any means common. It came to me last year and, by some mischance, appears to have been planted in a group by the side of another mass, composed of that fine mossy Saxifrage Red Admiral. The Cardamine was a few days earlier than the Saxifrage, but when the two were in flower together the effect was quite unpleasing and gave the impression of neither harmony nor contrast. C. macrophylla is purple, while S. Red Admiral is one of the best coloured of the red mossy Saxifrages. Needless to say, there is removal in store for one or other of the two.

Cardamine macrophylla, although not one of the most refined-looking flowers, is excellent for the border, and a group should look well there with its numbers of purple flowers on neat stems of about twelve inches in height. No special soil or situation is required, although a moist place should induce it to grow taller and more robust. It is increased by division or seeds. *S. Arnott.*

ROSE GARDEN.

ROSA HARDII.

This choice and singularly distinct plant cannot fail to attract those who who have an eye for the beautiful. Once having seen it, the enthusiast for good shrubs will be anxious to add it to his collection. In habit, Rosa Hardii is a low-growing bush with slender, spreading branches, on which are borne leaves composed of from five to seven leaflets, each of which is about three-quarters-of-an-inch long, oblanceolate, narrowing towards the base, and simply toothed. The flowers, which appear about the middle of June, are from one-and-a-half-inch to two inches in diameter and are borne singly at the end of the shoot. They are of exquisite form and colour, and bear at first glance a resemblance to a partially opened flower of Cistus formosus. The petals are bright sulphur-yellow in colour with a dark crimson blotch at the base of the inner surface. The combination of these two colours produces an extremely pleasing effect.

For its successful cultivation this Rose requires a well-drained soil and a position where it receives plenty of sun; a place on a wall facing south is the ideal. In mild districts it would no doubt succeed in a well-drained and protected sunny spot on the rock garden. Rosa Hardii is believed to be a hybrid between Rosa persica, Michx., and Rosa clinophylla, Thory. In flower it shows a distinct affinity to the former. It originated in the Jardin du Luxembourg, Paris, about 1835, and is named after Mons. Hardy, who was Curator of the Luxembourg Gardens at that time. *Thos. Blythe, Botanic Gardens, Cambridge.*

BOG AND WATER GARDEN.

RANUNCULUS LINGUA.

In the quest for new varieties and uncommon species from abroad, several worthy members of our own native flora are apt to be overlooked as subjects suitable for cultivating in our gardens, and such a plant is R. Lingua, the Giant Spearwort, which is well worth its place in the bog garden, or on the moist margin of a pond or lake, if space may be spared for it.

Although a native, it is by no means common, in fact, its distribution is somewhat local, but it is found throughout Europe and temperate Asia, growing in marshes, wet ditches, and on the margins of lakes or ponds, while when introduced to the garden it is easily accommodated, and does not prove too rampant in habit. It is a stately species, reaching a height of about three feet, perennial, and spreading by means of creeping runners, while the leaves are long and lanceolate in shape, with almost, if not absolutely, entire margins.

The stems are stout, erect and hollow, and bear, in fact, are bearing at the present time, large, shining, golden-yellow Buttercup flowers, which when produced on large clumps are very attractive. There is a grandiflora form sometimes offered in catalogues, which is stated to have both larger leaves and flowers; I have not yet had the pleasure of seeing this variety, but judging by its description, it should be a handsome acquisition. *M. W.*

RANUNCULUS GLACIALIS.

Wherever it is found, in its most typical high alpine form, Ranunculus glacialis consists of a tuft of small foliage, the leaves being almost succulent, three-cleft, with the divisions also lobed. As Gaston Bonnier states in his *Complete Flora*, "*Ses feuilles épaisses, luisantes er tres divisées sont d'un effet decoratif très special.*" The flowers are produced on stems from two to six inches in length, usually either singly or in twos or threes, more rarely in clusters of six, and occasionally more. The blooms are saucer-shaped, one-and-a-half inch to two inches across, and of purest white in the best forms, changing after pollenation to Apple-blossom-pink or rose. Many authorities give the flowering season as from July to September, but no doubt the time of flowering varies with the altitude, district, earliness of the season, etc.

Complete botanical descriptions of R. glacialis are given in many works, notably those of continental botanists. For example, Mauritio Willkomm and Joanne Lange describe the species in great detail, and also mention var. holosericeus in their *Prodromus Florae Hispanicae*, published in 1880. A less lengthy account of the type is to be found in *Florae Rossica*, by Dr. Carlo Friderico and Ledebour (1842). In both instances the text is in Latin. The eminent French botanist, Gaston Bonnier, is even more enlightening as to the characters of the type, and intending collectors should welcome such specific information as that given in the *Complete Flora*. For example:—(*a*) Very hairy sepals of rusty colour; (*b*) Nectary formed by a little folding of the translucid petal; (*c*) Lobes of the leaves not bordered by teeth; and (*d*) Petiole divided into two or three secondary petioles.

The distribution of R. glacialis is very interesting, the plant having the peculiarity of disappearing suddenly, to be followed by spasmodic eruptions in more distant chains. The first striking fact is that this species confines itself to the granitic and certain other neutral formations; secondly, we note that it is primarily a European species. In the north its range is comparatively wide, extending from Greenland and Iceland to Spitzbergen, Norway and Lapland, and perhaps northern Russia, although I have no definite information on this point. It is not, according to Farrer, found in Arctic America or Arctic Asia. In southern Europe this species, or its varieties, occur in the mountains of Spain, the eastern, central and western Alps, and volcanic outcrops in the Dolomites of north Italy; Austria also lays claim to the type, thus affording a bridge to the Carpathians and Transylvanian Alps. The species then disappears, and is not to be found again until one comes to the high mountains of northern India. The plant does not appear to have been recorded as occurring in the Caucasus.

Probably the most complete account of the distribution of R. glacialis, and of many other alpine plants, is to be found in Leon Marret's *Incones Florae Alpinae Plantarum*, Fasc. 2. With regard to the plant in Spain, Marret states that it may be found in Catalonia and Arragon, and occasionally in the Sierra Nevada, but there only in the form holosericeus, Gaud. He also remarks that the species is rare in Bavaria.

I note that in this work Marret emphatically states that "R. glacialis, L., behaves as a plant of limited range, growing nowhere but in mountainous regions, and seeming to avoid the lower regions of tundras." In this, Marret agrees with Farrer, who states that it "never descends at home from its high places on to the level of the shore or tundra." This peculiarity of retaining its high altitude, irrespective of latitude, is mentioned by many observers, but Stuart Thompson is rather vague on the point. In the introductory chapter to his book, *Alpine Plants of Europe*, he remarks that it "accompanies the Saxifrage in Spitzbergen"; the Saxifrage being S. oppositifolia, which he states grows at sea-level in Spitzbergen. Conversely, Thompson remarks of R. glacialis that in the Alps it is "not carried far down the valleys and moraines by streams, etc."

As to the altitudinal limit of this perplexing species, we need only mention the classical example, quoted by M. Correvon, Dr. Christ, Thompson, Farrer and others, of Ranunculus glacialis having been found near the summit of the Finsterarrhorn at an altitude of 4,275 metres (approximately 14,107 feet). Its average altitudinal range is usually accepted as from 1,700 to 2,700 metres, the Finsterarrhorn plant being an exception among all European high-alpines.

R. glacialis varies considerably in a natural state. To be convinced of this one has only to glance at the photographs with which Marret illustrates his unique publication. All these widely-differing forms may be accepted as due to variations in the conditions for growth, *e.g.*, abundance or lack of moisture, both in the soil and in the atmosphere, quality of the soil, rigour and length of the winter, exposure, altitude, etc.

Reference to several authorities produces a curious repetition of the information that R. glacialis is to be found in moraines and on the margins of alpine lakes. This is certainly true, but might be amplified with advantage. While the Col du Lautaret (Dauphiné) may hardly be considered the best locality for this species, it is there found on the topmost reaches of a great shingle-slide, on the mounds rising between numerous watercourses derived from the snows above. In that station the plant appears to avoid actual contact with water; it is not to be found in the marginal screes which border the water-worn gullies, prefering places where there is more soil and a lower water-table. There it grows with Douglasia vitaliana in a position fully open to the south and south-west, where it may thrust its stout roots down to a gritty compost kept constantly moist by the water, which flushes back from the rushing torrents. The soil is certainly a trifle sticky in its lower layers, but it is topped by a thick covering of rubble and loose silt; the slope is steep and the drainage apparently extremely free.

A first attempt to collect wild specimens of this plant is frequently doomed to failure, unless the collector has previously received warning of what he may expect, for the small, tufted appearance of the upper portion gives no indication that underground there are subterranean stems as thick as one's finger, rambling through the rubble-heaps and bearing stout, fang-like, adventitious roots so well as a certain amount of fibre. It is well-nigh impossible to lift an old-established plant complete, and the collector would be well advised to select seedlings or young clumps which may with patience be detached from the parent plant.

R. glacialis is occasionally to be seen in gardens, but has the reputation of being a "difficult" subject to grow with any degree of success. The desirability of cultivating any plant under conditions approximating to those of its native habitat is obviously based on common sense. Nevertheless, high-alpines are grown under extremely unfavourable conditions of climate and altitude, and Stuart Thompson states in *Alpine Plants of Europe* that R. glacialis grows better in this country than in Swiss gardens. He quotes the procedure advised many years ago by William Clark, alpine foreman to Messrs. James Backhouse and Sons, and while one may be inclined to agree with the late Reginald Farrer's disapproval of the "elaborate recommendations" of Clark, his own instructions seem to require amplification. Farrer had a first-hand acquaintance with the plant, and repeatedly advised growing it in a heavy, sticky, solid compost, together with stones and chips, constantly flushed with water from below. Such a compost might be ideal during the summer, but would be fatal to most alpines during an average English winter.

The essential problem is not the cultivation of the plant for a season, but its retention with increasing vigour from year to year. Frequently, R. glacialis reappears every season for some years, but each time smaller and less robust, until eventually it finds the struggle too great, and relinquishes its last feeble hold on life. Furthermore, it is hardly to be expected that a plant, which itself varies under natural conditions, will not be influenced by our unkindly climate. For instance, the average conception of the Glacial Buttercup is that of a tiny morsel of semi-succulent, cut leaves and snowy-white flowers (turning to rosy-pink with age), nestling among the stony debris of some high-alpine scree or moraine. This plant is placed in carefully prepared soil in a British garden, at an altitude thousands of feet lower than that to which it is accustomed, and in an atmosphere very different from the crystal-clear air and brilliant sun of its alpine heights. Instead of being buried every winter under many feet of snow, where it rests in a dormant state for seven or eight months of the year, the plant is exposed to wet and variations of temperature which start it into growth prematurely. Should it be expected to reproduce faithfully its specific characters under such conditions? Personally, I would suggest planting it in a fairly rich and gritty, open compost of fibrous loam, leaf-mould and sand, together with plenty of stones and chips. Should the facilities for supplying underground water in any quantity be lacking, Sphagnum-moss, spent Hops, a little peat, or some other absorbent substance may be added to the compost to secure a spongy but light consistency; the compost should be so deep as circumstances permit, and the drainage perfect, for although R. glacialis loves a moist medium it does not like stagnant water at the roots.

Underground moisture may be supplied with pipes, as in an artificial moraine. A position at the side of a gently-flowing stream, but not so low that the ground would be inundated, could be filled with the compost. The great objection to such a plan is that it is advisable to have some system of cutting off the water during the winter. A constant supply of underground moisture, rising through the soil by capillary action during the summer, is essential.

The position for it should be open to the full blaze of the sun, and the plants should not be coddled, but in districts with excessive winter rainfall they may be covered with glass in the autumn.

If R. glacialis ever condescends to reward the gardener's care by producing sufficient fertile seeds, it would be of interest to know if plants raised from home-saved seeds would become more acclimatised to the conditions prevailing in our lowland gardens, especially if the grower is not particular as to the occurrence of variations from the original form. One may also mention the possibilities of crossing R. glacialis with others of its clan. Farrer records one which suggested that "R. glacialis had been wooed and won by R. montanus." From the same source, *The English Rock Garden*, we learn that R. glacialis sometimes passes under the synonymous name of Oxygraphis glacialis. *L. B. C.*

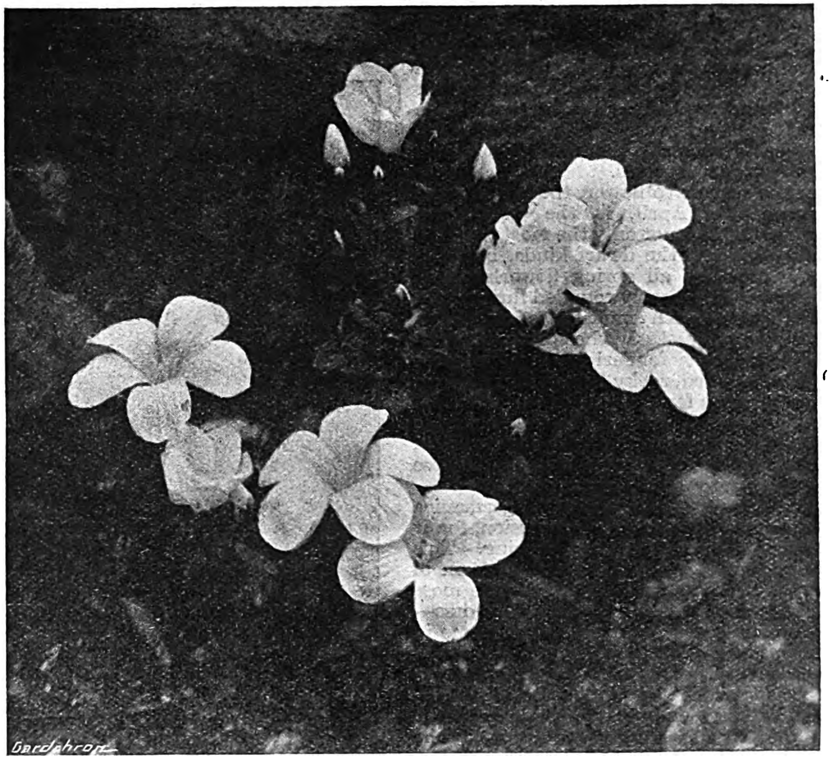


FIG. 11.—LINUM ELEGANS.

ALPINE GARDEN.

LINUM ELEGANS.

This pretty plant, also known as Linum iberidifolium, appears rarely in catalogues but is nevertheless a desirable species for the rock garden. It is a native of Greece, and Farrar states that it comes "from the high rocks of Parnassus, etc." Allied to L. arboreum, it rarely reaches one foot in height. References to this Flax appear to be extremely meagre, therefore any information concerning it and its cultivation would be appreciated. *C.*

AQUILEGIA × HELENAE.

Aquilegias, or Columbines, generally command admiration, not only because of their floral beauty, but also on account of their graceful habit of growth. One which is as yet not widely distributed but is in commerce, is that called A. × Helenae; it is apparently a hybrid of A. flabellata nana and A. caerulea. The influence of A. flabellata nana is evident in the general habit of the plant, for it has the sturdiness and elegance of that valuable Aquilegia, but is taller, being from twelve to eighteen inches high.

Farrer calls it "a noble, solid and robust-natured garden hybrid," and so it is, but that gifted writer was, perhaps, a little too flattering in his description of its colouring, when he wrote that it is "blue and white." This is true, but the exterior of the flower, which is short-spurred, is a dull purplish blue without any appearance of white. It is when the flowers are uplifted or, at a later stage, that it is observed that the blue is tipped with white in a pleasing manner. A. × Helenae is quite easy to grow, and appears to flourish in any ordinary soil. I consider the best position for it is on rockwork above the level of the eye, so that the interior of the blooms may be seen. Seeds have been offered, but I am not aware if the seedlings come true. *S. Arnott.*

HELIPTERUM ANTHEMOIDES.

This is rather a cheerful little plant for a sunny rock garden ledge or the front of a well-drained border. Mr. Ingwersen, who sent me some specimens, tells me that it comes from the mountains of Tasmania and that it has proved quite hardy even in the stiff soil of his part of Sussex. Here it came through last winter without flinching and promises to be reliable and permanent.

In its slender grey-green growths, about one foot tall, it might be taken for a tuft of Flax, but when these waving stems become tipped with blossom its affinity with the Composites is obvious. These flowers are about the size of a shilling and pure glistening white, with a small yellow eye. They possess no little likeness to those of some of the Helichrysums, more especially in their star-like rays and the chaffy scales of the calyx. The first blooms opened here at the end of May, and the plants look like carrying-on for many months. *N. Wales.*

SEDUM PRAEGERIANUM.

This interesting species, which is quite unlike any other member of the genus, came through the rigours of last winter without protection, the situation being open and the soil poor and gritty. It was first raised at Edinburgh twenty-five years ago, a single plant being secured from seeds taken from a dried specimen collected in the Chumbi Valley, Tibet, at an elevation of 12,000 feet.

S. Praegerianum is distinguished easily during the growing season by its flowering stems which, breaking from the head of a short, woody root-stock, radiate like the spokes of a wheel and lie flat upon the soil. The rosette thus formed is almost eight inches in diameter and is followed by a central tuft of narrow, green leaves pointed at each end. The flowering stems, with their small glabrous, fleshy, linear-oblong leaves, branch at the extremities and yield clusters of small Heath-like flowers. These are rosy-pink, and as both the stem and leaves are tinged with crimson, the whole plant has a reddish appearance. This is a fascinating species for a choice, warm position, or for associating with similar subjects in a stone-sink. *A. T. J.*

DWARF GENISTAS.

Having been confronted with the problem of furnishing very dry, sunny banks of poor, stony soil, I have had considerable opportunity of testing the value of the dwarf Genistas as flowering shrubs for such conditions. But while it should be hardly necessary to state that there is scarcely a race of dwarf shrubs more suitable for positions of this kind, it is only too obvious that the average rock garden is often singularly lacking in them. Wherefore, with the object of suggesting that the amateur might pay more regard to this very attractive section of a notable genus, I propose to give a selection of the best sorts among those obtainable through the ordinary trade channels.

Among the earliest to flower, the first blooms often showing in April, is the well-known G. hispanica. This is not only the most valuable and handsome of all the dwarf kinds,, but it is one of the finest of all spring flowering rock garden shrubs. Its neatly rounded hummocks, which are ablaze with multitudes of golden flowers for several weeks in the spring, its commendable adaptability for thriving in the poorest of soils on sun-baked, rocky ledges, and its long years of service, are familiar to most people. G. hispanica is, indeed, one of the indispensable shrubs for the bolder parts of the rock garden, the Heath garden, or for massing in extensive drifts on any sunny banks of arid soil.

Under similar conditions, G. germanica may prove a useful plant for succession, for it blooms a month later than the foregoing. This species also tends to a close, rounded form of growth, rising to about two feet, but it is more inclined to looseness than the Spanish Gorse—as G. hispanica is called. Its flowers, borne in short racemes all over the bush, are a deep, warm yellow. Although these two species have a superficial resemblance to one another, G. germanica has a nearer ally in our native G. anglica, the Needle Furze, or Petty Whin. If this spiny little shrub cannot claim a high place as a garden subject it has its uses. It is, for example, a good limestone plant, and it is one which is rather pleasing in combination with Erica cinerea or E. tetralix. Its long, slender branches thread their way through these or other dwarf Heaths and are tipped with bright yellow before the latter are in bloom. The growths are, I may add, so sparse that they are not in any way detrimental to their companions' welfare.

G. pilosa, also a native of parts of Britain, is an excellent rock garden species, and one that may be used with admirable results on rocky knolls or path margins in the Heath garden. It is quite prostrate when young, but with age the plant grows into a dense bush of about twelve to eighteen inches tall. Flowering in spring, it becomes a mass of vivid yellow, the blossoms forming racemes up to six inches in length. This Genista is so accommodating that I have even seen it gilding a parched, gravelly soil beneath thinly-scattered Pines where few other subjects could exist. The specific name refers to the downy under-surfaces of the leaves.

G. sagittalis, of central and eastern Europe, is a hardy, prostrate species peculiar in its broadly-winged, foliaceous branches which, being a rich, glossy green, give the plant an evergreen appearance. When well-grown, G. sagittalis is a very pleasing plant during June, its clusters of yellow flowers being held erect on short, silky shoots. On the other hand, a shabby specimen is a very depressing object, usually pleading for a generous use of the pruning knife in the removal of its withered and worn-out growths. It does not exceed one foot, but should cover a considerable space with its thatch of green.

Both G. radiata and G. spathulata have a curious resemblance to the shrubby Horsetails (Ephedra) in their very slender, short, Rush-like twigs, which often tend to arch with their tips to the soil. The former is, however, readily distinguished by its opposite leaves and branches, and its tangle of very fine growths which often terminate in a spine. The flowers are larger than in most of the Genistas, but I have not found it flower freely. G. spathulata of eastern Europe and Asia Minor, is, on the other hand, a very showy plant. It flowers from the end of May onwards, when it becomes a mass of deep-toned yellow. It is quite hardy here.

G. glabrescens is a native of central Europe, and when well-grown there are few more delightful little shrubs, it being covered in May with its large flowers in a soft yellow. Although said to grow to two feet or three feet, it is so slow that it has taken a long while to reach one foot with me, and does not look like going much taller. G. glabrescens (sometimes listed under Cytisus) is a plant well worth the attention of the rock gardener who can afford it a sunny aspect and really free soil.

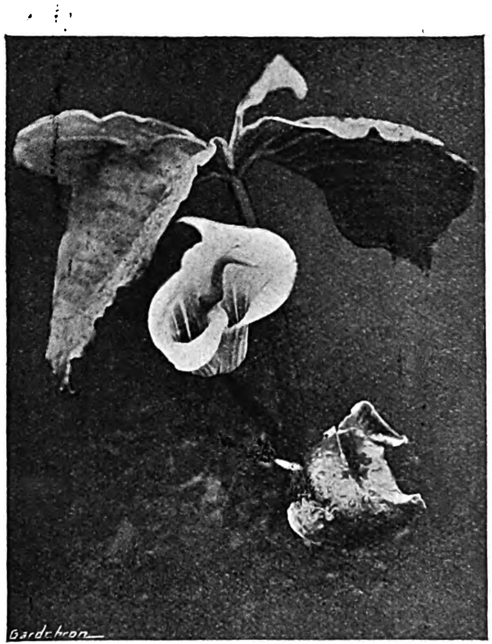


FIG. 12.—ARISAEMA CANDIDISSIMA.

The Dalmatian Broom, G. dalmatica, is another delightful species, one that should never be overlooked by anyone who has a sun-baked, poor, stony soil. In such conditions, even under Pines, this little plant, which does not often exceed six inches, soon makes itself at home and covers a square foot or so with its very thin, angular, spiny branches. These growths may die back during winter, but the plant seldom fails to renew them in spring, and during June and July is usually a blaze of golden-yellow. This charming shrub is quite easily propagated from cuttings taken in August and struck in the usual way.

G. horrida does not always prove a success in our rock gardens, probably owing to the lack of sun, coming as it does from central Spain. It is, however, worth a place on a warm, southerly ledge, for its bristly tuft of silver-grey is not without attraction, and there are times when it suddenly becomes studded with clusters of yellow flowers.

Of G. tinctoria, quite the best variety for the rock garden is G. t. flore pleno. This is, indeed, one of the most delightful of all dwarf flowering shrubs, and one not to be omitted from any collection. It makes a dense mound of deep green growths, often only a few inches in height in a thin soil. The flowers appear during late summer, the whole plant becoming a mass of bright yellow for several weeks. Even in winter the verdure of this pretty and useful variety is cheerful and the plant is grown quite easily. G. t. mantica, which is so much earlier than the type that it is sometimes in flower at midsummer, is not a first-class shrub in an ornamental sense. But for the bolder parts of the rock garden and associating with dwarf Heaths, it may be very useful and attractive. Like the typical Dyer's Greenweed, it is more leafy than most of the genus, the habit is somewhat open and loose, and the slender, semi-procumbent branches terminate in racemes of blossom which are of an unusual brassy yellow. *J., N. Wales.*

NOTES FROM GLASNEVIN.

Copious rains during the month of June have done wonders in restoring many trees and shrubs to something like their normal condition. In fact, it is many years since I saw such fine growth on Rhododendrons and Conifers. Such Rhododendrons as were not entirely killed have made remarkable growth, and the same may be said of nearly all Conifers. The Chinese species, such as Abies Faxoniana and Abies recurvata, which had become stunted by a succession of spring frosts, are making new leaders, and with a decent autumn to ripen the growths should go far in recovering lost time. Attacks of aphis, particularly on Piceas, have been held in check by heavy rains, which at the same time favoured rapid growth.

Flowering shrubs are now represented best by the Escallonias, some of which have been mentioned in these pages recently. It is doubtful if a more beautiful or useful hybrid has yet been raised than E. langleyensis, but others of good habit and colour are welcome at this season; among them may be mentioned Donard Brilliant and Slieve Donard, rich and pale pink respectively; gracilis alba, white, and C. F. Ball, deep crimson.

Cytisus leucanthus, also known as C. Frivaldskyanus, and C. schipkaensis, is an excellent dwarf shrub for the rock garden, forming a low, much-branched, twiggy bush, each branch terminated by a corymb of pale yellow flowers; it is a valuable shrub for a sunny position and looks particularly at home spreading over rocks. The various forms of Genista tinctoria are now coming into bloom and should keep up the succession of Leguminous shrubs for another month.

Ononis fruticosa is particularly striking at the moment and certainly one of the brightest coloured shrubs of the Pea family. It, too, loves the well-drained, stony conditions of the rock garden, where its masses of clear pink flowers have been much admired. It is a native of southern Europe, grows about three feet high, and may be propagated by seeds and cuttings.

Kalmia angustifolia, the Sheep Laurel of North America, if not quite so fine as the Calico Bush, K. latifolia, is nevertheless not to be despised as a June-flowering shrub where a cool root-run, free from lime, may be contrived. Here it is grown in the Rhododendron beds, and, indeed, associates well with them, helping to shade the roots and protect the stems of the taller species. An evergreen, producing numerous slender shoots, it is now bearing freely its pretty, rose-coloured flowers.

Rhododendron calendulaceum is the only species of brilliant colour in bloom at the time of writing, but its wonderful orange-red flowers are singularly effective, and I doubt if any of the "Azaleas" of hybrid origin are superior in that respect; seedlings vary somewhat in shade of colour, but few are inferior.

Galax aphylla, a native of North America, and belonging to the family Diapensiaceae, not far removed from the Heath family, is flowering well this year. It enjoys moist, but not stagnant conditions, and is growing here in lime-free soil among Rhododendrons

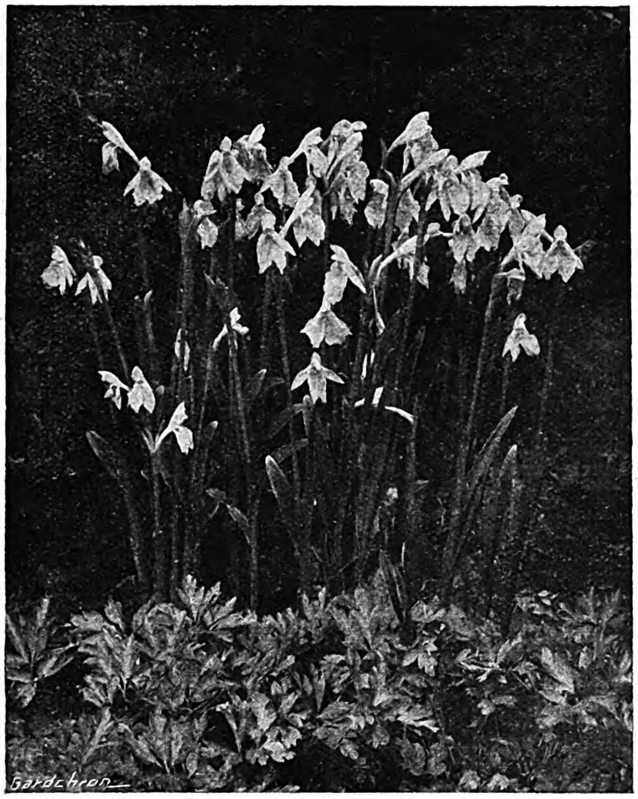


FIG. 13.—ROSCOEA CAUTLEOIDES.

and allied plants under a Pine tree. It is sometimes called the Wand Plant, the small, white flowers being produced on slender, wand-like scapes which arise from among the leaves clustered at the base; the leaves are stalked, bluntly heart-shaped, quite smooth and colour beautifully in autumn.

Liliums are becoming interesting, and several species are in flower, one noted among the Rhododendrons and in shade is L. columbianum, with stems three to four feet high, bearing leaves in whorls and surmounted by numerous Martagon-like flowers of clear yellow, the lower half of the perianth segments flecked with purple spots. Not far off, in another bed, L. Szovitsianum is flowering—a handsome, yellow-flowered Lily when in good health. However, it may be in other gardens, L. Szovitsianum will not succeed in the staple soil at Glasnevin, whether due to chemical or physical condition, I do not know, but planted in peat and loam, free from lime, it lives and grows but does not produce the number of flowers often seen under more favourable conditions. L. Martagon album growing in another part of the garden in ordinary garden soil, unmixed with peat, is flowering better than usual and seems to enjoy a little shade and plenty of moisture. Under the same conditions several varieties of L. umbellatum are just opening their first flowers. The later species are promising.

The Roscoeas, long known best from the old Himalayan species R. purpurea, have become more popular since the introduction of several others from China. Notable among these is R. cautleoides (Fig. 13), which achieved favour at once through the charm of its primrose-yellow flowers and the ease with which it may be grown in any reasonably moist soil. A rather later flowerer and a somewhat stouter development of this is named R. Beesii, of which the stock at present is limited. R. capitata is like R. cautleoides in habit, but has purple flowers, while R. Humeana is dwarfer, with broader leaves and larger purple flowers. The Roscoeas are useful and interesting members of the Ginger family, Scitaminaceae, the hooded form of the corolla adding to their charm.

Hardy Calceolarias are by no means numerous and the addition of several species from the Andes is of particular interest to gardeners. It may be too soon to declare these recent additions quite hardy, but one presented to Glasnevin by Major Stern as C. biflora, which grew well in a small bog and flowered during the summer of 1927, survived the winter without any protection and is now stronger than ever and flowering freely. The flower stem is about fifteen inches high, bearing a one-sided cyme of yellow flowers with the pouch rather flattened. What seems to be almost identical with this was raised from seeds received from Mr. J. C. Williams under the number 405, and this should be C. valdiviana. Calceolaria biflora, according to the Kew *Hand List* is synonymous with C. plantaginea, which rarely survived a winter here in the open, one may hope therefore that the newly introduced plants are of a hardier type. Under the name C. plantaginea there is a figure in the *Bot. Mag.*, t. 2,805.

Arisaema candidissima (Fig. 12) is a charming Aroid for a moist pocket at the base of the rock garden or in one of the small boggy recesses so useful for many plants. The flower appears contemporaneously with the first leaf, and its beauty and interest lie, of course, in the white spathe which is lined and tinged with green at the base. The leaves are stalked and the blade which is composed of three leaflets is nine inches long by as much broad. This species is apparently quite hardy as it has been out in a small bog for two years, and the flowers are larger and finer there than in pots. A colony of this pretty Chinese Aroid in a moist position would be a novel and interesting feature.

In December, 1921, an unnamed bulb was received at Glasnevin from Dr. Pole Evans, Pretoria. It flowered this year, in June, for the first time, and is apparently a species of Brunsvigia (Fig. 14), agreeing fairly well with the description of B. natalensis in *Flora Capensis*, Vol. VI, p. 208. The leaves are three inches wide by nine inches long, the scape, bearing an umbel of twenty-four flowers, is eight inches high from the top of the bulb; the pedicels are five inches long; the flowers are two inches wide and rose-pink in colour.

Micranthus fistulosus, a member of the Iris family, was received some years ago from a correspondent at the Cape, and flowers regularly in a cool house. The leaves are unusual, being round and hollow, inflated towards the apex, ending abruptly in a short tip or mucro. The scapes, which are two feet high, are sheathed by the leaves for at least half their length, the final six inches bearing the small bluish-white flowers. Bulbils are formed at the base of the scape and above the soil, and according to authoritative descriptions sometimes also replace the inflorescence. Of no great garden value, M. fistulosus is interesting in a collection of plants. *J. W. Besant.*

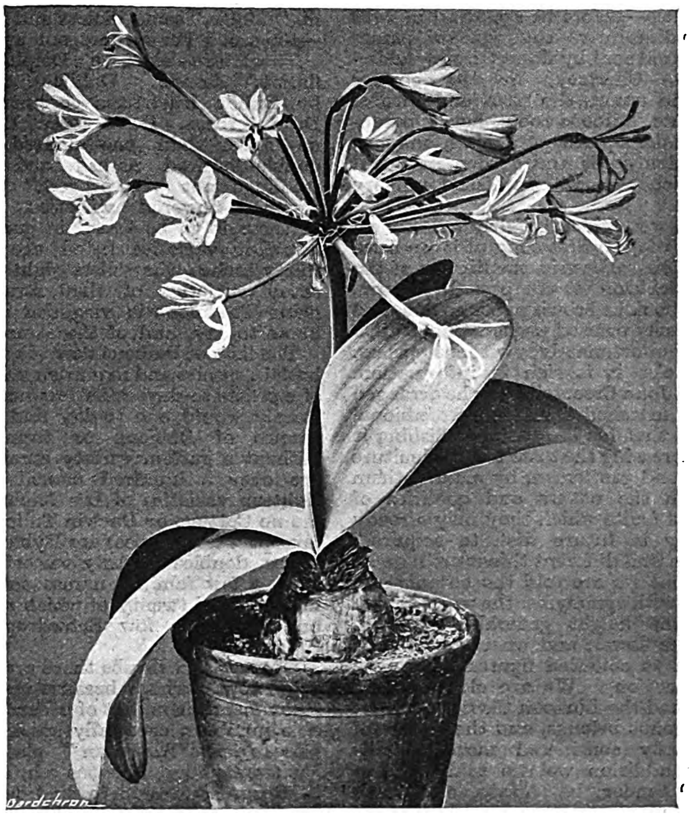


FIG. 14.—BRUNSVIGIA NATALENSIS (?).

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HORTUS ADDLESTONENSIS: AN OLD GARDEN CATALOGUE.

OLD garden lists and nursery catalogues are always of interest and of no small value in showing what plants our forefathers grew or might have grown in their gardens, and in throwing light upon the history of plants we now have; especially so when they are full and obviously compiled with care.

The publication—for it merits that rather grandiloquent title—before us appeared in 1829 and gives "a descriptive catalogue of plants etc., cultivated and sold by John Cree at Addlestone Nursery, Chertsey, in the county of Surrey," and names the trees and shrubs, greenhouse plants, bulbous roots, hardy perennials and biennials, aquatic perennials, annuals, fruit trees, garden seeds and garden pots and implements which that well-furnished nursery offered.

The catalogue was evidently fairly well-known in its day, but it is the first copy of it we have come across, which has been in the library of the late Dr. B. D. Jackson for the past fifty years. It is an octavo book in brown paper covers, and contains 176 closely printed pages without illustrations and, unfortunately, without prices. In everything else it is rich in information. The author, Mr. John Cree, tells how he arranged it at intervals snatched from his professional avocations, and that his design in publishing it "was that of increasing the taste for horticulture amongst ladies and gentlemen, by making them acquainted with the nature and qualities of those plants and fruits which they may already possess, or may in future wish to acquire."

Over five thousand different things are named, and for every one we are told the botanic and English names, with synonyms, the usual season of flowering, the height generally attained, the colour of the flower, and wherever possible we are referred to coloured figures in readily accessible publications. We are also told the Natural Order and the Linnean Class and Order to which each genus belongs, and the nature of the soil generally considered most suitable for it, and in addition we are told whether the plants are tender, half-hardy, or require protection from frost, whether evergreen, sweet-scented, suitable for "rock work" or pots, and so on. The book is thus a marvel of compression, and is arranged much on the lines of Loudon's *Encyclopaedia of Plants.*

At first glance one might suppose that much of the information had been taken bodily from that *Encyclopaedia*, but comparison with the edition published in the same year as this catalogue shows that not only is the catalogue far richer in references to varieties of plants of interest to the horticulturist as distinct from the botanist, but also that in every line we have first-hand observations on habit, colour and other important features.

It is true that as in so many of the books of the period, and in some of the present day the "English" name is one which would never be used, and is often a mere translation of the botanic one, and that some well-known common names are omitted, *e.g.*, Stonecrop, but with this exception the book is decidedly one of value to the horticulturist.

The lists are, of course, as remarkable for what they omit as for what they include, and a few notes of what are to be found in them may be not without interest. The numbers in each genus are given without distinction as to species and variety, although the latter are always listed under the species to which they belong.

Of Primulas we find thirty, and this includes ten varieties of the common Primrose, of which the only single form mentioned is the common pale yellow, the others being double-white, pale yellow, yellow, copper-coloured, salmon, red, lilac, purple and velvet. There are two Auriculas, none distinguished except the single yellow. The scarlet Cowslip (P. veris rubra), the Polyanthus in various colours (P. elatior polyantha), the double Polyanthus, and the single blue; several European species which are regarded as needing protection, and P. cortusoides, P. davurica and P. sinensis (=praenitens) in its purple-rose, and white forms (but not included among greenhouse plants). A list, this, remarkably rich in one direction compared with those of the present day, but how poor in others!

No fewer than fifty-five Saxifrages appear, but the Kabschias and such things as S. valdensis are not to be found. Sempervivums are represented (more truthfully than in most catalogues of to-day) by but six specific names of hardy species; Anemones by twenty-four species and varieties (A. vitifolia and A. japonica had not reached England then) in addition to eight Hepaticas and nine Pulsatillas. Viola has several species, no "Violas," some Violets and many Heartsease—the word Pansy does not appear.

There are eighteen Delphiniums, but no florists' forms. Dahlias are represented by Dahlia frustranea coccinea, D. f. fulgens, D. f. crocea, D. f. lutea, D. superflua and no fewer than one-hundred-and-ninety-eight double-flowered named and "various fine seedlings not yet proved," and twenty-five Anemone-flowered varieties. Probably none of these is to be found in gardens now. The dwarfest varieties listed are said to attain thirty inches, the tallest eight feet. Nearly as many varieties of that strangely neglected plant Tradescantia virginica are listed as we know to-day, and of the same colours.

The lists of bulbous flowering plants are fuller both in species and in garden varieties than most of our lists to-day, with few notable exceptions. Rarely would one to-day find a list of fifteen species of Babiana or twenty Lachenalias, without a garden variety among them. There are over a hundred named Hyacinths, and eighteen varieties of Iris Xiphioides, but there are no Cottage or Darwin Tulips—all the Tulips (except a few species) are Bybloemens, Bizarres, Roses, doubles or early varieties—and here we meet a few familiar names out of nearly two-hundred-and-twenty of which names are given; but there are few Snowdrops, Gladioli and Crocuses.

Of trees and shrubs there are some we do not grow now, perhaps because they have little to recommend them, but of others we find remarkable numbers, especially among Brooms, Rock Roses and "American" plants. Andromeda has twenty-four, Arbutus ten, Azalea fifty-eight (Waterer had begun to send out garden forms), Clethra four, Hardy Heaths twenty-two, Fothergilla four, Kalmia ten, Ledum five, and so on. Would that planters had used the opportunity more fully of planting some of the eighteen Magnolias then available! But of Barberries and Cotoneasters there were very few, and of Buddleias only B. globosa. Roses, of course, are well represented, but by how different a list from those of to-day! There are a dozen Moss Roses, many Provence and Monthly Roses, and not a few species, two dozen Scotch Roses, but of the thirty-four "various double Roses" none is to be found in lists to-day.

Annuals are represented by a considerable list, but shorter than a good catalogue would show to-day, and very poor in florists' forms. There are, for instance, only eight colours of Sweet Peas, no named forms of Mignonette, no white Nicotiana (except one doubtfully called suaveolens and thought to be biennial), comparatively few Stocks, no Phlox Drummondii, but several Tagetes and fifteen annual Larkspurs.

We find greater permanence among fruit varieties, but a perusal of the lists serves to emphasise how few of those commonly grown for market now were then available, either of Apples, Pears, Black Currants or Raspberries. There were no Victoria or Pershore Plums, nor any Strawberries now grown except Keen's Seedling; yet one-hundred-and-eleven Apples, twenty-seven Plums and eighteen Strawberries are listed.

Among vegetables there are familiar names, *e.g.*, Early York. Imperial and Red Dutch Cabbages; Batavian Endive; Negro dwarf French Bean; Hammersmith Hardy, Brown Dutch, Bath Brown and Paris White Lettuces; Altringham Carrot; James's Long Keeping Onion and Hollow-crowned Parsnip. New Zealand Spinach was grown then and no fewer than thirty-two herbs are listed to be grown from seeds, and of some others roots are offered, but no Mint among them! Except for spraying nozzles and lawn-mowers there is little to add to the list of tools and implements for a modern garden equipment, for the omission of wheelbarrows is probably an unintentional one.

We are apt to be always seeking some new thing for our gardens, and this is right, but in doing so we are also apt to overlook the wealth of material our forefathers had gathered together for their gardens even a hundred years ago. *F. J. C.*

AN INDOOR TEST FOR WART DISEASE OF POTATOS.

FIELD testing of new varieties of Potatos to determine their immunity or susceptibility to wart disease (Synchytrium endobioticum) has been carried out since 1915 at Ormskirk, Lancashire, in land thoroughly impregnated with the spores of the disease. The trials then begun were the outcome of the popular alarm occasioned by the spread of the disease in the Potato-growing districts of north-west England, and the discovery that certain varieties did not contract the disease. The test lasts for two years, but occasionally, when the seasons are unfavourable, is extended to three years. The Potato breeder is required to send thirty-five tubers of each of his seedlings for the first year, and if no wart infection is detected, a further fifty tubers for a second year's test, when, provided no trace of the disease has been observed, the Ministry of Agriculture and Fisheries is prepared formally to approve the variety as immune. Since 1915, many thousands of Potato seedlings have passed through the field test at Ormskirk.

In recent years much attention has been paid to the possibility of determining the reaction of Potato tubers to wart disease under indoor conditions, and several methods have been indicated by different authors.

A study of the life history of the disease shows that two kinds of sporangia are produced: (*a*) Winter or resting sporangia, which on the decay of the warted tissue pass into the soil and serve as a source of infection in future years; (*b*) Summer sporangia, which germinate immediately in the presence of water, and liberate a number of minute motile zoospores. The method here described is a practical adaptation of that originated and described by Miss Glynne[*] for the inoculation of the young shoots of Potato tubers by freshly discharged zoospores and consists of the pinning of small pieces of fresh growing wart to the eyes of slightly sprouted tubers, and the maintenance of a film of water between the attached pieces of wart and the young shoots.

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[*] Glynne, Mary D. (1925). Infection Experiments with Wart Disease of Potatoes, Synchytriume ndobioticum (Schilb.) Perc., *Annals of Applied Biology*, XII, 34-60.

Work on the method was begun in December, 1927, and carried out in a slightly heated greenhouse throughout the winter months. The average daily temperature of the greenhouse was 15°C., but was sometimes so low as 5°C. in the early morning.

The tubers for this test were placed in wire trays, which were enclosed in large, shallow, wooden boxes with glass covers, provision being made for the drainage of the boxes. The wire trays used were ordinary letter baskets, each ten inches square, and capable of holding twenty-five to thirty tubers placed rose-end upwards and loosely supporting each other. Pieces of fresh growing wart were pinned on the eyes of the tubers, three or four eyes to each tuber being tested. The treated tubers were sprayed with ordinary tap water from a fine hand-sprayer, and the Potatos covered with thin, moist flannel; this was found to be the most efficacious method of maintaining the film of water between the pieces of wart and the shoots. Spraying was done once daily, half-a-pint of water being used for three hundred tubers reasonably closely spaced. The attached pieces of wart were renewed so soon as they rotted—usually after the fifth or sixth day. At the beginning of the work the pieces of wart were renewed twice during the treatment, but further investigation has shown that the renewal of wart is not necessary more than once, and it is probable that in general no renewal may be necessary.

The first tests were carried out with the susceptible variety, Arran Chief. Of ninety-seven tubers tested, sixty-one bore warts within twenty-one days, and ninety-two within twenty-eight days. Four tubers rotted and one was "blind." So soon as infection appeared the tubers were buried in moist sand in the greenhouse, when the development of the wart excrescences, in most cases, was rapid. Large warts typical of those found in midsummer on susceptible varieties grown in highly infected land, were obtained in January within four weeks of the beginning of the treatment. Further tests of tubers of susceptible varieties gave similar results, infection taking place in all cases within twenty-eight days.

So far, work has been carried out on tubers, the identities of which were known, and a check test was considered desirable. Dr. R. N. Salaman therefore kindly sent one hundred-and-nine samples consisting of either two or three tubers each, the immunity or susceptibility of which was known to the sender but not at Ormskirk. The reaction to wart was correctly interpreted in the case of one-hundred-and-three samples within twenty-four days. On the identity of the samples being disclosed, it was found that thirty-one established immune and eighteen susceptible varieties had been sent, most of the varieties being repeated several times. Of the remaining six samples, two rotted and two proved to have been incorrectly named when sent. The fifth sample (Sharpe's Express) did not develop typical warts until the thirty-seventh day of treatment, and is of interest in that it is the only case that occurred where a susceptible tuber did not develop typical warts by the twenty-eighth day. The tubers of this sample were not sprouted when set up. The sixth ambiguous case referred to a sample of Ben Cruachan, one tuber of which showed what appeared to be the initial stage of infection. The abnormal sprout rotted, however, before microscopical examination could be made.

It is emphasised that the decision as to the immunity or susceptibility of the check samples under test was made precisely as it is made in the field.

In a further communication by Miss Glynne[*] it is stated that small growths and irregularities resembling the earliest symptoms of wart infection were noticed on the sprouts of certain varieties officially listed as immune. Microscopic examinations of these showed that infection by the fungus had taken place. Further development of the parasite, that is, re-infection by summer sporangia and subsequent formation of winter sporangia were not detected, and the minute protuberances did not develop further. Ben Cruachan is given as one of these varieties. That such infection had occurred in one tuber of a sample of seven tubers of this variety which were subsequently treated was confirmed by Dr. G. H. Pethybridge, of the Ministry of Agriculture's Plant Pathological Laboratory, Harpenden. No similar irregularities have so far been detected on the tubers of any other established immune variety so far tested.

It is possible that these minor growths occur on immune varieties in the field, but they have not yet been detected. As winter sporangia are not formed these growths are of no practical importance, and need not be considered as possible sources of infection.

The success of the contact inoculation method depends on the use of sound, slightly-sprouted tubers (the sprouts should not be more than one-tenth- to one-eighth-of-an-inch long); the careful pinning on of the wart and its removal when rotten; the maintenance of the film of water between the attached warts and the young shoots, and the avoidance of too high a temperature. Under these conditions losses due to rotting are slight. In one case where one-hundred-and-thirty-five tubers representing eighty-two seedlings were tested, all the tubers remained sound and were fit for planting at the end of the test.

The advantages of the method are that it enables the breeder to discard his susceptible seedlings at the earliest possible stage. Results, may be obtained within three or four weeks from the beginning of the test from so few as two tubers per seedling, and the work may be carried out at any time of the year. The supply of an abundance of fresh growing warts presents no difficulties. *H. Bryan, B.Sc., Superintendent of the Potato Testing Station of the National Institute of Agricultural Botany, Ormskirk.*

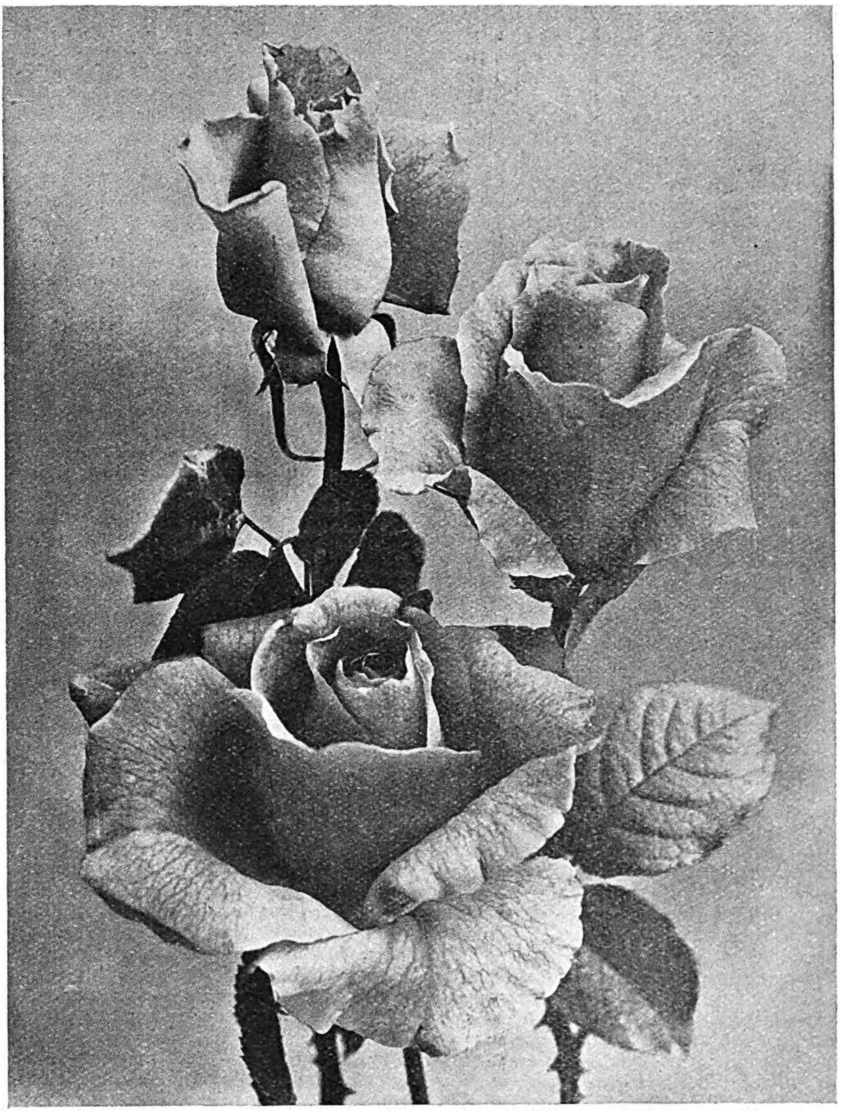

FIG. 15.—ROSE ADVOCATE.

N.R.S. Certificate of Merit, June 29. Flowers crimson. Shown by Messrs. Alex. Dickson and Sons.
(see p. 15).

HOMESTALL GARDENS.

THE glory of the early months of the year in the rock garden cannot be better appreciated than in a large rock garden which has been generously planted with broad masses of plants with a view to colour effect and continuity, and a good example of this appears in the gardens of Lord Dewar, at Ashurst Wood, near East Grinstead, in one of the most beautiful parts of Sussex.

The rock garden was originally built and planted by Messrs. Pulham, but the whole scheme has been altered considerably by Mr. Sarsons, the gardener, who has recently made several very effective improvements, particularly in the shape of a fine waterfall, with a runaway at the bottom giving the effect of a brawling Scotch burn.

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[*] Glynne, Mary D. (1926). Wart Disease of Potatos: The Development of Synchytrium endobioticum (Schilb.) Perc., in "Immune" Varieties, *Annals of Applied Biology*, XIII, 358-359.

During a recent stroll through the garden, under the guidance of Mr. Sarsons, I particularly noticed the fine effect produced by large masses of Violas, especially the new form of V. bosniaca (declinata) known as Crimson King, which looked well in a bold position beside a flight of steep steps. V. gracilis Clarence Elliott was good, although, unfortunately, showing its not uncommon tendency to "blueing," this being the only fault of an otherwise fine white Viola, and one that does not appear on all soils. V. gracilis Lady Crisp is a dainty study in soft mauve, and a large patch of this was a beautiful picture. Violas seem to do very well here, and masses of V. gracilis, V. cornuta purpurea, and that invaluable and lovely plant, V. cornuta alba, were wonderfully showy.

All the forms and hybrids of Dianthus caesius are well represented and a number of charming seedlings have cropped up here and there amid the parent clumps, some of them being well worth separating and propagating.

A glowing mass of fiery red which challenged attention across the width of the garden, upon closer inspection materialised into a huge mass of Helianthemum Fireball, which struck me, as seen here, as being quite the best of the Sun Roses; it is of a startling, but not a dangerous colour, for it should fall in with almost any colour scheme, and not clash with reds and blues. Seen from the highest point in the garden, near the waterfall, a large drift of the common London Pride, Saxifraga umbrosa, made a most delicate mist of soft pink; in an odd corner where it may ramp to its heart's content this is a most valuable plant, while there are several dwarf forms also, which may be admitted to the smallest and choicest of rock gardens.

Amid all this finery of commoners, the élite of the alpines are not neglected, for in a shady and constantly damp wall near the base of the waterfall I saw a group of the finest plants of Primula Winteri it has ever been my good fortune to behold. Early in the year they were producing freely their handsome flowers, like nothing more than soft grey-lilac Primroses, with infinite grace. P. Winteri is not an easy plant to grow by any means, and generally does best in the alpine house or cold frame, although under these conditions it is dreadfully liable to attacks of red spider, which rapidly decimate the plants.

One of the glories of Homestall for the past two or three autumns has been Gentiana sino-ornata, but this coming season appears like eclipsing all its predecessors, for a huge drift, almost as large as many a suburban garden, of this invaluable autumn-flowering Gentian has been planted, and is already well on the way towards closing up and making a verdant mass.

In a deep recess beside a steep flight of steps, a fine group of the large form of Orchis maculata was just producing magnificent spikes, and in a week or two should be a picture well worth seeing, if my memory of previous displays serves me aright, while scattered variously through the rock garden, and in one special corner, are several magnificent specimens of Juniperus communis compressa, or J. hibernica compressa as it is sometimes called. Three I noticed particularly, all but two feet in height and perfectly shaped; such specimens are almost unique, and take many years to attain such perfection.

In a half-shaded position mainly devoted to flowering shrubs is a fine group of the new Himalayan Blue Poppy, Meconopsis Baileyi, all good forms, and some of them particularly so. There is often great variation amongst the seedlings of Meconopsis, some of the blue ones producing rather horrible dull purple forms. However, seeds saved from a good colour form are usually to be relied upon to produce good offspring.

Primulas do exceedingly well in this garden, which, by the way, is fairly oozing with springs, which crop up unexpectedly in all manner of places and are a terrible nuisance, but they provide an ideal situation for the Asiatic, moisture-loving Primulas. There is a magnificent form of P. sikkimensis now in flower, which I believe to be P. s. Llewelyn's variety, for the flowers are almost twice the normal size and borne thirty or forty to a head in a good season, and strong plants may have even more. This form has one fault, due, I believe, to its extra vigour of growth, namely, fusing of the flower stems, resulting in rather an ungainly head of flowers in the plants so affected. P. Florindae, the giant sikkimensis, is doing well, although I rather think that it needs a wetter position than the one it has now, to induce it to do its best.

It would be possible to wander on for long enough describing the beauties of this peaceful spot. There is a beautiful formal garden, which in the spring is one of the most fascinating pictures one could wish to see, terrace after terrace all ablaze with rich colouring, rising to the sombre background of an old, well-clad, stone Sussex mansion, and combining to produce a scene of vivid beauty. *Will Ingwersen, Sussex.*

MOUNT USHER.

Members of the Dublin Naturalists' Field Club were recently privileged to visit the famous gardens of Mr. E. H. Walpole, Mount Usher, Co. Wicklow. Heavy rain had fallen in the morning and continued as the party motored down but, fortunately, the weather cleared up during the actual visit. The sky was overcast, the atmosphere thoroughly saturated, and the leaves refreshed after an overlong drought; the birds chirped merrily and helped to lend enchantment to a scene of rare beauty.

What strikes one at Mount Usher is the luxuriance of growth and variety of vegetation presented. The grounds, originally acquired by Edward Walpole, in 1868, covered just over an acre (most of which was used for the cultivation of Potatos) and contained the Old Mill House, built about 1669. Other ground has been acquired from time to time, and the gardens to-day comprise some fifteen acres, and contain one of the finest collections of choice plants from Australasia and the Far East to be found in the Kingdom, all growing under almost natural conditions, surrounded by heavily wooded country. Unfortunately, the Old Mill House has fallen so far into decay that satisfactory repair is impossible. A new Georgian house is being erected, and every precaution is being taken in the detail of its construction that in so short a space of time as possible it may harmonise with the surroundings.

To do justice in description of the many fine specimens in a brief notice is utterly impossible, for every plant is good and, of its kind, a specimen. While awaiting the guide, Mr. Charles Fox, we observed Tricuspidaria lanceolata (Crinodendron Hookeri) and Rosa Moyesii; a fence was covered with Muehlenbeckia complexa and Tropaeolum canariensis. Specially impressive are Lomatia ferruginea, Fabiana imbricata, Eucalypti up to fifty feet high, Ribes speciosum, Leptospermum scoparium var. Nichollii and L. s. Chapmanni, Olearias, particularly O. semidentata, Eucryphia pinnatifolia and E. cordifolia, Embothrium coccineum, twelve to fifteen feet high Pittosporum Mayii var. Silver Queen, P. Tobira, Cercis Siliquastrum, Senecio Hectori, with large leaves and corky stems; Populus yunnanensis, Grevilleas, Abutilon vitifolium album, Azara microphylla variegata, Feijoa Sellowiana, Cinnamonum Camphora, Cornus Kousa, Hoheria lanceolata, Salix magnifica, Rhododendrons and Buddleias in variety, Lithospermum Froebelii, in full flower; Drimys Winteri over twenty feet high; Callistemons, Plagianthus Lyallii, Desfontainea spinosa, Colletia spinosa, Abies concolor Wattezii and a huge specimen of Sequoia gigantea.

Solanum crispum, Berberidopsis, Hydrangea scandens, Clematis Nellie Moser, Lapagerias, Muehlenbeckia varians, Actinidia chinensis, etc., furnished trees and other places. Kirengeshoma palmata finds a place in the woodland, and so does Lilium umbellatum. Ferns are well represented, flourishing along the mill race. The Celmisias are a treat in themselves, all well developed and flowering freely. Meconopsis Wallachii, M. chelidonifolia and drifts of M. Baileyi were notably fine.

To visit such a garden, a fairyland of choice subjects, and feast one's eyes on its wonders for a short time and come away with a clear vision and recollection is a sheer impossibility. Realising this, perhaps, has prompted Mr. Walpole to issue a book worthy of the garden. Together with a short history of the origin and development of Mount Usher, by Mr. E. H. Walpole, there are contributions from Sir F. W. Moore, V.M.H. (who was associated with the garden from the early stages), Mr. J. W. Besant and Mr. F. W. Millard. It is printed on art paper with numerous illustrations and copies of paintings reproduced in colour. *Brendan P. Mansfield.*

THE GENUS PRIMULA.

(*Continued from p.* 8.)

CALCICOLA (Balf. f.) Rock-loving P.
(Farinosae.)

This small, tufted plant produces a fairly dense rosette of leaves three-quarters- to one-and-a-quarter-inch long, with narrowly oval, blunt blades, borne on long, attenuated stalks; margins furnished with minute teeth; upper surface whitish-green; underside coated with yellow meal. Flower stem very slender, one-inch to one-and-a-half-inch tall, bearing a solitary rose-purple blossom about five-eighths-of-an-inch long on a very short stalk. Flowers in August. It is referred to P. yunnanensis by Messrs. W. Wright Smith and G. Forrest.

This species is found on limestone rocks at Mu-li in south-western Szechuan, western China.

Culture: As for P. annulata.

CALCIPHILA (Hutch.). Chinese Cliff P.
(Sinensis.)

A handsome, large-flowered perennial species which was at one time considered to be the wild type of P. sinensis. It produces a stout rootstock, which in old specimens breaks just above the soil into several very short, stout branches, each terminating in a tuft of hairy leaves, with oblong or oval, or rather deeply-lobed blades, one inch to two inches long; the lobes are again irregularly toothed the blades are borne on stout, round, hairy stalks two to three inches long. Flower stems stout, hairy, three inches to six inches tall, bearing one or two superposed umbels of from six to twelve soft lilac or deep rosy-lilac blossoms each with a lemon-yellow eye; they are delicately scented and are borne on slender, hairy stalks about one inch long. Corolla about one-and-a-half-inch across, divided into five heart-shaped, narrowly notched lobes, covered with minute hairs; tube cylindrical below, swollen above, about half-an-inch long. The plant grows on limestone cliffs at Ichang, western China. *Gard. Chron.*, February 24, 1923, p. 101, Fig. 49. *Bot. Mag.*, t. 7,559.

Culture: As for P. austrolisteri, with the addition of limestone chippings; not hardy. Introduced in 1891.

CALDARIA (W. W. Sm.). Thermal P.
(Farinosae.)

A slender perennial species which varies very much in size according to the altitude of its habitat, etc. Leaves in largest specimens, about four inches long, lance-shaped, broad at the tip, tapering below into a broadly-winged stalk; margins membranous and sharply-toothed; upper surface smooth, underside covered with white meal. Flower stem six to twenty inches tall, flexuous, smooth below, mealy upwards, bearing a spirally arranged umbel of twenty to thirty fragrant white flowers about three-eighths-of-an-inch across, with broadly-heart-shaped lobes and a cylindrical tube about a quarter-of-an-inch long, slightly dilated upwards, with a ring in the mouth. Flowers in May.

Grows in rich soil near hot springs on the Yangdza-Shan, Mekong Salwin Divide, in north-western Yunnan, at 8,000 to 9,000 feet above sea-level.

Culture: Good rich loam in a damp half-shady spot, with protection from severe frost in winter, is indicated.

Var. nana (W. W. Sm.) differs from the type chiefly in being only from half-an-inch to two inches tall, and the white flowers being flushed lilac. Grows on boulders and in dry, stony pastures on the mountains of north-western Yunnan. Flowers in May. *A. W. Darnell.*

(*To be continued*).

STRANGE DENIZENS OF THE GARDEN.

DURING the last thirty years scarcely a season has passed without bringing me a number of worm-like creatures found coiled among the plants of the garden. As enquiries are still continually reaching me respecting their nature and the possibility of their being injurious, a brief description of these simple, thread-like creatures may be of service. I refer to the Hair Worms, usually lumped together under the Linnean name, Gordius aquaticus. They have the appearance of a piece of twine, thread, cotton or silk which is able to move and wriggle about. Usually the larger forms are a dull brown or horny colour, while, so far as my observations go, the smaller and more slender forms are yellow. These latter may be about two inches in length when straightened out, and might pass for a bit of silk or very fine cat-gut. Larger species are often from six to ten inches in length, as big round as a piece of fine twine, and look like a coil of living wire.

As for the name—this is one of the classical terms of which Linnaeus seems to have been specially fond, and is certainly very appropriate. It represents the Gordian Knot, and is borrowed from the well-known legend of Gordius, who consecrated his chariot to Zeus, and fastened the pole with a very ingenious knot. When Alexander the Great came to Gordium and saw the impossibility of untying the knot, and so claiming the dominion of the world, he took up his sword and cut it. The term aquaticus is also appropriate, since the worms are often found swimming with an undulatory motion in puddles and pools, coiling themselves around the water weeds, and knotting themselves in an inextricable coil. Their numbers are sometimes so large as to give rise to legends about showers of worms. They are not, however, limited to watery places, as a glance at the life-story shows. Folklore derives them from horse-hair, and it is said that if a hair from a horse's tail is placed in a saucer of water and stood in the sun the hair will become a living worm. I have not tried this!

The group of creatures to which Gordius belongs has been, and still is, one which systematic zoologists have difficulty in placing. Gordius is not a worm in the sense of being an Annelid. It is not divided into rings, segments or annuli, and to the naked eye has no more character than a bit of thread or hair. Owing to its resemblance to the threadworms it was formerly regarded as being akin to the nematodes, but its structure, habits and life-history are quite distinct from these well-known worms. Mermis however, has been constantly confused with Gordius and its allies, and as this is often classed with the nematodes, and is the creature which is most frequently found in gardens, it may be well to deal with both groups: the Mermithidae and the Gordiidae. Both share the peculiarity of being free-living at one stage of existence, while they are parasitic at another. Some of these creatures are parasites when in the larval stage and free when adult; while others reverse the order and are free when larval but parasitic when adult.

The hair worm known as Mermis, which is often confused with Gordius, belongs to the group which pass the larval stage as a parasite, and there are several species. There is a dark coloured variety (Mermis nigrescens) which lives in damp soil and is frequently seen after heavy showers crawling up the stalks of plants in the morning, or twining itself around the stems and leaves. The eggs in this case are usually laid on the ground, and when the young larvae develop they find their way into grasshoppers, in whose bodies they pass the greater part of their larval life. Other species prefer the larvae of different insects, such as ants, butterflies, cockchafers, diptera and orthoptera, or even live in the water flea (Gammarus pulex). There are two sexes, and these often differ considerably both in size and structure. Thus in one species (M. contorta) the male is under an inch in length, while the female is three times as long, attaining nearly two inches. In another (M. crassa), which breeds in the water larvae of gnats, the male is an inch while the female is four inches in length. Each larva is provided with a boring needle exactly like that which one sees in many nematodes, and, indeed, one would certainly confuse these larvae with nematodes if their life history was not known. They are, of course, microscopic creatures, and may only be identified by means of the microscope.

Hardly to be distinguished from Mermis by the naked eye are the different species of Gordius. These are at present usually divided into four genera of which the names are Gordius and Paragordius, Chordodes and Parachordodes, although systematists are not quite agreed as to these. The genus Parachordodes was founded by Camerano, but is regarded with doubt by Montgomery who is a high authority of a generation ago. Here, too, we meet with two sexes, whereas in the true worms male and female co-exist in the one and the same individual. In technical language worms are hermaphrodites. The male of Gordius may be distinguished from the female by the presence of a fork at the hinder extremity, near which is also situated the minute anus (Fig. 16, No. 4A), the existence of which was unknown to the earlier writers on the subject. The cuticle is ornamented with very fine markings which are of value in determining the species.

Here one may note a point of interest, as it may assist the student in his attempts to determine whether he is examining a Mermis or a Gordius. In the case of the latter the alimentary canal during the adult aquatic stage shows signs of degeneration, and will be found free of food-stuff. On the other hand, Mermis feeds in the adult or free stage, and the earthy matter may be seen through the thin integument just as it may be in an Enchytralid worm. Gordius has a single median eye, and a single nerve-cord which is not segmented as in the annelids. The larvae of this form of Hair Worm differ widely from those of Mermis, and in no way resemble the nematodes, as may be seen by the illustrations (Fig. 16, Nos. 2 and 3).

Gordius may be found in the spring coiled around a water plant on which it lays its eggs, often in great numbers (Fig. 16, No. 1). In about a week the larvae appear. These are minute creatures with a boring needle to enable them to penetrate the bodies of their future hosts. By means of this chitinous apparatus they enter the larvae of gnats, may-flies and water insects, or the bodies of water snails, where they encyst. And now the larva awaits the time when its host is devoured by a fish or by a carnivorous insect, and is thus transferred to a second host. It may take a year or more for the larva to arrive at the adult stage, after which it emerges from its host and commences the tasks of reproduction.

To sum up: Hair Worms are of two kinds, or belong to two families, and are known as Mermithidae and Gordiidae. They both pass the larval stage in insect hosts and the adult stage in a state of freedom. The Gordius prefers the water, and lays its eggs on aquatic plants, while Mermis is found in garden soil and twines around the plants found in the neighbourhood, but does them no harm. Mermis feeds during its free stage, so that it may be recognised by the earthy matter in its intestines, while Gordius appears to have only a degenerate alimentary canal at this stage and does not feed. The larvae of Mermis closely resemble nematode worms, and in this respect differ greatly from those of the Gordius. The different species differ considerably in length, some being under an inch while others may be as long as ten or twelve inches. The female usually exceeds the male in length so that space may be available for the large number of eggs which she usually lays. *Hilderic Friend.*

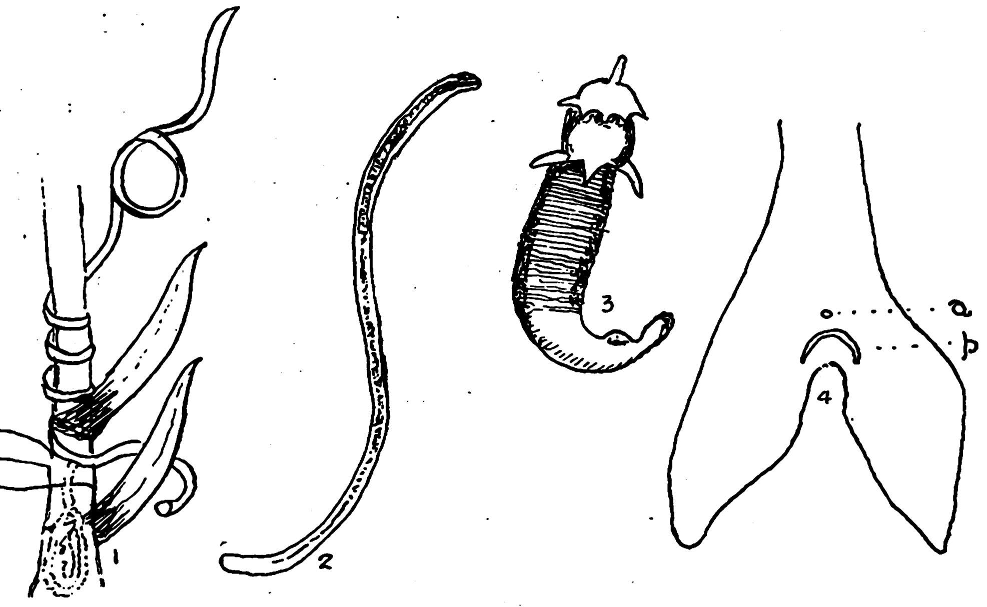

FIG. 16.—STRANGE DENIZENS OF THE GARDEN.
1, Gordius aquaticus laying eggs on a water plant (nat. size); 2, Larva of Mermis; 3, Larva of Gordius; 4, Tail of Gordius (Paragordius); (a) anus; (p), fold of skin.

NOTICES OF BOOKS.

Garden Cinderellas.

Nothing has done more to popularise Lilies in the United States than the comparatively recent discovery by American nurserymen that many of them are easily propagated, and are therefore a commercial proposition. So long as the cultivation of species not indigenous to North America was carried on by means of bulbs imported from Europe or Asia, Lilies necessarily had a market restricted to those to whom the drawbacks incidental to the growing of such things were not insuperable—a comparatively small class drawn mainly from the ranks of wealthy and keen amateurs.

One result of the post-war interest in Lilies in America has been the publication there of several books devoted solely to the genus, and of these Mrs. Fox's volume* is the most recent. The book is avowedly written "for the gardener who longs to have a few Lilies in his front yard or in the flower border amongst the Columbines and Delphiniums but does not know which ones to order or how to treat them after their arrival," and although that ingenuous statement might have the effect of disarming all criticism, there is far more in the book than the statement in question might lead one to suppose.

The gulf dividing horticultural practice on the eastern side of the United States from our own is so wide as to render so much of the book as is devoted to cultivation inapplicable to British practice, but the chapters on the peculiarities of and differences between Lily bulbs, their methods of increase, and the preparation of the soil for Lilies, are as much to the point for English growers as for those in America; so, too, is the chapter on diseases and pests, although the statement that spraying with Bordeaux mixture kills the fungus, Botrytis, is open to question. In this country it has been found more of a prophylactic than a cure.

Those who know the work done by the United States Board of Agriculture for the advancement of horticulture, and realise the extent to which our American cousins rely on a paternal government in such matters, will not be surprised to read that: "Before making any garden it is wise to study the composition of the soil, send samples of it to the state experiment station, read their bulletins and study the soil maps."

The volume is plentifully supplied with illustrations, and if they are not all of equal merit, those who know the difficulties attendant on the photography of plants in the open, will not cavil at their quality. For uniformly satisfactory results in the case of plants in the open air the camera must be available at the precise moment when the sun and wind and the plant itself all combine to be on their best behaviour—a very rare combination.

Here and there, the authoress's observations have led her astray, as, for instance, in the statement (on p. 141) that, "in cutting Lily blooms, at least eighteen inches or more of the stem should be left so that there will be sufficient leaves remaining to store up next year's growth, for the leaves are the lungs of the plants." Practice and experiment have shown that this widely-held theory has no basis in fact. The stems of Lilies, other than those of the Cardiocrinum group, may be cut, trodden on and destroyed so soon as they show above the ground without hurt to the bulbs; indeed, the latter seem the better for it.

So much nonsense has been written about the evils of manuring Lilies that it is good to find Mrs. Fox advocating the use of well-rotted manure for them. In the chapter on manures, no mention is made of potash, which the genus, as a whole, appreciates. Some qualification too, is needed for the observation (on p. 5) that: "The buds of most Lilies stand straight out from the stem and when the time approaches for them to play their part . . . the nodding ones turn down and slowly open."

In a brief preface, E. H. Wilson, the Keeper of the Arnold Arboretum, draws attention to *Das Buch der Natur*, a volume not far short of five centuries old, in which there is a figure of L. candidum; and on page 11 there is an illustration of a Cretan vase dating from 2,500-1,500 B.C., on which a representation of L. candidum forms the decoration. As has long been known, this Lily has its roots deep down in the history of man.

Hardy Heaths.*

I have just finished reading through a very charming and helpful little handbook—*The Hardy Heaths*—which should be in the hands of every lover of these easily-grown and charming plants, which are lately so steadily advancing in popular favour.

The little volume is an addition to *The Gardeners' Chronicle* Handbooks, and one of the most acceptable of the series, reflecting credit on both the author and the publishers. Of a convenient size to fit the pocket easily, it is the sort of book to become the companion of the garden lover as he wends his way to that portion of his garden where his modest collection of hardy Heaths have their home, to be consulted on this point or the other and, being very thorough, is not likely to fail when consulted. It is of equal value to the proud owner of a "Heath Garden" and should be in the hands of every gardener having charge of such, and it should be consulted by every intending planter of Heaths, or the constructors of that form of wild garden that is becoming almost as indispensable as the ever-popular rock garden. Indeed, there might easily be a gradual transition from one to the other.

Erica carnea, the alpine forest Heath, has been long, and rightly, a welcome inhabitant of the rock garden, and Mr. A. T. Johnson points out that several other of the dwarf-growing kinds might well be admitted there, and would add useful patches of bright colour at a time when many rock gardens without such help, are apt to become rather dull. As I write, my own rock garden is the richer for fine colonies of Erica cinerea rosea, E. c. coccinea and E. c. alba major, a delightful little trinity, soon to be followed by promising patches of E. Mackayana and several others.

Where space and position permits, I do not see why the rock garden should not be approached via the Heath garden, which, backed, say, by a group of Pinus Cembra and Pinus montana Mughus, carpeted with Erica carnea in its various forms, would make a very charming and natural approach to the home provided for the children of the higher mountains, an effect often enough offered by nature in the mountains of the south of Europe, where the foothills are covered by Erica mediterranea and E. multiflora and E. umbellata which presently give way to E. arborea and E. lusitanica and E. australis, interspersed with various Brooms, dwarf Gorze, Lavenders and Rosmaries and Cistuses, and lead us naturally to the domain of the alpine flora. I was pleased to see that Mr. A. T. Johnson seems to have seen and realised this gradual transition, and that he devotes a chapter or two of his book to suitable plants, not members of the Heath family, to use in association with them.

The fact that a garden situated on limy soil does not necessarily debar one from indulging in at least a certain number of Heaths is correct. Mr. Johnson is at pains to point out those kinds which succeed readily on such soils and gives sound advice on how to succeed in spite of lime being present, thus giving a blow to the old and fallacious idea that peat is a *sine qua non* in the successful cultivation of these plants.

There are chapters devoted to "Habits and Distribution," "Soil and Situation," "Propagation," "Planting and after," "Species and varieties of Calluna," and "Species and varieties of Heaths Proper," a chapter on some "Allied Shrubs," and "Trees and Shrubs suitable for the Heath Garden," besides one dealing with "Heaths in Industry and Legend," covering very completely the whole ground on this interesting question, and concluding one of the handiest, small works of reference that has come under my notice. *W. E. Th. I.*

MESEMBRYANTHEMUM.

SPHALMANTHUS.

(*Continued from p.* 13.)

2. S. salmoneus, N. E. Br.=M. salmoneum, Haw., *Rev.*, p. 176; N. E. Br. in *Journ. Linn. Soc.*, Vol. XLV, p. 134; not of Salm Dyck, Sonder or Berger. M. canaliculatum, Salm Dyck, *Mes.* § 56, f. 1; Sond. in *Fl. Cap.*, Vol II. p. 450; Berger, *Mes. und Port.*, p. 72, f. 11, II, not of Haworth. See note under S. canaliculatus, N. E. Br.

The flowers of this species are stated to be "at first fulvous or salmon-coloured, yellow at the base, afterwards paler to rosy, and finally rosy outside and more or less whitish within."

3. S. tenuiflorus, N. E. Br.—Leaves 1¼–2¼ inches long, spreading or recurved; calyx-lobes longer than the petals; corolla purple, closing every evening,=M. tenuiflorum, Jacq. *Fragm.*, p. 44, t. 52, f. 3 (1804 or later); Haw., *Suppl.*, p. 94, and *Rev.*, p. 177.

Sonder, and Berger following him, have considered this and S. viridiflorus to be one species, apparently without paying any attention to the distinctive characters represented or given to them by Jacquin, which I here add.

4. S. viridiflorus, N. E. Br.—Leaves ¾–1½ inch long, ascending or ascending-spreading; calyx-lobes shorter than the petals; corolla green, remaining open day and night. M. viridiflorum, Ait. *Hort. Kew.*, ed. 1, Vol. II, p. 196; Haw. *Obs.*, p. 199 and 443, *Misc.* Nat. p. 56, *Synop.*, p. 253, and *Rev.*, p. 177; Jacq. *Fragm.*, p. 43, t. 52, f. 2; DC. *Pl. Grass*, t. 159; *Bot. Mag.*, t. 326; Salm Dyck, *Mes.*, § 54, f. 5.

5. S. carneus, N. E. Br.=M. carneum, Haw., *Obs.*, p. 206. M. grossum, Haw., *Obs.*. p. 255, *Misc. Nat.*, p. 56; *Synop.*, p. 252; and *Rev.*, p. 176; Salm Dyck, *Mes.*, § 54, f. 3; Sonder in *Fl. Cap.*, Vol II, p. 449; Berger, *Mes. und Port.*, p. 66, not of Aiton.

6. S. oculatus, N. E. Br.=M. oculatum, N. E. Br. in *Kew Bull.*, 1911, p. 313, and *Journ. Linn. Soc.*, Vol. XLV, p. 120.

7. S. fragilis, N. E. Br.=Rootstock more or less tuberous or thick and fleshy, divided. Stems prostrate, 4–8 inches long, 1½ line thick at the younger green parts, with internodes 5–9 lines long, and when young and on all other green parts papulose, becoming greyish and withered in appearance when old, glabrous, very brittle. Leaves alternate or some of the lower opposite, ascending-spreading, 6–10 lines long, 1½–2 lines broad and 1–1½ line thick, gradually tapering from the base to an acute or obtuse point, flat with obtuse edges on the face, rounded on the back, not keeled, soft and pulpy with the papulae often linear-oblong in outline as seen with a lens, green. Flowers 3–6 or perhaps more, in lax terminal cymes. Pedicels 4–6 lines long, upcurved, terete, thickening into the ovary. Calyx 5–lobed, with the papulae coarser on the ovary part than on the lobes, glabrous, the longer lobes 4½–8 lines long, 1–1½ line thick, and usually longer than the petals, the others shorter, all leaf-like. Corolla 8–9 lines in diameter, expanding in the morning irrespective of sunshine if warm enough, closed at night; petals loosely arranged in 3–4 series, forming a flattish flower, the outermost about 5 lines long and ½-line broad, the inner gradually shorter and narrower, passing into staminodes, linear, the outer obtuse or truncate, the inner acute, all of a peculiar pale buff or between pale straw and pale buff colour. Inner staminodes erect, closely surrounding and overtopping the stamens, 3 lines long, slightly recurved at the tips, pale yellowish. Stamens in several series one above another in a cone within the staminodes; the inner about ½-line long, and the outer or upper 2½-lines long; filaments not bearded, whitish; anthers bright yellow. Stigmas 5, about ½-line long, terete, erect and recurved at the tips. Ovary inferior, shortly convex at the top, 5-celled; placentas axile.

Little Namaqualand: In the Richtersveld, Pillans, 5734!

Described from a living plant sent to me by N. S. Pillans. My sketch of the floral structure of the genus (Fig. 8, p. 13) was made from this species.

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* *Garden Cinderellas. How to Grow Lilies in the Garden.* By Helen Morgenthau Fox. Published by the Macmillan Co., New York, 1928. $5.00.

* *The Hardy Heaths*, by A. T. Johnson. *The Gardeners' Chronicle* Handbook Series, Edited by Charles H. Curtis, F.L.S. Published by The Gardeners' Chronicle, Ltd., 5, Tavistock Street, Covent Garden. Post free, 8/9.

8. S. laxus, N. E. Br. = Aridaria laxa L. Bolus in *South Afr. Gard.*, 1927, p. 433, f. 23, C.

9. S. Rabei, N. E. Br. = Aridaria Rabei, L. Bolus in *South Afr. Gard.*, 1927, p. 433, f. 23, D.

10. S. commutatus. N. E. Br. = M. commutatum, Berger in *Engl. Bot. Jahrb.*, Vol. LVII, p. 631 (1922). M. longispinulum, Salm Dyck, *Mes.*, § 54, f. 4; Berger, *Mes. und Port.*, p. 68 and 67, f. 10, II, not of Haworth,

11. S. longispinulus, N. E. Br. — Tuber growing partly above ground, 9–10 lines thick. Stems 4–6 inches long, procumbent. Leaves alternate, 8–10 lines long, about 1 line thick, semi-terete or channelled above, very acute or almost spine-pointed, absolutely papulose, green, withering into small spines 3–4 lines long on the basal part of the branches. Flowers terminal, solitary, on stout pedicels 3–4 lines long, thickened upwards. Calyx 5-lobed; ovary part 5 lines long, 4½–5 lines in diameter; lobes sub-equal, varying in different flowers from 2½–6 lines long, leafy. Corolla 12–14 lines in diameter, expanding in the morning; petals very numerous, in several series, narrowly linear, passing into staminodes, light yellow. Stamens slightly and gradually spreading, of a darker yellow than the petals. Stigmas 5, erect, shorter than the stamens, dark yellow. Ovary 5-celled.

M. longispinulum, Haw., in *Phil. Mag.*, 1824, Vol. LXIV, p. 426, not of Salm Dyck, Sonder nor Berger.

As this plant has been misunderstood by all authors, I give the above description of it, partly compiled from Haworth's original description and partly from a good coloured drawing of the type plant preserved at Kew and labelled "Raised in 1921 from seeds collected at the Cape of Good Hope by Mr. Bowie," and named "Mesem. longispinulum, Haw., in *Phil. Mag.*" This drawing represents a plant that is probably four to five years old, and is most probably made from the very plant that Haworth described, for it quite corresponds with his description. But there is also another drawing at Kew bearing the record "Mesembr. longispinulum, Haw., in *Phil. Mag.*, p. 426. Raised in 1924 from seeds brought from the Cape of Good Hope by Mr. Bowrie." This latter plant has longer leaves and very different whitish flowers from those of the true M. longispinulum and may possibly be a fellow seedling to the plant Salm Dyck has figured as M. longispinulum (*Mes.*, § 54, f. 4), which was evidently sent to him by Aiton under that name instead of the true M. longispinulum. The colour of the flower probably varies, as in other species, for the yellow colour depicted by Salm Dyck is of a much deeper tint than I have ever seen it, or than in the Kew drawing, which represents the flowers as creamy-white. This drawing with whitish flowers was probably not made until 1825 or later, as Bowie did not return from the Cape until August, 1823, and the plant being raised in 1824 (when Haworth published his description) would not be likely to flower in that year.

12. S. caudatus, N. E. Br. = M. caudatum, L. Bolus in *Ann. Bolus Herb.*, Vol. II, p. 29.

13. S. grossus, N. E. Br.—This has a stout, ovoid, tuberous base, from which arise stout, ducumbent branches 1½–4 inches long and 2–3 lines thick, with a mass of densely crowded leaves and flowers at their ends. Leaves 6–10 lines long and 1½ line thick, sub-terete, but flattened on the face, incurved-spreading, obtusely pointed or subacute, papulose. Flowers subsessile or on pedicels 1–2 lines long. Calyx unequally 5-lobed, papulose; lobes 1½–3 lines long, sub-acute. Petals numerous, in 2–3 series, united below into a short tube, linear, obtuse, yellow. Stamens numerous, arising from the corolla-tube. Stigmas 5, spreading, 1-line long, rather stout. Ovary half-superior, 5-angled. Young fruit dark red at the top. M. grossum Ait. *Hort. Kew*, ed., 1 Vol. II; p. 191, not of other authors.

The above description is compiled from drawings made in 1776, preserved at the British Museum, which demonstrate that it is a totally different plant from that which Haworth and others have mistaken for it. *N. E. Brown.*

(To be continued.)

GENETICS OF THE ROSE.[*]

SINCE the War I have devoted myself entirely to a study of the genetics of the Rose. A comprehensive collection of the known species, sub-species and hybrids has been got together in the Cambridge Botanic Garden from various sources, including wild species collected by my wife and myself in England and in five Cantons of Switzerland, and plants raised from seeds sent to me by correspondents and travellers in North America, Mexico, Turkestan, Siberia, China and Japan. I am also much indebted to the Directors of the Botanic Gardens at Kew, Oxford, Cambridge and Basel; to Colonel. Gravereaux, of La Roseraie de l'Hay, Paris; and to Dr. Mary Carew-Hunt (who kindly allowed me to select eighty specimens from the collection of the late Canon Carew-Hunt at Albury, Oxford), for free access to their collections in obtaining my material. This material has been analysed in three different ways, in accordance with the methods of three different sciences: Taxonomy, Genetics and Cytology.

First.—About one hundred characters of each species, sub-species and variety have been examined and tabulated.

Second.—Numerous experimental crosses have been made between various species, sub-species and varieties, and the results recorded and tabulated. Many known hybrids have also been analysed.

Third.—The chromosomes of 674 species, sub-species, varieties and hybrids have been examined and counted under high-powered microscopes, in various stages in both body-cells and germ-cells.

The results of these combined experiments and researches have proved to be of considerable importance, and in many cases, surprising and quite unexpected results have been obtained. I fear that several large volumes will be required to record the results already secured, and so far as one can see, we are as yet merely on the threshold of important results to come.

Since, on this occasion, I have been allotted twenty minutes, I propose to devote ten minutes to giving a very brief account of the results obtained, and the remaining ten minutes to a consideration of the possibilities of applying these purely scientific results to the betterment of our garden Roses.

The most important results have come from the counting of the chromosomes. A Rose plant, like other plants and animals, is made up of millions of minute cells which form the various tissues. Each cell contains a round, central body, known as the nucleus. Each nucleus contains a number of microscopical rod-like bodies which stain rapidly with chemical dyes, and for that reason are called chromosomes. These chromosomes carry the Mendelian factors, or genes, which differentiate the various characters of the Rose. In the body-cells of regular species, the chromosomes consist of pairs, one of which came from the male parent and the other from the female parent. In the male and female germ-cells the chromosomes are single, so that a pollen-nucleus and an egg-nucleus, carry one-half the number of chromosomes that are contained in the body cells. When fertilisation takes place the two singles come together and make a pair of chromosomes. As an illustration of how this works in a given case, we will take two well-known Roses and cross them together. The female parent is Rosa multiflora from Japan, with tall, summer-flowering stems and single, white flowers. The male parent is Rosa chinensis from China, with dwarf, perpetual-flowering stems and semi-double, pink flowers. Each parent has seven pairs of chromosomes in its body-cells and seven single chromosomes in its germ-cells. From experiments we know that the Mendelian gene for tall summer-flowering stems is located in one chromosome of the seven present in the egg-nucleus of R. multiflora, while the gene for single flowers is located in a second chromosome and the gene for white flowers is located in a third chromosome.

Similarly, the gene for dwarf perpetual-flowering stems is located in one chromosome of the seven present in the pollen-nucleus of R. chinensis, while the gene for double flowers is located in a second chromosome, and the gene for pink flowers is located in a third chromosome. After fertilisation, the cells of the hybrid contain seven pairs of chromosomes, seven from each parent. The chromosome carrying the gene for tall, summer-flowering from R. multiflora pairs off with the chromosome carrying the gene for dwarf perpetual-flowering from R. chinensis, as do the two chromosomes carrying genes for single and double flowers, and the two chromosomes carrying genes for white and pink flowers. The resulting hybrid produces tall, summer-flowering stems with semi-double pink flowers, since these characters are dominant, while dwarf perpetual-flowering stems and single white flowers are recessive. When the germ-cells of the hybrid are formed, the seven pairs of chromosomes are reduced to seven singles. Since this reduction is a random one, the hybrid produces eight kinds of pollen-cells and eight kinds of egg-cells. Consequently, when the hybrid is selfed, in accordance with the Second Law of Mendel, we get, on the average, once in sixty-four times a dwarf perpetual-flowering double white Rose, with the mixed characters of R. multiflora and R. chinensis. Such was the origin of the Polyantha Pompon "Paquerette," raised by M. Guillot in 1873, which introduced a new race of Roses to our gardens.

The chromosomes in Roses, as in other plants and animals, are relatively constant in size, shape and number for any particular individual. In the five genera of the Rose Tribe there are minor differences in size and shape of the chromosomes, but in Rosa proper all the chromosomes are relatively the same in size and shape, though they differ remarkably in number. Six different types have been found with fourteen, twenty-one, twenty-eight, thirty-five, forty-two and fifty-six chromosomes in the body-cells. The interesting and important point is that all these numbers are multiples of seven. In the formation of the germ-cells and at certain other times, the chromosomes may be seen working in sets of seven, or septets as we call them. To cut a long story short[†], our genetic experiments at Cambridge have demonstrated that in Rosa proper there are five distinct septets, or sets of seven chromosomes, which we distinguish as A, B, C, D, and E septets. Each septet of chromosomes carries a different set of genes representing at least one hundred specific, sub-specific and varietal characters. From this it follows that there are five fundamental species in the genus Rosa of Linnaeus, and that all the other species of this genus consist of various combinations of the chromosomes and characters of these five fundamental species. The five fundamental species are known as diploids because they contain two septets of chromosomes in their body cells, other Roses are known as polyploids because they contain more than two septets. Triploids contain three septets, tetraploids four, pentaploids five, hexaploids six, and octoploids eight septets of chromosomes in their body-cells.

The first fundamental diploid species which carries a pair of A septets of chromosomes is Rosa sempervirens of Linnaeus, and its sub-species include R. arvensis, R. moschata, R. phoenicea, R. abyssinica, R. Pissartii, R. Brunoni, R. Leschenaultiana, R. longicuspis (with its variety lucens), R. gigantea, with its offspring R. odorata (the Tea Rose), R. Soulieana, R. Helenae, R. Rubus, R. Gentiliana, R. laevigata (with its offspring Sinica Anemone) R. Banksiae, R. microcarpa, R. chinensis (with its offspring the pink and crimson Chinas), R. anemonaeflora, R. cathayensis (with its offspring Crimson Rambler), R. multiflora, R. Wichuraiana, R. Luciae, R. Watsoniana, R. rubrifolia, R. setigera and several new sub-species from China found at Kew and Cambridge in Mr. R. Cory's seedlings.

The second fundamental diploid species which carries a pair of B septets of chromosomes is Rosa sericea of Lindley, and its sub-species include R. cabulica (usually mislabelled R. Beggeriana in gardens), R. Ecae, R. Webbiana, R. omeiensis, R. sertata, R. Willmottiae, R. Hugonis, R. xanthina (of American gardens, not the one in British gardens, which is a tetraploid R. ochroleuca with B and D septets), R. gymnocarpa and a new sub-species found at Cambridge.

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[*] A paper contributed to the International Rose Conference by Major C. C. Hurst.

[†] A more complete account appears in *Report of the 5th Genetics Congress*, Berlin, 1927, Vol. 2 (1928).

The third fundamental diploid species which carries a pair of C septets of chromosomes is Rosa rugosa of Thunberg, and its sub-species include R. coruscans R. nipponensis (not R. acicularis nipponensis of gardens, which is a tetraploid with D and E septets), R. nitida and two new sub-species found at Kew and Albury.

The fourth fundamental diploid species which carries a pair of D septets of chromosomes is Rosa carolina of Linnaeus (of 1753, not his species of 1762, which is, in part, a tetraploid with A and D septets), and its sub-species include R. cinnamomea of Linnaeus 1759 (not his species of 1753, which is a tetraploid with D and E septets), R. davurica, R. Marrettii, R. pisocarpa, R. Woodsii, R. Fendleri, R. foliolosa, R. blanda, and several new sub-species raised from seeds collected in North America.

The fifth fundamental diploid species is Rosa macrophylla of Lindley, and its sub-species include R. corymbulosa, R. Giraldii, R. elegantula, R. persetosa and two new sub-species from China found at Kew.

(*To be continued.*)

FRUIT GARDEN.

RED CURRANTS.

In your issue of May 19 (p. 359, Vol. LXXXIII), some interesting remarks on Red Currants were made by Market Grower, and it is the complaint of this writer that large bushes are difficult to attain, so perhaps a method I adopt may prove of interest. I am a firm believer in the stool method as being the only way of retaining a permanently shapely and prolific bush. I prefer to plant young bushes in the autumn after they are rooted, and then to cut them back almost to the ground level. From the non-disbudded cutting, sufficient shoots are obtained the year after planting, and of these six are chosen to form the bush, the remainder being removed at once. During the next winter these shoots are shortened to eighteen inches.

In the following spring these break at almost every bud and, with the exception of the two top ones, all the shoots are pinched at the fourth leaf. The pinched shoots break again, and are again stopped. The result is exceedingly strong growth of the two top shoots left, and one may be sure of an increase of eighteen inches in their height when the next winter's pruning is practised. This pruning consists of closely spurring the shortened side-shoots and retaining eighteen inches of the chosen leader, cutting out the second one. Two are left all the summer, as experience has shown me the need for providing against the wind breaking one. The following season the same routine is practised, again leaving leaders and stopping the side-shoots. Leaders should easily reach a length of two feet by this plan, and a bush of considerable height may soon be attained.

This method of pruning answers well throughout the life of the bush. It is, perhaps, laborious, but it gives good crops of very fine fruits. If time cannot be found for continuous pinching of the shoots, one cutting in June may prove a great help by throwing the strength of the tree from useless shoot growth into fruit perfection. As a quick method of producing a large bearing tree it is worth a trial. It is important to allow the leaders to grow freely all the season, even if no increase in height is desired.

Varieties which respond to this treatment are Raby Castle, Wilson's Longbunch and Fay's Prolific. The latter is the most difficult to manage as its very strong shoots are readily injured by the wind, and I have sometimes resorted to pinching even the leaders in August, to safeguard them against the autumn winds. The other two kinds mentioned could have eighteen inches added to their height every year practically indefinitely.

Red Currants revel in high feeding, and fowl manure seems to suit them ideally. I give two light dressings annually, one in early spring and one during the summer rains. Cultivation should consist of merely hoeing to destroy weeds; digging, I believe to be seriously detrimental. Crops this year are light owing to frost, but for the past five years I have secured very heavy returns under this treatment. *E. Brown, Sittingbourne, Kent.*

HOME CORRESPONDENCE.

Failure with Roses.—It would be very interesting to learn whether any of the many readers of *The Gardeners' Chronicle* have suffered severe losses among newly-planted Roses during the recent severe winter; also if any have grown Rose Charles E. Shea, and with what results. Has it proved as hardy in constitution as lots of other supposed first-class Roses? My employer had a bed of four dozen put out in October last (1927), and only a very meagre few are left, and those remaining are only half promising at that. To save unnecessary questions, may I add that the beds were prepared with particular care, and the Roses planted with every possible care and interest by a keen gardener. This particular Rose was chosen as it is recommended for exhibition. Its colour is described as rose-pink, with large, perfect blooms. *A. K., Weybridge, Surrey.*

Lomatia ferruginea—At first sight, this subject resembles Grevillea robusta, but the leaves of the latter are much more deeply divided. The two genera are also related. The larger leaves of Lomatia ferruginea are bipinnatifid but the uppermost may be only once deeply divided on the same shoot. The younger leaves are bluish-white beneath, although those immediately below them assume a rusty hue, as the name implies, while their stalks and mid-ribs are decidedly ferruginous or rust-coloured, the dense coat of short hairs being the part that assumes this colour. The flowers, when open, are rosy-red and white; they open in succession, but are largely hidden by the foliage, owing to their short stalks. Previous to the expansion of the segments of the perianth, which opens from below upwards, the flower is seccate below, contracted above the middle, and then swollen into a round head which contains the stamens, and carries the latter away when it finally falls. The object of this curious structure seems to be to ensure self-fertilisation, for the disc-like stigma is covered with pollen before the perianth falls away. The Lomatias are generally regarded as greenhouse plants, but the above description is taken from a specimen grown in the open air in Cornwall. The species was introduced from Chile in 1851, and reaches a height of ten feet to twelve feet in some parts of Ireland. The foliage is the most ornamental part of the shrub. *J. F.*

Vita-glass.—I should be pleased if any of my fellow readers who have made trials with the growing of fruits and plants under Vita-glass would give the result of their trials. Here we have a small span-roofed house, forty feet by twelve feet, and one third of the roof and sides is glazed with Vita-glass, the remainder with ordinary glass; but there is no division inside. I have grown Tomatos, climbing Beans and Strawberries the full length of the house, and at no stage of growth have I been able to notice any difference between the plants under the different kinds of glass, although everything in the house has done exceptionally well from the day it was placed therein. I had Strawberries in four other houses, but those in the Vita-glass house were by far the best, both in quantity, size colour and flavour of fruits, but all the Strawberries were equally good throughout the full length of the house and not merely under the Vita-glass. Is it possible for the ultra-violet rays which penetrate the Vita-glass to benefit the plants in a part of the house not glazed with Vita-glass? *O. Maddock, The Gardens, Ham House, Richmond, Surrey.*

Perpetual-flowering Carnations Out-of-doors.—These have been found quite successful in sunny and open positions, although a screen or background at some distance behind them, to serve as a wind-break if the garden is very exposed, is desirable. To cultivate them satisfactorily out-of-doors, it is essential that strong and healthy plants, almost ready to flower, are planted out, which, in well-prepared soil should commence to bloom almost at once, and continue to flower profusely until frost stops them. Regular attention in tying and supporting the flower stems is necessary, and a certain amount of disbudding should be done to produce blooms of good quality, while a light application of Carnation manure stirred into the surface of the soil should be of assistance when growth is active. The wire Carnation supports now in use may be recommended as distinctly labour-saving, but care should be taken that they are not obstrusive.

Perennials and Biennials for Summer Sowing.—Where glass is limited, perennials and biennials may be sown out-of-doors, and no time should be lost in sowing them. Wallflowers are one of the important items, and to ensure success, the seeds should have been sown earlier, and the young plants now growing nicely. There are now excellent strains of Wallflowers offered by the leading seedsmen, which may be relied on to come true to name, and one of the most striking last season, when grown in a mass, was Orange Bedder, which should certainly be tried. The dwarf bedding varieties are excellent for filling small beds, or for edging beds of the larger varieties. So soon as the plants are large enough to handle, they should be transplanted into beds of good, but not too rich, soil to ensure good plants for putting out permanently so soon as the beds are cleared of their summer occupants. Where perennials and biennials were not sown in heat earlier in the season, the present is an excellent time for sowing. The advantage of sowing such plants as Delphiniums, early, is that the seedlings may flower in the late summer and autumn and be of great value for cutting, but the plants should be grown on without a check to ensure success in one season. Where frames are at liberty, the finer seeds should be sown in them, and the lights removed so soon as germination has taken place. In frames they may be protected from birds and slugs. Seeds should be sown of Aquilegias, Pansies and Violas, Delphiniums, Coreopsis, Campanulas, perennial Poppies, Aubrietias, Myosotis, Polyanthuses, Primroses and Sweet Williams, to name but a few. If the seeds were sown early, the seedlings should be planted out in nursery beds and given regular attention. *J. G. Weston.*

FOREIGN CORRESPONDENCE.

TAR DISTILLATE WASHES.

It may be of interest to some of your readers to have a few details about the efficiency of tar distillate washes on fruit trees in this country. For the past five years we have treated our trees, especially Apples, with a ten per cent. solution of the best carbolineum. The results have been very satisfactory until this season, insuring a practically complete control of aphides and capsid bugs. But this year a strong infestation of aphides occurred which left us powerless. The weather was very bad during May and the beginning of June preventing treatments and checking growth, and this may be accounted for up to a certain point. It should be noted that the complaint is general throughout the country, treated or untreated trees showing but little difference in this respect, although some varieties are more resistant than others. Aphides eggs seem to have been uncommonly resistant this winter. Scab, too, has done a good deal of damage already. except in the Canton du Valais, where the climate is on the dry side, but where frosts were bad. I hope that your very esteemed correspondent, *Market Grower*, will always be satisfied with tar distillate washes, and will never experience such a disastrous infestation as ours. *A. R. Lugeoy, Ecole d'Agriculture, Morges* (*Marcelin*).

SOCIETIES.

WOLVERHAMPTON FLORAL FÊTE.

The Wolverhampton Floral Fête has come under somewhat different management during the present year. Formerly it was managed by a committee of local horticulturists, but always had the encouragement of the Corporation; in 1927, however, the terrible weather experienced during the Fête led to a loss of over £800, consequently the Corporation shouldered the responsibilities and now takes a very prominent part in the general management of affairs, with the Mayor as President, Alderman F. A. Willcock as Chairman, and Mr. W. J. Maxfield, Town Hall, Wolverhampton, as Secretary. We were glad to find, however, that many old friends have been retained on the Committee.

The exhibition, held in West Park, on July 3, 4 and 5, was a great success horticulturally, and we hope financially also. Additional attractions included folk dancing, musical military riding, and a torchlight military tattoo.

Hardy flowers and table decorations were very fine features of the exhibition, and the numerous groups of plants were well worthy of the occasion, but Roses were by no means so good as on many previous occasions.

Groups and Plants.

The principal group class was for an artistic arrangement of flowering and foliage plants on a space twenty-five feet by twelve feet, and in this competition it was a great pleasure to find Messrs. James Cypher and Sons competing and doing so successfully, as they won the premier award with a particularly charming group in which bright Codiaeums, graceful Palms and Ferns, Dracaenas and Alocasias were pleasingly grouped with Laelio-Cattleyas, Oncidiums, Liliums, Francoas, Clerodendrons and many other attractive flowering subjects. Sir G. Kenrick (gr. Mr. J. Macdonald), Whetstone, Edgbaston, won second prize, also showing a brilliant group, and Mr. W. A. Holmes was placed third.

In the same order of merit, the foregoing three competitors won prizes in a class for a group of foliage plants only, Messrs. Cypher and Sons using Codiaeums, Palms, Dracaenas, Nandina domestica, Selaginella, Coleus and Strobilanthes with fine effect; Sir G. Kenrick also had good examples of the bright Nandina domestica, Codiaeums and Alocasias.

Several pretty groups were staged in the class for a display of plants and cut flowers made on a space six feet by four feet. Mr. W. A. Holmes led, with Ixoras, Codiaeums, Francoa sprays and Carnations; second, H. E. Sankey, Esq.; third, Messrs. T. B. Grove and Sons.

Begonias were well shown, and we have seldom seen such a fine bank of these gorgeous greenhouse subjects as was provided on this occasion by the several competitors in a class for a display on a table space twenty-five feet by four feet. The first prize, including the Blackmore and Langdon Cup, was won by Alderman A. B. Bantock, whose plants and flowers were particularly good and well arranged; second, J. L. Swanson, Esq. (gr. Mr. F. M. Colling), Compton; third, S. J. Thompson, Esq.; fourth, G. Mason, Esq. (gr. Mr. Clark), Penn.

For a group of one kind of flowering plant, F. Sharpe, Esq. (gr. Mr. Cotton), Tettenhall, led with freely-flowered Fuchsias; H. E. Sankey, Esq., second, with fragrant Heliotropes of fine size; and S. J. Thompson, Esq., Oaken, third, with Fuchsias.

The best amateur's group of plants was staged by J. L. Swanson, Esq.; second, W. J. Pitt, Esq. (gr. Mr. J. Cook); third, Mr. F. N. Rew, Kingswinford.

Messrs. J. Cypher and Sons led for fifteen specimen plants, showing, among others, good examples of Clerodendron Thomsonae, Statice intermedia, Acalypha hispida and Codiaeums; Mr. W. A. Holmes, second; and H. E. Sankey, Esq. (gr. Mr. Maybury), Wolverhampton, third.

The Gardeners' Chronicle Medal, offered for tuberous Begonias, was won by Mr. T. H. Justice with a capital display.

Cut Flowers.

The best of three fine displays of cut hardy flowers, arranged on a space twenty-five feet by seven feet, was the one from Messrs. Bees, Ltd., whose exhibit was higher at the back and bolder than the others, and was equally colourful; the Delphiniums, Poppies, Verbascums and Liliums were excellent. Messrs. Harkness and Sons, secured the second prize, and made a special feature of Oriental Poppies and Lupins; third, Messrs. G. Gibson and Co.

Messrs. Bees, Ltd., were the only exhibitors of a collection of Delphiniums, and they were deservedly awarded the first prize for their superb display of large sheaves of splendid spikes of excellent varieties; it was a fine effort and one that attracted a great deal of attention. Antirrhinums were only moderately good, the best exhibit coming from W. B. Vernon, Esq. (gr. Mr. Eager), Hilton Park, Wrexham; second, Mrs. P. Adams (gr. Mr. Pugh), Kidderminster; third, H. E. Sankey, Esq. Lupins of fine quality and variety were best shown by Messrs. G. Gibson and Co., whose display was greatly admired; second, Messrs. Harkness and Sons; third, Mr. H. Drew.

In the Rose classes, Messrs. Wheatcroft Brothers and Mr. J. Mattock were placed equal firsts for five baskets of cut blooms, the former showing Independence Day, Christine, Hortulanus Budde and Betty Uprichard finely, while Mr. Mattock had Toison d'Or, and Hortulanus Budde in good form; third, Mr. Henry Drew.

Messrs. Jarman and Co., Mr. H. Drew and Mr. J. Mattock were placed as named for three dozen Rose blooms, the first-named showing fine flowers of Victor Waddilove, Mrs. Grant and Mabel Morse. Mr. Mattock beat Messrs. Jarman and Co. for nine perpetual-flowering Roses, and Mr. Mattock excelled for eighteen vases of Roses, with a charming display. The best basket of a light Rose was of Miss H. Bowles, shown by Messrs. Jarman and Co; second, Mr. J. Mattock, with Louise Criner. Messrs. Wheatcroft Brothers, showing Lord Charleward, led for a basket of blooms of a dark Rose; second, Messrs. Jarman and Co., with George Dickson. Mr. H. Drew led for a collection of Roses, in which he showed Danae, Shot Silk and Emma Wright effectively.

Sir Randolf Baker (gr. Mr. A. E. Usher), Ranston, Blandford, secured leading honours for eighteen vases of Sweet Peas, showing Charming, Youth, Powerscourt, What-Joy and Mrs. Searles finely; second, Mr. N. R. Challinor Baldersley, Scrieve.

Floral Arrangements.

In the open class for a dinner table decoration, Sir G. H. Kenrick excelled with a delightful and to well-balanced arrangement of Gloriosas, Miltonias and Oncidiums; second, Mrs. A. C. Rewes, with yellow Roses; third, Mrs. A. Yates.

In the amateurs' section, Mrs. A. C. Rewes led with a pleasing table decoration of yellow Roses, followed by Mr. R. W. Hosier.

Cup and Medal Awards.

Challenge Trophies.—For the best non-competitive exhibit in the show, Messrs. Bakers for floral designs; for the best display of herbaceous flowers, Messrs. Bees, Ltd.

Large Gold Medal.—To Messrs. Bakers, for floral designs; and also for a formal garden; and to Messrs. Blackmore and Langdon, for Begonias and Delphiniums.

Gold.—To Messrs. J. Knight and Sons, Messrs. J. Kelway and Son, the Wolverhampton Parks Department, and to the Earl of Bradford (gr. Mr. R. D. Smith), for choice fruits.

Silver-gilt.—To Messrs. W. H. Simpson and Sons, Messrs. Allwood Brothers, Messrs. Daniels Brothers, Messrs. Jarman and Co. and to Messrs. Bakers.

Large Silver.—To W. H. N. Ellison, Messrs. Bowell and Skarratt, and Messrs. J. B. Grove and Sons.

Silver.—To Messrs. Wheatcroft Brothers; Mr. A. F. Dutton, Messrs. Maxwell and Beale and Mr. John Winn.

ROYAL SCOTTISH ARBORICULTURAL.

The forty-sixth annual excursion of the members of this Society was held during the week ending June 30. The attendance was much larger than usual. The party, including the President, Sir Hugh Shaw-Stewart and Sir John Stirling Maxwell, assembled at Fort William on Monday afternoon and on Tuesday proceeded by special train to Corrour station, from whence they were conveyed to the estate of Corrour, on the borders of Rannoch Moor, owned by Sir John Stirling Maxwell. This estate contains much peat land, and great interest was manifested in the experiments now being directed to solve the problem of establishing trees under such difficult conditions. Numerous plantations exist already, some begun so long as thirty-five years ago, but chief interest still centres in the methods adopted to establish trees in a zone just outside that generally considered plantable. The various types of woods were inspected in turn, and during the day luncheon and tea were kindly provided by Sir John, the party returning to Fort William in the evening.

Wednesday's programme consisted of visits to Ardverikie Woods in the forenoon, and Loch Laggan in the afternoon. The Ardverikie estate is the property of Sir John Ramsden. At Loch Laggan there were two woods of especial interest, one of Scots Pines grown from seeds collected from trees of the old Caledonian Forest, and the other a twenty-year-old plantation of Douglas Firs. Evening saw the party entrain for Elgin, thus crossing Scotland from west to east.

Thursday was devoted to the inspection of the woods around Gordon Castle, the chief Scottish home of the Dukes of Richmond and Gordon. The party found much to marvel at and admire in what Sir Hugh Shaw-Stewart declared were the finest Scots Fir woods in this country. By this time the party had increased to one-hundred-and-fifty, including nearly fifty members of the Aberdeen branch of the Society, led by their President, Mr. John Michie. To the great delight of the visitors, the Earl and Countess of March came specially from the south to be with them, and accompanied them throughout the visit. Leitch's Wood, to get to which the party passed through the fine nurseries of Mr. George Christie, was the first item on the agenda, and from thence to the Hampshire Plantation, an area of some thirty acres. A visit was then paid to the Old Deer Park Wood, planted by the fourth Duke of Gordon (the Dukedom of Richmond was acquired afterwards) in 1763. Naturally, this fine stretch of woodland proved of great interest to the visitors, for until 1914, when felling operations commenced, the wood was considered the finest matured Scots Fir collection in this country. Some 1,500 or 1,600 trees were felled in 1917, each with an average of 160 cubic feet of timber, and some being 120 feet in height.

The party next viewed the Quarry Garden, one of the beauty spots of Gordon Castle. It was explained to the party that the garden was formed by the Duchess Elizabeth as a surprise for her husband, the last Duke of Gordon, who, however, never lived to see it. Its grassy slopes are adorned with beautifully grown Rhododendrons, crimson and gold Azaleas, Japanese Acers, etc., and the two curious specimen trees of Abies Pindrow and Abies lasiocarpa were much admired. Magnificently-grown Horse Chestnuts, Walnuts, Yews, Hornbeams, Araucarias, Spanish Chestnuts, Ashes, Cedars, and such rarities as Yucca gigantea and Robinia Pseudacacia, were seen in profusion, and a venerable Alder, the trunk of which is held together by iron bands, and which is known as the Gordon "family tree," received and deserved special attention. Then there was the famous Duchess Tree, a Lime, whose habits resembles that of the Banyan, its outer branches growing downwards until they reach the ground, where they develop subsidiary roots. The diameter of the circle covered by the spreading branches is some 136 feet, while the circumference of the tree, five feet above ground, is eighteen feet three inches.

After the inspection at the sawmill, the arrangements of which are of the latest, the

Castle was reached, and here, through the generosity of the Duke of Richmond and Gordon, the company were most hospitably entertained. The repast over, Sir Hugh Shaw Stewart, the President, said he would like, in the name of the company, to thank Lord March, and through him his father, the Duke of Richmond and Gordon, for the kindness extended to them that day, and to express their gratitude for all they had seen.

Later, the Annual Conference was held at the Gordon Arms Hotel, Elgin, after which the party dispersed.

GUILDFORD AND DISTRICT ROSE.

This young and vigorous Society has had phenomenal success since its formation some eighteen months ago. It began with seven members, held its first show last autumn with surprising success, and immediately formed plans for a summer show in 1928. This was held in the picturesque surroundings at Weir House, on Wednesday, June 27, by which date the membership had risen from seven to four hundred, spread over fifty-five towns and villages, including Brighton, Portsmouth and other distant places.

Adverse weather conditions and the boisterous winds of the preceding day led to a number of entries being cancelled, but there was, nevertheless, a remarkable display of choice blooms and rich colour in all the three-hundred-and-fifty exhibits staged successfully. In addition to a substantial prize list, twelve Cups had been presented for competition in various classes. The exhibition was visited by about three thousand people, to see Roses alone, as no other flowers were included.

Mr. William Harvey, the President, entertained the officials and distinguished visitors to luncheon, and in replying to the toast to the Society, expressed a hope that in days to come Guildford would possess a Municipal Rose Garden. Mr. Rigg, a delegate to the International Rose Conference, addressed the company and presented the greetings of the American Rose Society.

In Division A, open to members who had never won a prize, for a bowl of Roses with foliage, Mr. W. T. Baker, Woking, secured the first prize, and Mr. G. C. V. Schill, Onslow Village, the second.

In Division B, open to amateur members employing no paid labour, the winners of first prizes were Miss E. M. Ambrose, Guildford; Mr. L. P. Roberts, Miss Vivian Rolt, Pulborough, who secured the Joyce Margery Silver Challenge Cup; and Mr. J. H. Russell, Horsell, who won the Normandy Challenge Cup. In the division for amateur members with not more than one gardener, Miss Rolt was placed first, and received the Bronze Medal of the National Rose Society for three blooms, distinct; she also secured first place and the Alice Bertha Challenge Cup for six blooms. Mr. C. Holt, Send, was awarded the first prize and the *Guildford Outlook* Challenge Bowl for a bowl of Roses, with foliage, and he also secured the premier award for a vase of Roses; Mr. A. B. Johnston, Cranleigh, was first for a bowl of single or semi-double decorative Roses, and secured the Crastock Roseries Bowl. Mr. M. Young, Guildford, showed the best rambler Roses.

Competition was very keen in Division D, open to all members except trade growers, and the principal prize winners were Miss Vivian Rolt, who showed the best twelve blooms and won the *Surrey Times* Challenge Cup; Mr. A. C. Turner, who received the first prize and the Mayor of Guildford's Cup for single and semi-double varieties; and also the first award and the National Rose Society's Silver Medal for a basket of cut Roses, with foliage. Colonel J. A. C. Younger, Guildford, and Mr. A. Norman, also gained premier awards.

Several attractive arrangements were staged in the section for decorated tables and baskets, the first prize winners being Mrs. Grimshaw, Mrs. A. P. Baumont and Mrs. J. McCracken; while in the class for eighteen blooms, twelve or more varieties, Mr. J. R. Brown was successful. Miss Betty Harvey won the first prize in the class for vases of wild Roses staged by children of members.

The best trade groups of Roses were those arranged by Messrs. Frank Cant and Co., The Dowty's Rosery, and the Crastock Roseries.

NATIONAL SWEET PEA.

July 4 and 5.—On the invitation of the Mayor and Corporation of Bournemouth, the above Society held its annual show in the Meyrick Park, Bournemouth, in association with the Bournemouth Horticultural Society on these dates. While Meyrick Park does not possess the gorgeous flower beds or the sub-tropical effects of the spreading Palms, tall, stately Cordylines, graceful Bamboos and luxuriant Gunneras of the Central Park, its broad plateau, surrounded by Scots, Austrian and other Pines, is an ideal site for a flower show. The weather was fine, and in spite of other attractions, including the much-advertised Motor Rally, there was a good attendance.

A large marquee was provided for the Society and this was filled with Sweet Peas of exceedingly good quality, although, owing to various reasons, chiefly the distance and the destructive gales in some districts a few days before the show, the entries were not quite so large as were anticipated. However, exhibits were brought from over a wide area; from north and south Devon, the Isle of Wight and southern counties, Lancashire and Norfolk and the home counties, and these made a dazzling display which, thanks to the special attention paid to replenishing the vases with water, was almost as bright when the show closed as at the opening hour.

The Mayor of Bournemouth entertained the principal members of the Society to lunch on the first day of the show, and the Society returned the compliment the next day. During the morning of the Thursday many members accepted the invitation of Mr. J. Stevenson to visit his extensive Sweet Pea grounds at New Milton, where they spent two enjoyable hours amongst the exceptionally well-grown flowers. *The Gardeners' Chronicle* Silver-gilt Medal was won by Sir Randolf Baker, Bt., with a magnificent exhibit.

Groups.

Although there were only three trade exhibits in the class for the Eastbourne Challenge Cup, these were of such excellence as to cause the judges considerable difficulty before they awarded the trophy to Messrs. Dobbie and Co., for the second year in succession, for a light and graceful arrangement of admirable Sweet Peas. The chief varieties were Flamingo, Pinkie, Idyl, the beautiful cream-pink variety which a week previously had received an Award of Merit at the Society's trials; Daffodil, Magnet, Charming, Bluebird and Royal Sovereign. A Large Gold Medal was awarded to Messrs. Sutton and Sons for their handsome group of splendid flowers. Their principal sorts were Mrs. A. Searles, Gold Crest, Youth, Delightful, Powerscourt, Picture and Magnet, with several excellent seedlings. Mr. J. Stevenson made a very effective display with well-arranged stands and vases of Glorious, Venus, Ninia, Mrs. A. Searles, Guinea Gold, Purple Monarch and other desirable varieties.

The City of Bath Challenge Cup was won by Messrs. Sutton and Sons with a very imposing display of high quality Sweet Peas. In this class their outstanding varieties were Magnet, Royal Scot, Mrs. Arnold Hitchcock, Powerscourt, Hero, Coralline, Miss California, Sunkist, Brilliant Rose and Magnet. A Large Gold Medal was awarded to Messrs. E. W. King and Co., who filled the background with generous vases of Pimpernel, Gladys and Daventry, and also showed Mrs. J. B. Hobbs, Derby Day, Mrs. A. Searles, Jack Hobbs and Pinkie, of especially good quality. In a well-arranged Gold Medal group, Mr. J. Stevenson included Marjorie Stevenson, Freda, Lustre, Stevenson's Cream, Charm, Pinkie and Charming. A Silver Medal was awarded to Mr. S. Miller for his attractive group.

The competition was not so large as usual for the Monro Challenge Cup, which is open only to the trade and requires twelve vases of varieties raised or introduced by the exhibitor. Mr. J. Stevenson won the trophy with a particularly good exhibit of Freda, Charming, Blush Beauty, Bullion, Marjorie Stevenson and other beautiful varieties. In their second prize exhibit, Messrs. E. W. King and Co. included Vectis, Daventry, Olympia, Gladys and Huntsman, their Gold Medal variety.

Amateurs' Classes.

There were four entries for the new Sutton Cup, which is offered for the best twelve vases of varieties named in the classification list. F. W. Franks, Esq. (gr. Mr. W. Humphrey), Loampit, Tonbridge, won the cup with a splendid exhibit of Magnet, Gleneagles, Picture, Constance Hinton, Chieftain, Youth, Mammoth, Pinkie, Powerscourt, Royal Pink, Olympia and Ivory Picture. Mrs. W. G. Thorpe (gr. Mr. H. Bircher), Gransmoor, near Gloucester, who was second, included excellent vases of Wild Rose, Constance Hinton, Mammoth, Royal Pink and Grenadier. Mr. James E. Stevens, Weymouth, was third in this important class.

The *Daily Mail* Cup was won by Major C. B. Krabbé (gr. Mr. A. Gower), Calcot Grange, Reading, who staged splendid vases of Mammoth, Constance Hinton, Wild Rose, Bluebird, Youth, Majestic, Mrs. A. Searles, Magnet, Powerscourt, Purple Monarch, Grenadier and Coralline. Dr. A. V. Boyall (gr. Mr. E. French), Kildare Lodge, Minehead, last year's winner, was a very good second, and his best vases were of Charming, Colorado, Olympia, Royal Sovereign and Sunkist.

The class for the Bournemouth Challenge Cup created a deal of interest. The best display of Sweet Peas arranged on the staging was made by Sir Randolf Baker, Bt. (gr. Mr. A. E. Usher), Ranston, Blandford, who used such varieties as Wild Rose, Wizard, Sunkist, Gleneagles and What Joy effectively. Mr. F. J. Cashnela, Bath, was a very close second.

The competition for the Cory Cup is always very popular, and this year there were eleven entries. The best six vases were shown by Mr. H. W. Linington, Isle of Wight, who staged Royal Sovereign, Magnet, Austin Frederick Improved, Model, Hebe and Grenadier. Mr. James E. Stevens, who was second, included Youth, Magnet and Mammoth of great merit. Sir Randolf Baker, Bt., showing excellent vases of such varieties as Colorado, Venus, Chieftain and Magnet, was first in the class for nine vases of British raised varieties, and Mrs. W. G. Thorpe, whose best were Wild Rose, La France and Venus, was second. Sir R. Baker also had the best three vases of specified colours.

Open Classes.

Some very effective colour schemes were included in the competition which required three distinct varieties to be arranged in each of three vases. Sir Randolf Baker was first and his three schemes were Sunkist, Magnet and R. F. Felton; Pinkie, Powerscourt and Sunkist; and Gleneagles, What Joy and Mammoth. F. W. Franks, Esq., was second, and his most effective vase was of Ivory Picture, Colorado and Mrs. A. Searles.

The seedling classes were particularly interesting. Messrs. Ireland and Hitchcock were first in each class; their three vases were of Porcelain, a pale lavender-blue; Patricia Ireland, rose; and The Duchess, cream ground lightly flushed with pink. Their first prize single vase was of the rose-scarlet Flaming June, which was reserved for the Gold Medal at this year's trials. Messrs. E. W. King and Co. were second in each case, and they showed Souvenir, salmon-pink; Tom Webster, mauve shades, and King of the Creams. The Raisers' Class, which required six varieties raised by the exhibitor, had only two exhibits. Messrs. E. W. King and Co., who were first, included Mrs. J. B. Hobbs, International, Vectis and Gladys, while Mr. J. Stevenson showed Lustre, Purity and Nina of merit.

There were not quite so many entries as usual for the E. W. King Cup, but five competitors set up very good collections of twelve vases each. The best was by Mr. H. W. Linington, who included Charming, Pinkie, Ivory Picture, Royal Pink and Youth. Miss Russell, Barton Court, Canterbury, was a good second. The Burpee Cup class requires six varieties, two of which must have been raised by the donor of the Cup. Sir Randolf Baker, Bt., who was first, showed Hero, Fluffy Ruffles, Sunkist and Brilliant Rose; while Miss Russell, in her second prize exhibit, had Fluffy Ruffles, Freda and Adorable, of considerable beauty.

The Single Bunch Classes included some of the best Sweet Peas in the show, and all were well contested. Sir Randolf Baker, Bt., won no fewer than eleven of the thirteen first prizes. His varieties were Lord Lascelles (blue), which was also the best bunch in the show; Pimpernel (cerise-scarlet), What Joy (cream), Susan (cream-pink), Pinkie (pink, not cream ground), Carmelita (flushed), R. F. Felton (lavender), Maroon King (maroon), Gold Crest (orange), Youth (picotee-edged), and Purple Monarch (any other colour). F. W. Franks, Esq., showing Sybil Henshaw, had the best crimson, and Major C. B. Krabbe had, in Constance Hinton, the best white.

The following classes were for amateur competition only. In the District classes, which each require six vases of distinct varieties, first prizes were won by Edward Johnson, Esq. (gr. Mr. F. Fry), Shaldon, Sidmouth. in the Western Counties Class; Major C. B. Krabbe in the Southern Counties Class; J. Randall, Esq., Leamington, in the Midland Counties Class; and George Penny, Esq. (gr. Mr. C. Smalley), Brooklands, Garstang, Lancashire, in the Northern Counties Class. The Bide Plate, which requires nine vases, was won by Mrs. Dunhill (gr. Mr. B. Howard), Mount Lodge, Harpenden, who had excellent vases of Pinkie, Powerscourt, Model and Grenadier. W. Martineau, Esq. (gr. Mr. C. Ball), The Chestnuts, Boxmoor, was a close second. Mr. J. Randall had the best six vases, and W. A. Cox, Esq., Bournemouth, was a good first in the class open to those who employ only one gardener.

Competition was very good for the Hamilton Cup, which was won by Mr. R. J. Rogers, Yarmouth, Isle of Wight, and also for the HawlmarkCup, which was awarded to Mr. William Huffey, Boormans, Tonbridge, who also won the *Amateur Gardening* Cup with nine excellent vases of such varieties as Mrs. A. Searles, Royal Pink, Constance Hinton, Olympia and Picture. Mr. Rogers was a good second. Mr. W. D. Sell, Knowle, Bristol, won the Small Growers' Cup with twelve particularly good vases, which included Magnet, Sybil Henshaw, Pinkie and Youth.

There were eleven entries in the class for amateurs who grow their Sweet Peas unaided, and the best six vases were shown by Mr. J. G. Robeson, Banbury. Competition was also very good in the new class for members who had not previously won a first prize. The best six vases were shown by Miss Cockburn, Ilfracombe. The most successful novice was Mr. Frank Tennant, Stourbridge, who was first with six vases of distinct varieties.

Entries were more numerous than usual for the Affiliated Societies Shield, which was won by the Chelmsford Horticultural Association with a highly creditable exhibit which included splendid vases of Youth, Mrs. Tom Jones, Pimpernel, Leslie Rundle, Magnet and Charming. The Canterbury Society, in their second prize exhibit, had fine vases of Chieftain, Royal Sovereign, Delmonte and Coralline.

GENERAL BULB GROWERS' OF HAARLEM.

The different Floral Committees awarded the following Certificates to Narcissi and Tulips during the spring session of 1928.

Awards of Merit.

Narcissus Edith (*Barrii*).—Large, round, white perianth, yellow-shaded; orange-bordered cup.

Narcissus Latonia (*Barrii*).—Well-closed white perianth; cup broad, with a yellow centre and a broad orange border. Shown by Messrs. P. van Deursen, at Sassenheim.

Narcissus Sunstar (*Barrii*).—Sulphur-white perianth, with a yellow, orange-bordered cup.

Narcissus Robert Lee (*Bicolor*).—Sulphur-yellow perianth, with a large, canary-yellow trumpet.

Narcissus New York (*Hermani*).—Large, white perianth; cup small, soft orange. Shown by Messrs. A. Frijlink and Sons, at Sassenheim.

Narcissus Abelard (*Incomparabilis*).—Perianth sulphur-yellow; cup round, yellow, with a broad orange border.

Narcissus Adler (*Incomparabilis*).—Pure white perianth; cup yellow, orange-bordered.

Narcissus Carmencita (*Incomparabilis*).—Soft apricot coloured perianth and a large, open, orange cup.

Narcissus Gracchus (*Incomparabilis*).—Sulphur white perianth of good size, with a broad, deep-orange, wide-open cup. Shown by Messrs. de Graaff Brothers and S. A. van Konijnenburg and Co., at Noordwijk.

Narcissus Jecunda (*Incomparabilis*).—Sulphur-white perianth in the form of a star, with a round, orange cup. Shown by Messrs. de Graaff Bros. and S. A van Konijnenburg and Co., at Noordwijk.

Narcissus Lady Chamberlain (*Incomparabilis*).—White, star-like perianth, with lemon-coloured, short trumpet. Shown by Mr. G. Lubbe Thzn, at Oegstgeest.

Narcissus Marion (*Incomparabilis*).—Perianth sulphur-yellow, cup broad, deep orange.

Narcissus Mercurius (*Incomparabilis*).—Canary-yellow trumpet, with a pure orange, trumpet-shaped and folded cup. Shown by Messrs. de Graaff Bros. and S. A. van Konijnenburg and Co., at Noordwijk.

Narcissus Monte Carlo (*Incomparabilis*).—Lemon-yellow perianth, with a wide, trumpet-shaped, butter-yellow cup.

Narcissus Norfolk (*Incomparabilis*).—Butter-yellow perianth; orange, trumpet-shaped cup. Shown by Messrs. de Graaff Bros. and S. A. van Konijnenburg and Co., at Noordwijk.

Narcissus Reve d'Or (*Incomparabilis*).—Saffron-yellow perianth in the form of a star, with a deep-orange, strongly frilled cup.

Narcissus Salembo (*Incomparabilis*).—Sulphur-yellow perianth with a clear-orange, trumpet-shaped cup.

Narcissus Whistler (*Incomparabilis*).—Large, sulphur-yellow, star-shaped perianth; cup large, deep-orange. Shown by Messrs. de Graaff Bros. and S. A. van Konijnenburg and Co., at Noordwijk.

Narcissus Orange Queen (*Poetaz*).—White perianth with an orange cup.

Narcissus Orange Star (*Poetaz*).—Pure white perianth, with a small orange cup.

Narcissus Albert Cuyo (*Yellow Trumpet*).—Deep, golden-yellow, pointed trumpet; softer-coloured perianth. Shown by Mr. G. Lubbe Thzn, at Oegstgeest.

Narcissus Mr. K. Volkersz (*Yellow Trumpet*).—Canary-yellow perianth; deep yellow trumpet with widespread margins.

Narcissus Oranjeboven (*Yellow Trumpet.*)—Orange-yellow trumpet with a frilled border; golden-yellow perianth. Shown by Messrs. C. G. van Tubergen, Ltd., at Haarlem.

Narcissus White Excelsior (*White Trumpet*).—Widespread perianth with a tubular trumpet; margin not reflexed.

Narcissus Lady Blanche (*White Trumpet*).—Flower stout, with a large, wide-opened trumpet and a broad perianth. Shown by C. G. van Tubergen, Ltd., at Haarlem.

Narcissus Daphne (*Double Poeticus*).—Clear pure white, in the form of a Polyantha Rose.

Tulip Golden Harvest (*Cottage*).—Butter-yellow with yellow stamina. Shown by the late Mr. N. Dames.

Tulip Marshal Haig (*Cottage*).—A large, scarlet-red Tulip with a yellow centre. Shown by the late Mr. N. Dames.

Tulip Saxonia (*Cottage*).—Long-shaped, pure sulphur-yellow, black stamina. Shown by the late Mr. Polman Mooy.

Tulip Peking (*Darwin*).—Clear, golden-yellow with black stamina.

MORAY AND NAIRN FORESTERS'.

The members of this Society made their latest excursion to Burgie, near Elgin. The estate is a comparatively small one, but this is amply compensated for by the high percentage of woodland, most of which is quite young, to be found there. The outstanding feature of the day's programme was the inspection of a plantation of Larch under-planted with Douglas Firs. The Larch was thinned in 1916 and underplanted at once with Douglas Fir. The trees are now nearly four feet high, and forming a close canopy, although planted at six feet apart.

The most remarkable result of this under-planting, however, is the great improvement in the original Larch trees. In 1916, these trees were valued at about six shillings each, while to-day they are estimated to be worth at least twenty shillings. It is quite evident that a very big increment is being put on each year, a result almost entirely attributed to the improved soil conditions brought about by the Douglas Firs. This is the only example of under-planting with Douglas Fir in Morayshire, and Captain Thomson is to be congratulated on providing such an excellent object lesson in practical sylviculture. Due praise should also be accorded to Mr. Bain, forester, for the capital way in which he has handled this experimental work. Other plantations visited were mostly of Scots Pine, and a few acres of European Larch. The Pines give great promise, being very even and with practically no blanks. Even to the casual visitor it was quite evident that the roe deer is the worst enemy on the estate. Strenuous efforts are now being made to cope with these beautiful little pests.

Some excellent specimens of very old Beech, Sycamore and other hard-wooded trees were also much admired.

On behalf of the party, Mr. J. D. Robbie thanked Captain Thomson, who most kindly and courteously accompanied the visitors, and Mr. Bain, for the very interesting and instructive afternoon spent in the woods of Burgie.

BOURNEMOUTH HORTICULTURAL.

July 4 and 5.—On the occasion of the visit of the National Sweet Pea Society, the Bournemouth Horticultural Society held a very successful summer show in the Meyrick Park. The large marquee was well filled with exhibits of varied character, and there was a good attendance.

Open Classes.

The groups of miscellaneous plants arranged on a ground space measuring two hundred square feet, attracted a deal of admiration. The first prize was won by Messrs. Stacey and Steddon, who made a very pleasant rock garden with a series of pools containing Nymphaeas and a background of flowering and foliage shrubs. The second prize exhibit of the Owermoigne Nurseries was also of great attractiveness, and its general idea was a low rock garden of pleasing outline, planted with seasonal alpines, while in the background there were shrubs and border flowers.

There were two very good groups of Begonias in pots and hanging baskets. Mr. T. W. Tamplin and Mr. T. M. Millar were first and second respectively. The first prize display of Carnations arranged by Mr. Charles Wall reached a high degree of excellence. He had magnificent vases of Laddie, Marion Wilson, Glorious, Sunstar and Tarzan.

The only display of fruits, flowers, vegetables and plants, on a table space, was arranged by Sir Randolf Baker, Bt. (gr. Mr. A. E. Usher), Ranston, Blandford, and this was fully as effective as the difficulties of the competition permit. He included particularly good Carnations, Melons, Peaches, Nectarines, Tomatos, Peas, Turnips and Onions. Sir Randolf Baker also won most of the Sweet Pea prizes.

His display on a table space measuring twelve feet by four feet was especially effective, and he was also first for six vases, for one vase with suitable foliage, and a vase of white varieties. In the Local Classes, Miss Fortescue, Roselands, Ashley, New Milton, was the most successful exhibitor, and she staged vases of excellent blooms.

Liberal prizes were offered for Roses, and the chief exhibitors were Mrs. A. S. Clarke, Mrs. A. Cook and Mrs. A. Radmore, who staged good representative blooms of standard varieties.

Non-Competitive Exhibits.

The many trade exhibits assisted materially towards the success of the show. Messrs. Sutton and Sons filled a large ground space most effectively with Sweet Peas of great excellence arranged in stands and baskets. Messrs. John Peed and Son contributed a large group of splendidly grown Caladiums, Codiaeums (Crotons), Palms, Streptocarpus, Gloxinias, Hydrangeas and other valuable flowering plants. A large exhibit of greenhouse Carnations and Dianthus Allwoodii was made by Messrs. Allwood Brothers. Messrs. Stuart Low and Co. set up a goodly collection of Orchids, Carnations, and New Holland plants. On the ground, Messrs. Toogood and Sons displayed stands of early-flowering Gladiolus and Sweet Peas, bordered with Impatiens Holstii in pots. Messrs. D. Stewart and Son filled a space of similar size with Japanese Irises, early-flowering Gladioli, and also made a small rock garden. Messrs. M. Prichard and Son exhibited a group of herbaceous plants of considerable excellence and in great variety. Herbaceous plants with alpines were shown by Messrs. Maxwell and Beale. Messrs. H. Haskins and Sons had two very effective groups of Clematis, Roses, stove and greenhouse plants.

Roses of great beauty were arranged by Mr. George Prince, Messrs. B. R. Cant and Sons, Messrs. Wheatcroft Brothers, Messrs. D. Stewart and Son and Mr. Arthur Radmore.

NEWCASTLE & DISTRICT HORTICULTURAL.

The recent meeting of the above Society was most successful, and the continued cold and wet season in the north does not appear to have affected the gardens, for the monthly exhibition was a very fine one. Lupins, Roses, hardy flowering shrubs, Violas and Pansies, Sweet Peas, Streptocarpus, Begonias and Spiraeas were excellent, the chief prize-winners being Mr. A. Colquhoun, for Pansies and Violas; Mr. W. H. Howard, for Roses; Mr. J. Young, for Lupins; Mr. J. Rutherford, for Sweet Peas; Mr. J. T. Hall, for Clarkias; Mr. J. W. Harvey, for Spiraeas; and Mr. J. Richardson, for Pelargoniums. The premier prize for the month was awarded in the professional section to Mr. T. Rutherford for Sweet Peas; and in the amateurs' section to Mr. A. Colquhoun, for a splendid pot of Begonias.

Mr. A. Merrington, The Gardens, Dilston, gave a lecture on Calceolarias. It was very practical and he answered many questions at the conclusion of it.

SCOTTISH PANSY AND VIOLA.

Major R. S. Milne, presided at the well attended, first summer meeting of the above Association, which was held at Glasgow, on July 7. The following new varieties of Violas were awarded Certificates of Merit:—Helen Burbridge, creamy-white; Kate Porteons, cream, heavily edged blue; Mary Marshall, white; and Madge McKnight. The last-named is a distinct break with a white centre attractively belted with heliotrope. All four varieties were raised by Mr. H. W. McColl, Linlithgow. Fancy Pansies which received similar awards were:—Colin Wilson, dark blotches with creamy-white margin, the top petals of purple being splashed cream; and Richard Hannah, lemon, with black blotches and lemon margins, and top petals lemon splashed dark purple. Both were raised by Mr. A. Cochrane, Fauldhouse. Mr. W. Dobbie, Renfrew, showed the nearest to a black Viola that has yet been raised; but for a suggestion of purple the petals might be described as velvety black.

ANSWERS TO CORRESPONDENTS.

Apple Mildew.—*Inquirer.* Your trees are certainly attacked by the common Apple mildew, and the best methods of dealing with it are to cut off badly diseased tips; to spray the trees in early spring with lime-sulphur or Bordeaux mixture; and to spray them when the fungus is seen with soft soap and ammonium polysulphide.

Grapes Diseased.—*C. B. M.* The fruits are affected with the Grape Spot disease, caused by the fungus Gloeosporum ampelophagum. Dust flowers of sulphur over the leaves and bunches, or spray the vines with liver of sulphur, half-an-ounce in two gallons of water. Next winter, when the vines are at rest, spray the rods with a solution of iron sulphate.

Liliums, etc.—*R. J.* (1) There must be some mistake about the name Lilium sikkimense, as there is no record of any such name, not even in E. H. Wilson's *Lilies of Eastern Asia.* Most of the Indian Lilies however, may be grown successfully in a cool greenhouse, either in pots or planted out. They usually grow well in a compost consisting of three parts good fibrous loam and one-third leaf soil and sand; you are quite right to top-dress for the stem roots. (2) It is unusual for Lilium testaceum to show bulbils, but in our experience many, if not all, species are capable, under abnormal conditions, of producing stray bulbils; for example, we have known L. Henryi to produce stray bulbils under pot cultivation. In your case it is no doubt due to some check or injury to the stem; grow it on in the usual way. (3) We do not know when Mr. Groves' book is likely to be published.

Names of Plants.—*H. F. B.* 1, probably a species of Sanseviera; 2, Cydonia japonica. *R. B. S.* Very like the variety Jack Hobbs. *Moonraker.* 1, Osmunda regalis; 2, Helianthemum lunulatum; 3, Helichrysum bellidioides; 4, Helipterum gnaphalioides.—*W. E. G.* Stachys betonica.—*J. A. J.* Limnanthes Douglasii. *F. E. S.* 1, Fittonia argyroneura; 2, Hydrangea scandens. *A. B.* 1, send in flower; 2, Pentstemon Torreyi; 3, Veronica Lyallii; 4, Astragalus, species not recognised; 5, Acaena inermis; 6, Sedum Telephium; 7, Cotula squalida; 8, Acaena Buchanani; 9, Cotula repens; 10, Lysimachia nummularifolia aurea; 11, Arenaria balearica; 12, Ajuga reptans purpurea.—*H. F. B.* 1, Deutzia crenata rosea plena; 2, Veronica anomala; 3, Clethra arborea; 4, Hydrangea quercifolia.

Nectarines Failing.—*M. W. R.* As your trees are healthy and do not appear to be suffering from any cultural neglect, by having done well in previous years, it seems that the trees have exhausted the lime supply in the soil. Nothing may be done to save this season's crop, but a light dressing of slacked lime might help the remaining fruits to finish. Lift the trees and examine the roots early in the autumn, and give a good dressing of lime-rubble to each tree, with a sprinkling of bone-meal to assist the formation of the stones and prevent the fruits dropping at the same period next season. After disturbing the roots make the border as firm as possible by treading, followed by two or three copious waterings.

Oncidiums.—*W. H. M.* The Oncidiums are: 1, O. sphacelatum; 2, O. pulchellum. These may be grown under fairly cool conditions, in well-drained pans and a compost of equal parts Osmunda fibre, semi-decayed leaves, and Sphagnum-moss, with crushed crocks added. They should be repotted if necessary when flowering has ceased, and should be grown in a light position, well up to the roof-glass.

Peach Fruits.—*R. G. F.* Parcels badly damaged in post and material missing.

Plum Leaves Curled.—*N. K. R.* The damage to your Plum trees is due to the presence of the Plum leaf-curling aphis, Anuraphis pruni. To prevent a recurrence of the trouble, the trees should be sprayed in November or December with "Mortegg" (Murphy), using a six-and-a-half per cent. to seven per cent. wash. The trees should be sprayed thoroughly so that the whole of the branches and shoots are covered. Greater success will follow if the material is applied under a pressure of 90 lbs. to 100 lbs. to the square inch, which pressure is readily obtainable with a Pneumatic Knapsack Sprayer. (2) Little pruning is required for Plum trees, and root pruning is probably called for in this case.

Roses Dark in Colour.—*A. McL.* There appears to be nothing wrong with the flowers; they may represent a slight colour variation or sport.

Sweet Pea Leaves Bleached.—*A. G. M.* Bleaching of the Sweet Pea leaves is due generally to unkind weather conditions, and occurs frequently where the plants are subjected to cold winds.

Ten Week Stocks.—*A. O. R.* You have probably some root-destroying fungus at work. Try soaking the soil with "Cheshunt Compound" before replanting.

Tomato Leaves Diseased.—*J. M.* The disease is Tomato leaf-mould due to Cladosporium fulvum. Your procedure is quite correct; in addition lower the temperature so much as possible and dust with green sulphur. At the end of the season clean out the house well with a disinfectant, like cresyilic acid, one gallon to thirty-nine parts of water.

Vegetable Supplies.—*J. W.* The amount of Potatos required for two hundred persons per annum would mainly depend upon whether adults or children, and if the latter, boys or girls, and again, whether Potatos are used once or twice a day, but taking all this into consideration, twelve ounces per day per person should be a fair average to meet ordinary requirements. Therefore twenty to twenty-five tons would be a year's supply. Assuming the land is good, three acres should leave a good margin for wastage of the crop in storing or other causes. With regard to the question of green crops, the custom of measuring this commodity in pounds and ounces is a thing of the past; they should appear on all dietry scales as "ad. lib." Quantities will therefore differ according to taste. Three acres of land used for the following maincrops should give ample produce and allow the land to be changed each year:—Cabbages, ¼ acre; Brussels Sprouts, ¼ acre; Cauliflowers, ⅛ acre; Carrots, ¼ acre; Onions, ¼ acre; Celery, ⅛ acre; Rhubarb, ¼ acre; other crops, 1½ acre, which would comprise Peas, Beans, Leeks, Beet, Turnips, Broccoli, Kale, Salads, Herbs, etc., making the necessary adjustments each year according to requirements for each kind.

Yew Failing.—*W. G.* The general condition of the shoots of Yew received for examination suggests that there may be root trouble. If the ground has been flooded or very wet at any time within the last three or four years some of the roots may have been killed. Should this be the case, it is doubtful whether the plants may be saved. Fungus was present in the shoots, but it was not possible to say whether this was the cause of death. It would, however, be advisable to remove the branches below the point at which they have died and burn all the dead parts, in case fungus is the cause of the trouble. Should fungus fructifications appear on the branches, we shall be glad to have them examined, with a view to determining whether it is a parasitic species or not.

Communications Received.—W. U. —J. B.—A. S.—G. L.—J. S.—W. H. N.—S. A.—R. G.—A. H.—A. D. B.—W. L.

THE
Gardeners' Chronicle
No. 2169.—*SATURDAY, JULY* 21, 1928.

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Supplement Plate.

Astilbe Arendsii and A. simplicifolia hybrida.

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 63.2°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, July 18, 10 a.m. Bar. 34. Temp. 69°. Weather, Warm and Sunny.

Trees for Parks, Streets and Roads.

Interest in gardens has never been so keen or so well informed as at the present time. The standard of knowledge is rising continually, and those who have occasion for observation know that gardens, small and large, are now laid out generally with good taste and always with a keen eye to bright colour effects. Equal or even higher praise may be given to those who have charge of our public parks. It is a pleasure to the gardener to walk through Hyde Park and other of our public parks and observe the skilful cultivation, pleasing arrangement and varied display of plants which they present. How disappointing it is therefore to have to chronicle the fact that the dreary stretches of new roads which disfigure the country-side have been laid out in general with utter disregard to the amenities. He, for example, who steers between the Scylla of the road hog and the Charybdis of the police trap along the Great Blank Road may have leisure to observe the inspired ugliness of that great highway. These roads or, at all events, many of them, have imposed a new hideousness on the land. That such roads are needed is. of course, not to be gainsaid; indeed, those who realise the extent of the renascence of road traffic know that many more must come and that soon. Yet, although we have a Road Transport Board, and although many municipalities have admirable staffs of experts in tree planting, this fickleness in road planning seems incorrigible. The urban mind in its most suburban form stretches out a mean hand to achieve with ruthless success the disfigurement of native beauty, and there seems to be no power to restrain or chasten it. Needless to say, the time to decide what authorities should be provided to mitigate the squalor of these new roads is when the road is being planned, for, as Mr. Dallimore points out in his only too temperate address* to the Municipal and County Engineers of London, the planting of trees needs a long preparation. The nursery must do its part in sowing, cultivating, and biennial transplantation. The soil by the road-side must be prepared and the site considered in order that the right kind of tree may be chosen. To this might be added that the man who plans the main road must give heed to the beauty of straight lines and the ugliness of uneven curves. All these things seem to have been left undone, and undone they will remain until someone with the requisite knowledge and taste is appointed with power to supervise the amenities of road-making. Why should not this task be given to Kew? None know better the kinds of trees to plant or the proper cultivation of trees. While the road is being planned the artistic authority should be called in. His advice would probably be welcomed, for it can only be sheer forgetfulness on the part of those who plan the roads that this so essential part of road planning is neglected. For large planting in parks or boundaries, in playing grounds and similar places, Mr. Dallimore provides long lists of suitable subjects, but it is his list of trees suitable for planting in roads and streets that we would especially commend to the authorities. His advice is opportune and educative; would that it might be followed! If Limes are to be grown, the species should be either Tilia euchlora or T. petiolaris, yet it is generally the common Lime, T. vulgaris, which is chosen. A row of this latter plant—venerable trees indeed—stands along the High Street at Oxford, and when middle summer comes and the road is moist, the cyclists come to constant grief and cars skid nervily, for at that time the honey-dew falls from the common Lime and greases the surface of path and road. Of Chestnuts the double form of Aesculus Hippocastanum is the one to choose—although boys who seek for "conkers" would not agree. It has more lasting flowers but, alas, as those in the Champs Elysées in Paris show, it cannot withstand the fumes of petrol. The red-flowered Horse Chestnut is another subject too often neglected, but again it is petrol-shy, although it resists sickly atmospheres better than the common Horse Chestnut. Of Acers, beside the ubiquitous and serviceable Sycamore, always pollarded too late, there are the Norway Maple, Acer platanoides, with its varieties Schwedleri, with gay leaves of bright red, and Reitenbachii, the leaves of which turn red in autumn. For narrow roads the silvery Acer Lobelii should be planted in the south and midlands. Where more space is available, the Red Maple, Acer rubrum, with silvery branches and bark, and leaves with silvery under-surfaces, should be grown. Robinia Pseudacacia stands in the first rank of road-side trees. It is not fastidious as to soil, bears trusses of white flowers, and is a quick grower in its youth. A little care to prevent spreading of the branches and it should withstand winds well. Then there is the Almond, a hardy and beautiful tree, but one which should be handled knowingly if it is not to spread its branches unduly. Of Pyrus there are many lovely species suitable for the road-side, and the Thorns also, if chosen with discretion and tended intelligently, would add scent and beauty to these urbanerial deserts, which are stretching their gaunt fingers across England. But as we all know, there is a plentiful choice of subjects, and let us hope now that Mr. Dallimore has told the engineers what they may do to relieve the ugliness they create, they will do it. Some of them at all events must be gardeners, and would take a delight in making these highways not a projection of urban ugliness into the country, but a gracious intrusion of the beauty of the country into the town.

Our Supplement Plate: Astilbes.—The Supplement Plate presented with this issue depicts a beautiful stretch of Astilbes in Mr. T. Walkden's gardens at The Raft, Derbyshire Road, Sale. Mr. Walkden kindly sent the following note:—"The Hybrid Astilbes have proved a most useful and decorative addition to our herbaceous plants. The border depicted was entirely of these plants, and the illustration fully proves their value in a half-shady position. Full advantage was taken of the various hybrids and their varieties, and although the colour range is rather a limited one, no lack in this respect was felt, for the resulting effect was quite striking and beautiful. The dwarfest of the hybrids used was A. simplicifolia hybrida, the most recent introduction, and this may be seen on the right side of the border. The two varieties used were alba and rosea, the latter an especially charming plant with its drooping spikes of pale rose colour. The intermediate type, the earliest to flower, was represented by Deutschland, pure white; Rhineland, rosy-carmine, shaded salmon; and Mowe, of the same colour as the last, but of rather stronger growth. Among the numerous Arendsii hybrids the most noticeable were Granat, bright dark carmine, a striking colour and one of the best; Diamant, tall, white, the one seen in the foreground; Hyacinth, bright rosy-lilac; Rubin, dark carmine; Amethyst, violet-purple; Irene Rottsieper, salmon-rose; Frieda Klapp, dark carmine-purple; and Grete Pungel, bright rose."

The Hardy Fruit Crops of 1928.—Following our usual custom, we have invited numerous gardener-friends to report upon the condition of the hardy fruit crops in 1928. These invitations were sent out a week ago with a request that the return should be made by July 28. A few forms remain, and so long as these are available we shall be happy to post one to any fruit-growing reader who would like to send us a report.

King's-Walden Horticultural Society.—The popular exhibition of this Society will be held on Wednesday, August 8, when the pleasure grounds at Kings-Walden Bury will be open to visitors. There will be frequent omnibus services from the surrounding districts, and from the Hitchin and Luton railway stations. All entries should be sent to the Secretary, Mr. A. J. Hartless, The Gardens, King's-Walden Bury, Hitchin, who will furnish any information concerning the show. Schedules may also be obtained from the joint Secretary, Mr. W. G. P. Clarke, 4, York Road, Hitchin. The exhibition of 1927 was attended by 3,400 people.

Arran Potato Trials.—The results of the Potato trials conducted at Lamlash by Mr. Donald McKelvie, testify to the success of that raiser's efforts to produce a variety that will equal Epicure as an early cropper. During the past two years, Mr. McKelvie's seedling, No. 520, has given promising results at the Board of Agriculture's trial fields, and as the future of that Potato will be decided this year, more than usual interest centred on the digging operations on the raiser's trial fields on July 5. Epicure was planted as a "control" along with No. 520 and another early variety, No. 440, which is also completing its three years' test at Philipstoun, and the comparative yields of sixteen seeds or sets planted on March 28 were as follows:—No. 520, ware, over one-and-a-half inch, 25 lbs., total yield, 27 lbs.; No. 440, 23 lbs. and 35 lbs.; Epicure, 23 lbs. and 28 lbs. A second plot of the same varieties gave the following results:—No. 520, 28 lbs. and 30 lbs.; No. 440, 18 lbs. and 31 lbs.; Epicure, 24 lbs. and 29 lbs. An earlier crop planted at the farm of Oakbank, Lamlash, on February 28, and lifted on June 22, yielded the following weights from sixteen sets:—No. 520, 14 lbs. and 15 lbs.; No. 440, 11 lbs. and 14 lbs.; Epicure, 12 lbs. and 14 lbs. In each case ounces have been omitted. Seedling No. 408 was also tested with Duke of York and gave a record yield of 20 lbs. as against 17 lbs., and a total of 32 lbs. compared with 24 lbs. of the latter variety. The early maturing character of Arran Banner was also demonstrated. Being an early maincrop sort, coming in normally between Great Scot and Majestic, its proper time for lifting would be about mid-September, yet Arran Banner planted on March 28 and lifted on July 5 yielded, from sixteen sets, 23 $\frac{4}{16}$ lbs.

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* Trees for Parks, Streets and Roads, a Paper prepared for the Annual Meeting of the Institution of Municipal and County Engineers in London, June, 1928.

Rose Souvenir of the Old Rose Garden.—We are informed by Messrs. B. R. Cant and Sons, the raisers of this fine new Rose with an uncommonly long name, that it was awarded a Gold Medal at the National Rose Society's show on June 29 and 30, and not a Certificate of Merit, as stated on p. 15. We are glad to publish this information, but in justice to ourselves would state that when we described the variety a Certificate of Merit card was in front of it.

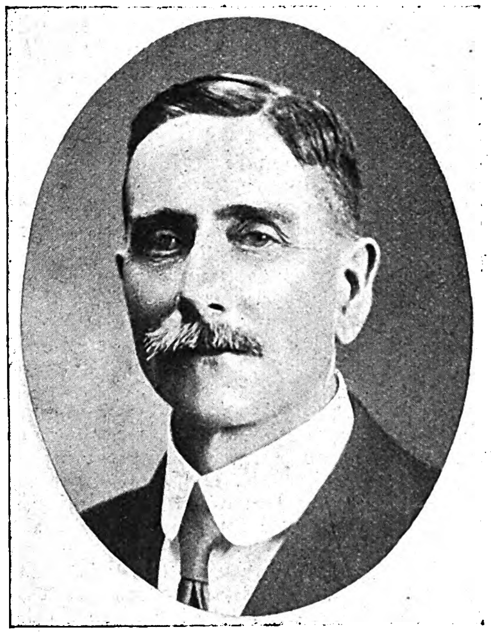
Agricultural Research Bureaux.—Recommendations with regard to the scope and administration of the Imperial Bureaux, or clearing stations for agricultural research, throughout the British Empire, were placed before the recent Ottawa Conference. The headquarters of the Bureaux will be in London, and the purpose of the various stations will be to maintain an index of the main lines of research in different parts of the Empire, and to distribute the information widely. In addition to the main function of assisting the exchange of information, the Bureaux will facilitate the exchange of workers, and will arrange meetings of those interested in the same problems in different parts of the Empire. The annual cost of each bureau will be £3,000, and of each correspondence centre, £1,200.

Legacies to Gardeners—The late Mr. Francis Godlee, of Harefield, Wilmslow, Cheshire, who died on April 24, bequeathed £100 and one year's wages to his gardener, Mr. Walter Moss.—The late Mr. William Chaster Tait, of Entre Quinas, Oporto, Portugal, who died on April 7, left £100 to his gardener, Mr. José Pereira.

The Zuider Zee.—Considerable progress has been made already with the splendid scheme for reclaiming an area of about 552,500 acres of land from the Zuider Zee. Holland has always engaged in a defensive war against the sea, but now she is taking the offensive, which will cost her about £45,333,333 and thirty years of work. At the end of that expenditure and period, Holland will have added to her territory an area larger than that of Leicestershire, and from thence onward will bring the reclaimed land under cultivation. Half-a-century from now the reclaimed cultivated land will be worth £42,500,000, while the value of the Yssel freshwater lake will, it is estimated, be then worth £16,333,333. This stupendous scheme will give employment to many thousands of workers for years to come, and when it is completed will add a new province to Holland and produce crops for home use and export.

Horticultural Club Outing.— Arrangements have been made for a Club Outing on Tuesday, July 24. By the kindness of Messrs. Sutton and Sons, a visit will be paid to their London Road Nursery, Reading, to see the annuals in flower, etc., and they have very kindly offered to entertain the members at luncheon. Afterwards, the party will proceed from Reading to Henley-on-Thames by private steam launch. At Henley, the Chairman, Mr. Gerald Loder, will entertain the members to tea at the Little White Hart Hotel. The full itinerary is as follows: Paddington, depart at 9.45 a.m.; arrive at Reading, 10.30 a.m.; proceed direct to Messrs. Sutton and Sons' Trial Grounds. Lunch, 1 p.m. Depart from Reading at 2.30 p.m. by private steam launch to Henley-on-Thames, where the launch should arrive about 4.30 p.m. Tea at the Little White Hart Hotel at 4.45 p.m. Leave Henley-on-Thames by rail at 5.47 p.m.; due to arrive at Paddington at 7 p.m.

Mr. H. Cook.—For about fifteen years, Mr. H. B. Brandt's gardens at Capenor, Nutfield, Surrey, have been under the charge of Mr. H. Cook. Indoor plants are grown extensively and well, and both Mr. Brandt and Mr. Cook are proud of the fact that their plants obtained second prize in the special Commemoration Group Class (see Fig. 17) at the Chelsea Show of 1928. This is by no means the first time that plants from Capenor have won high honours, but Mr. Cook is as successful with Grapes, hardy fruits, summer bedding, vegetables and shrubs as with perpetual-flowering Carnations and Coleuses, Clivias, Poinsettias, Cyclamens, Schizanthuses and other indoor subjects. He commenced his gardening career at Southampton and afterwards gained experience in gardens at Midhurst, Petworth and Harrow before becoming gardener to Sir Hugh Wyndham at Rogate Lodge, Petersfield, a position he held for six years, followed by a similar period in charge of the gardens at Bryony Hill, Witley, prior to his appointment at Capenor.


MR. H. COOK.

Retirement of Mr. John Collier.—The many friends of Mr. J. Collier will regret to learn that the increasing ill-effects of a long-standing injury have compelled him to retire from the position of Head Gardener to Sir Jeremiah Colman, Bart., at Gatton Park, Reigate, a position he has filled with great success over a period of twenty years.

Summer Weather.—During the past fortnight, the country has enjoyed a spell of real summer weather, such as has not been experienced during the past few years, and reports at the time of writing indicate a continuance of these conditions. Abroad, it is even hotter, for France, Germany and Holland are apparently in the throes of a genuine heat-wave. Temperatures during the last week-end were higher than for three years past, and on Sunday, at Kew, the maximum shade temperature registered was 87°, the highest at Kew since July 22, 1925. These high temperatures have been accompanied by long periods of sunshine and the reports from the majority of the coastal holiday resorts are of wonderful weather conditions, so that those who have taken their summer holidays early are again to be congratulated. Periods such as this are trying to gardeners, and it is in such weather that the effects of good cultivation are seen.

Edgbaston Botanical Gardens.—We learn that the future of these gardens is causing the Committee of the Birmingham Botanical and Horticultural Society considerable anxiety, and that unless the subscription list is doubled to bring in £1,800 to £2,000 annually, and a capital sum of £7,000 is raised to carry out various improvements necessary, the Society will decline to accept an offer to renew, on terms regarded as reasonable, the lease from the trustees of the Calthorpe Estates, which expires in 1930. The closing of these gardens would be a great misfortune, for they have now been in existence nearly a century—ninety-six years, to be exact—and the collection of plants contained in them is admittedly unique.

Foremarke Challenge Cup for Gladioli.—The annual competition for the Foremarke Challenge Cup for Gladioli will take place this year at the Royal Horticultural Society's fortnightly show at Vincent Square, Westminster, on August 14. The Cup is offered for the best twenty spikes of named Gladioli in not fewer than ten varieties. Not more than two spikes of any one variety may be shown. The competition is open to both amateur and trade growers. Entry forms may be had on application to the Secretary, Royal Horticultural Society, Vincent Square, Westminster, S.W.1, by whom the completed forms must be received not later than first post on Wednesday, August 8.

Gifts to Royal Parks.—In the House of Commons recently, Sir H. Brittain asked the Under-Secretary of State for the Home Department, as representing the First Commissioner of Works, what gifts of flora and fauna had been made by private donors to the Royal Parks during the past twelve months. The reply was that a list of the gifts was being circulated. The following is the official list:—Two specimen Palms, from Mr. Sholto Douglas; five hundred Lily bulbs, from the Government of Bermuda; eight hundred Colchicums, from Lord Riddell; five thousand British-grown Daffodil bulbs, from Lord Riddell, Mr. E. Hudson and Mr. G. Monro; foreign seeds and bulbs, from Mr. S. Atchley, Mr. H. G. Chick, Monsieur Cleas and Mr. E. St. J. Monson; six Canadian geese, from the Duke of Bedford; ten teal, from Sir Richard Graham; two golden pheasants, from Mr. S. Joel; twelve French partridge eggs, from Mr. F. Meynell; and two demoiselle cranes, eight bar-headed geese, two pairs of Javan tree ducks, two pelicans and several red-crested pochards, from Mr. Alfred Ezra. Mr. H. E. Seligman has also presented six see-saws and one plank swing for the children in Regent's Park.

White Fly on Rhododendrons.—Mr. Fred. J. Chittenden, Director of the Wisley Gardens, writes:—The Royal Horticultural Society desires to draw the attention of all who grow Rhododendrons to a new pest of these plants, which has recently appeared in Berkshire gardens. It is a white fly distinct from any hitherto known, but bearing a great resemblance to the well-known White Fly of greenhouses. If, as is likely, it should spread as easily and do as much damage as the other white flies that have attacked cultivated plants, those who grow Rhododendrons will have a pest to contend with more to be dreaded than the Rhododendron bug (Stephanitis rhododendii). The insect is not yet named, nor is its life history fully known. It is not the same as the pest of Tomatos. The flies hatched out from the semi-transparent scales found, sometimes in extraordinary numbers, on the under sides of old leaves of Rhododendrons, in the last week of June and the first week of July. They are now laying eggs, singly, also on the lower sides of the leaves, choosing the very young ones. The eggs will hatch out into tiny, elliptical, scale-like larvae which feed there and later become nymphs. It is to be hoped that all who grow Rhododendrons will search at once to see whether this white fly has reached their plantations yet, and if it has, take immediate steps to exterminate it. White fly larvae have usually proved very difficult to kill, and probably the most effective spray will be the Californian petroleum-oil wash known as Volck, which may now be obtained in England. This may be used when the flies are about, but will be most effective on the young scales before they turn into nymphs. It must be applied as a fine spray to wet the under surface of the leaves, and it must be remembered that only those insects are killed that are wetted by the spray. So far as I have seen, the smooth-leaved species and hybrids are the most likely to be attacked. In cases of doubt, specimens of leaves suspected of being attacked by the pest will be willingly examined at the R.H.S. Laboratory, Wisley, Ripley, Surrey.

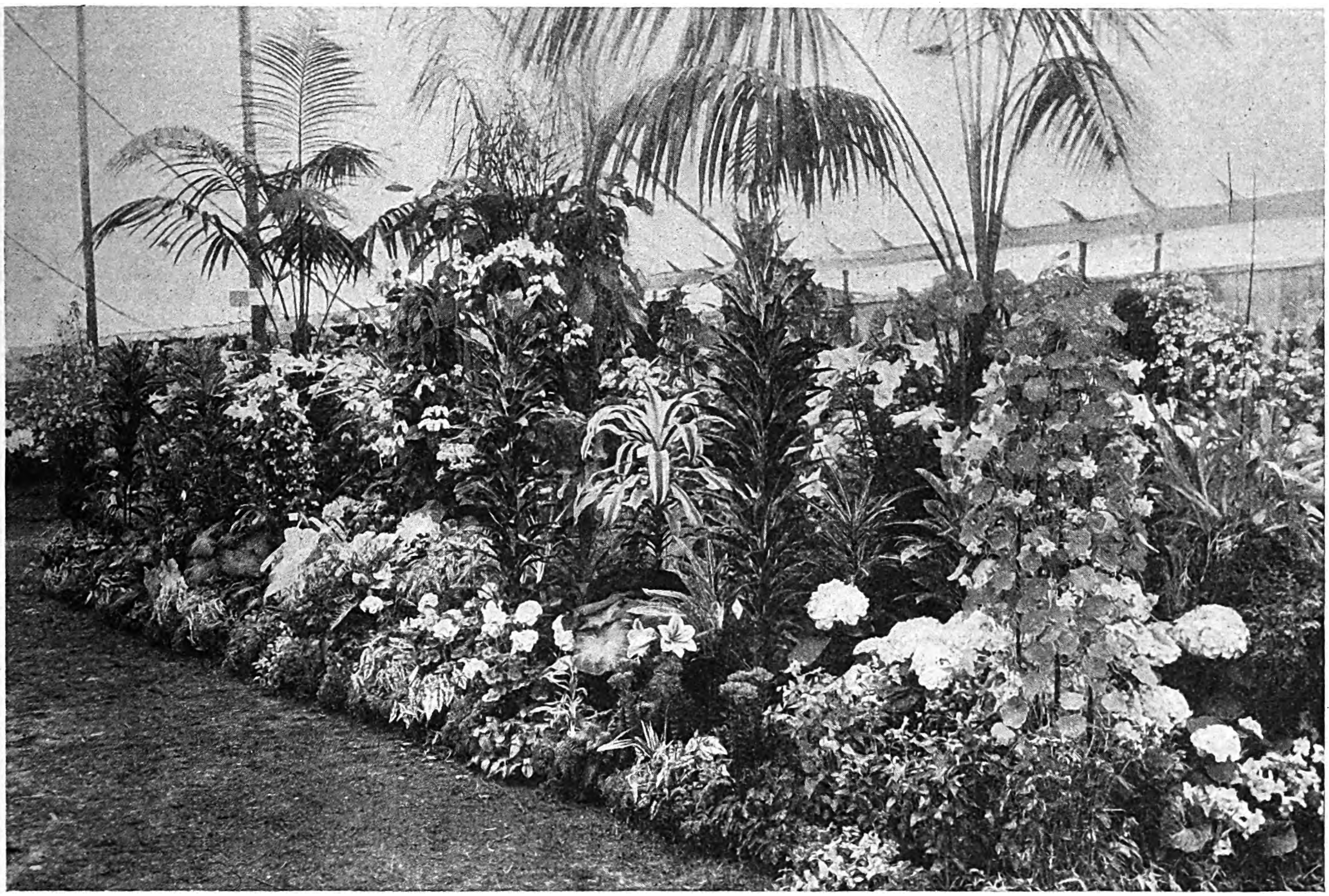


FIG. 17.—MR. H. B. BRANDT'S GROUP OF PLANTS AT CHELSEA SHOW,
Awarded second prize in the Commemoration Cup Class.

Horticultural Conference at Reaseheath.—Commercial horticulture is being carried on in Cheshire on a larger scale than is credited by the ordinary man in the street, and in order to urge the need for co-operation among growers, and to give them an opportunity of seeing the experiments at the Cheshire School of Agriculture, Reaseheath, Nantwich, a Conference is being held there on July 31. The programme is as follows:—Chairman, Mr. W. McCracken, Chairman of the Agricultural Education Sub-Committee, Cheshire County Council. 1.30 p.m., "The National Mark and the Grading of Fruit and Vegetables"; address by Mr. H. V. Taylor, O.B.E., B.Sc., Horticultural Commissioner, Ministry of Agriculture. 2.30 p.m., "The Work of the Fruit and Vegetable Committee of the National Farmers' Union, and its relation to Growers' Problems"; address by Sir Wm. Lobjoit, O.B.E., Chairman Fruit and Vegetable Committee, N.F.U. 3.30 p.m., Demonstrations of Mechanical Cultivation, by the Simar Rototiller, The Monotrac, The Beeman Tractor, The Auto Culto, etc. 4.15 p.m., tea. 4.45 p.m., Discussion on "Soil Sterilisation," introduced by the Horticultural Superintendent, Mr. W. E. Shewell-Cooper, Hort. Dip. (Lond.). 5 p.m., Inspection of Experimental Grounds in the Horticultural Department. The experiments include: Tar Sprays, Sterilisation, Strawberries, Celery, Bacterised Peat, and Chrysanthemums. All departments of the School of Agriculture will be open for inspection immediately after the Conference. Afternoon tea will be obtainable from the caterer in attendance.

Freedom of the City of Victoria for Mr. Robert Pim Butchart.—Mr. and Mrs. R. P. Butchart are the owners of one of the most beautiful gardens in the North American continent—at Benvenuto, on the Soanich Peninsula of Vancouver Island, British Columbia; these gardens are planned very much on the lines of certain old English gardens, and the owners generously throw them open to the public every day throughout the year, with the result that thousands of people avail themselves annually of this opportunity of enjoying extensive and beautiful gardening. Mr. and Mrs. Butchart are well-known in Canada for their horticultural activities, and in June last the City of Victoria conferred upon Mr. Butchart the freedom of the capital city of British Columbia "for eminent public services," amid scenes of great enthusiasm and rejoicing. The ceremony took place in the City Hall, which was specially decorated for the occasion. The document creating Mr. Butchart the first "commoner" freeman of Victoria was presented in a silver casket with a golden key. Mrs. Butchart was associated with her husband in this unique event and received a handsome silver tea-tray, which, like the casket, was beautifully engraved. Addresses were presented to both Mr. and Mrs. Butchart, who received a tremendous ovation. After the ceremony, Mrs. Butchart invited all who could do so to spend the afternoon at Benvenuto.

Appointments for the Ensuing Week.—TUESDAY, JULY 24: National Rose Society's Exhibition of New Roses; Watford Horticultural Society's Exhibition (two days); British Aquarists' Association meets (five days). THURSDAY, JULY 26: Paisley Florists' Society meets; Bideford Horticultural Society meets; Hull and East Riding Rose Society. SATURDAY, JULY 28: Newburgh and District Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Champagne, Champagne!* The acknowledged superiority of Mitchell's Royal Albert Rhubarb, attested by chemical analysis, must convince the most sceptical of its unrivalled efficacy over every production of the kind throughout England for the manufacture of British wines; its saccharine qualities and excellence of flavour render it of invaluable adaptation for producing a luscious and sparkling champagne, equal to foreign importations, combining that luxurious richness and grateful piquancy the *sine qua non* of connoisseurs and admirers of this delightful beverage; it may be obtained during the next two months in the highest state of perfection at £2 10s. per ton by forwarding a Post Office order to William Mitchell, Market Gardener, Enfield Highway, Middlesex. Other kinds, £2 per ton. *Gard. Chron.* (*Advert.*), *July* 16, 1853.

Publications Received.—*Farmer's Handbook on the use of Chilean Nitrate of Soda*; The Chilean Nitrate Committee, Friars House, New Broad Street, E.C.2.—*Flora of the Presidency of Madras*, by C. E. C. Fischer; Adlard and Son, Ltd., 21, Hart Street, E.C.; price, 10/- net. *The British Fern Gazette* (Vol. V), edited by F. W. Stansfield; The British Pteridological Society, 120, Oxford Road, Reading. *The Use of Tetrachlorethane for Commercial Glasshouse Fumigation*, by Theodore Parker; The University Press, Cambridge. *Hortus Floridas*, by Crispin de Pass; The Cresset Press, Ltd., 11, Fitzroy Square, W. Price 30/- net. *Evergreens*, by F. F. Rockwell; The Macmillan Company, New York; price, 4s. 6d. net. *The Care of Ornamental Trees*, by C. F. Greeves-Carpenter; The Macmillan Company, New York; price 5/6 net.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

Cypripedium Seedlings.—One of the essential points in the growing of Cypripedium seedlings is to produce strong, healthy flowering plants in so short a time as possible, therefore every assistance should be given them to produce good firm growths. Any of the seedlings which require transferring into larger pots should be attended to at once, and if the compost is in good condition they may be potted on without much disturbance of the roots. Use well-drained pots and a compost consisting of two parts A.1. fibre, one part fibrous loam, one part Sphagnum-moss, and a liberal quantity of crushed crocks. This mixture is suitable for plants of the green-leaved section, which require sixty-sized or larger pots, but some of the more robust growers, which are nearing the flowering stage, may be given equal parts of loam and fibre. The seedlings of those belonging to the tessellated-leaved section do not require any loam in the compost. Smaller seedlings should be potted singly as occasion demands. The compost for the seedlings should be cut rather finely and plenty of crushed crocks or sharp sand should be added. Careful attention should be given to shading, but it should not be too dense, as they thrive under light conditions, but the small plants cannot withstand direct sunshine at this season. Spray the plants frequently with tepid water, but the compost should not be allowed to become saturated. Fumigate the house occasionally to prevent insect pests, especially the small, yellow thrips, gaining a hold.

Miltonia vexillaria.—This popular Orchid, and its numerous varieties, which have been making an attractive display of flowers recently, should be given a partial rest for a few weeks in a cool intermediate house. Only sufficient water should be given at the roots to keep the bulbs in a plump condition, and should insect pests, especially thrips, be found on the plants, the growths should be dipped in an approved insecticide of suitable strength, tilting the plants afterwards to allow the moisture to drain away. As the young growths advance, any necessary repotting may be done. Specimens that have become impoverished in the centre should be divided and useless back bulbs removed These may be placed in a little Sphagnum-moss and sprayed occasionally until new shoots appear, when they may be potted. Retain two or three bulbs to each lead of the divided plants and pot them separately into small pots; when established well they may be re-made into specimens. Healthy plants that require more root-room may be potted on, but avoid over-potting. Use well-drained pots or pans and a compost of two parts Osmunda fibre, one part Sphagnum-moss, and a few dried Oak or Beech leaves, well broken up. Careful watering is necessary, as with other newly-potted Orchids; shade the plants from direct sunshine and maintain a buoyant atmosphere by allowing a free circulation of air on all suitable occasions, but avoid cold draughts. During autumn and winter, these Miltonias should be grown in the warm intermediate house.

THE KITCHEN GARDEN.

By Allan Falconer, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Saving Early Potato Sets.—Where the stocks of Potatos are free from virus diseases it is an advantage to save seed for the following year, as better results are often secured from these than from freshly purchased seed each year, provided, of course, that the crop is healthy and true to type. I believe in purchasing a certain quantity of fresh seed Potatos each year, from the most reliable sources, but even then strict attention should be given to the crop while growing, to eliminate any doubtful plants which show signs of the virus diseases. There are many advantages in saving one's own seed Potatos; they may be harvested at the best time, before the skins become hard, and ripened correctly. Tubers of even size may be selected and set in trays to make sturdy sprouts for early forcing if desired, while it often happens that seed purchased from a distance does not arrive early enough, and being in some cases bruised, the young growths are not so vigorous as those produced by the home-saved tubers. When saving Potato sets for seed, do not subject them to the fierce rays of the sun directly after lifting, to ripen them, but put them carefully into sprouting trays and place them in a semi-shady position, one tray on top of another, with some material over the top one, and allow them to remain in this position until the skins are firm; tubers harvested in this way keep well if placed in a light airy shed.

Dwarf Beans.—If sown where a slight protection may be afforded against early frosts, a batch of these often proves useful to follow those cut by the frost in the open, as it often happens that a period of mild and open weather follows a spell of early frosts.

Endive.—Continue to sow small batches of Endive for planting in frames, where protection may be given later and blanching more easily accomplished than in the open ground.

Cabbages.—A small sowing may now be made to supply early spring Cabbages, but much depends on the particular district; wherever it is found that early sowing results in a tendency to bolt, it is better to delay this sowing. The variety Harbinger is worth sowing so early as possible, for it may be planted a foot apart in the rows, cutting every alternate head when quite small. The seeds should be sown broadcast very thinly, and the bed covered with fish-netting against birds; keep the soil moist, and dust the surface frequently with soot and lime.

PLANTS UNDER GLASS.

By J. Coutts, Assistant Curator, Royal Gardens, Kew.

Calceolarias.—Seeds of the herbaceous varieties should be sown during the present month and again during August, if a succession is required. As the seeds are very small the seed, pots or pans should be prepared and watered several hours previous to sowing. The fine seeds should be distributed evenly over the surface of the soil, and if covered at all, only a sprinkling of sand is required. The pots should then be covered with a piece of glass and kept shaded until germination takes place. Calceolarias of this class should be grown in a house or pit, where they may be afforded plenty of air, and where cool and moist atmospheric conditions may be maintained. The seedlings, when large enough to handle, should be pricked out into pans or boxes until such time as they are large enough to be placed singly into small pots; in the early stages they enjoy a light, rich compost. The hybrids between the herbaceous group and Calceolaria cana may be raised from seeds as advised above, and they are so dainty and charming that it is surprising they are not grown more generally. In many of the hybrids it is worthy of note that the scent of C. cana has been retained.

Shrubby Calceolarias.—Those belonging to this section should be propagated by means of cuttings so soon as they are available. Among the species and varieties which should be grown are C. integrifolia, C. angustifolia, C. bicolor, C. dentata, C. Clibrani, C. Burbidgei and C. Allardii, and young shoots of all these root readily in a close case in a cool greenhouse. This section, in common with the herbaceous varieties, enjoy cool conditions; they are also very subject to attacks of aphis and white fly, both of which should be guarded against by fumigating the houses frequently.

Celsia cretica.—Seeds of this biennial species should be sown during August. The plants only require the shelter of a cold frame and they should be grown on into six-inch pots, in which they may be flowered.

HARDY FRUIT GARDEN.

By T. E. Tomalin, Gardener to the Earl of Bessborough Stansted Park, Emsworth, Sussex.

Control of Wasps.—Judging by the number of nests I have destroyed already, wasps threaten to become very troublesome again this season. Every colony that is discovered should be destroyed immediately, and for this purpose nothing is more convenient and effective than calcium cyanide, grade "G." A teaspoonful of this powder dropped into the mouth of the hole should settle the strongest colony effectively. Small phials containing about a teaspoonful of the powder may be carried conveniently in the waistcoat pocket, and the contents of one dropped into each nest as it is found. The nests may be dug out the following day, and the unhatched larvae destroyed. Where choice fruits intended for exhibition are being grown, a supply of hexagon bags should be available with which to protect these from the attacks of insects and birds later on. The stock of these bags should now be examined and any deficiencies in this respect made good without delay.

Black Currants.—Now that big bud and reversion, or Nettle leaf, are so prevalent among Black Currants, the safest method of propagation to secure a clean stock is by insertion of green shoots as cuttings during the present month. The cuttings, which may be five or six inches in length, should be inserted in sandy soil under a handlight, in a partly shaded border. The cuttings should be kept moist and close until a callus has formed, after which they may be exposed gradually.

Sweet Cherries.—Dessert Cherries having been gathered and the nets removed, the trees should now be cleaned thoroughly with an insecticide. All secondary shoots proceeding from the stopped spur-laterals, may be stopped at the first leaf, and the leading shoots and those left to form new branches may be tied into position. If the trees have borne heavy crops they should be treated generously now to assist them in building up and perfecting next year's fruit buds. Copious waterings with diluted liquid manure, varied by an occasional application of a reliable fruit tree fertiliser, which should be watered in well, should prove very helpful, and after each watering the soil should be lightly hoed before replacing the mulching material.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain Brocket Hall, Hertfordshire.

Successional Figs.—Plants that were started into growth about the end of March should now be supplying ripe Figs, and a somewhat drier atmosphere should be maintained at this stage. Syringing should be discontinued, but the walls and other bare spaces should be damped regularly, twice each day during hot, dry weather, and on no account should the roots suffer through lack of moisture. Figs required for home use should be allowed to hang on the trees until fully ripe and well coloured, but if they are to be packed for travelling by post or rail they should be gathered when they are in a tender, but not soft condition. Late trees, from which only one crop is to be gathered, should receive an abundance of air whenever the outside conditions allow, and also copious supplies of liquid manure. Attention should be given to the regulating of the growths. The pinching of the shoots of these plants is unnecessary and any fruits which are produced after the maincrop is thinned should be removed.

The Orchard House.—If the Pears, Apples, Plums, etc., grown in receptacles in a cold orchard house, are somewhat overcrowded, they may with advantage be placed outside in a sunny position. The best time for their removal is when the weather is inclined to be dull, for the sudden change afforded by placing them in the open during a spell of bright sunshine may cause the foliage to burn, especially if the roots are allowed to suffer through lack of moisture during the first few days. The fruits should be secured by fastening them with bass, tied round each stalk and made secure to one of the branches. The pots should be plunged to about half their depth in the soil to prevent them being blown over, and after the trees have been placed in position outside, a light top-dressing of short, decayed manure should be applied to prevent the soil drying out too quickly during hot, sunny days. Trees that are fruiting freely may be watered alternately with weak liquid manure and clear water, or they may be given frequent light dressings of a fertiliser suitable for such subjects. Syringe the trees with rain-water if available, during the late afternoon or evening, to keep red spider in check and benefit the plants in general. Attend to the pinching back of the sub-laterals to the first or second leaf, and support all the branches of Apples and Pears with neat stakes to prevent them breaking under the weight of the fruits; the fruits should also be protected from birds.

Late Melons.—If it is desired to have a late batch of Melons no time should be lost in sowing the seeds, which at this season should germinate quickly; choose free-setting varieties with strong constitutions, for plants which will withstand adverse conditions are required.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to the Duke of Devonshire, Chatsworth, Bakewell, Derbyshire.

Solanum crispum.—This beautiful shrub is well worth growing in any garden where choice plants are appreciated, and the colour of its blossoms, a light shade of blue, is not very common in flowering shrubs. It is of vigorous growth, and when well established flowers in profusion from May or June until the autumn. Here it is planted in a warm situation and grown as a bush in a border with no other protection than a wall behind it, and so far is not often injured by frost. Growing very quickly, it soon makes a good specimen and should certainly be included in collections of shrubs. In cold districts it would be advisable to plant it against a wall, and it is well worth a little trouble in providing protection in winter, if necessary.

Sweet Peas.—On no account allow seed pods to remain on the plants if they are required to bloom continually; they should be gone over at least once a week and the old blooms removed. If seeds are allowed to mature the plants cease to flower and are of no further decorative value. Apply small quantities of artificial manure at intervals, choosing dull and showery weather for its application, and mulch around the base of the clumps or rows to conserve the moisture and save watering. If late plants are required to be at their best at a certain date, pinch the flower buds off as they appear until a short time previous to when they are wanted.

Hydrangea paniculata.—This plant should not be omitted from any collection, and given the treatment as required by the Ceanothuses it is a most satisfactory shrub, for the hard pruning results in strong young shoots which produce splendid trusses of blooms in the autumn. Good loam and some manure is a great help to success with this subject. Hydrangeas of the hortensia group should have the weaker and superfluous growths removed and the remainder cut back to firm wood. Syringas should be pruned immediately after flowering; old neglected bushes require rather drastic treatment to admit the sunlight into the centre of the bush.

Shrubby Spiraeas.—Many of these require hard pruning to secure the best results in the flowering season, and with those varieties which flower late in the season, the pruning may be done at any convenient time during the winter. The variety S. Bumalda Anthony Waterer is an excellent little shrub either for the front of the shrubbery or for the herbaceous border, and should be grown where bright colour is appreciated in the autumn.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener at Jordanhill Training Centre, Glasgow.

Seed Potatos.—In the early Potato districts large quantities of what are termed seed Potatos will have been secured already, and from these next year's early supplies will be produced. As Potato digging becomes general in the inland districts no time should be lost in securing suitably sized tubers from plants which are producing a normal crop. It often happens that all the ware Potatos are collected first and then the smaller ones put aside for seed, but a moment's thought should convince anyone that this method is not a good one, as the majority of these smaller tubers may have been produced by plants which were in an advanced state of disease and which consequently only produced medium to small-sized tubers.

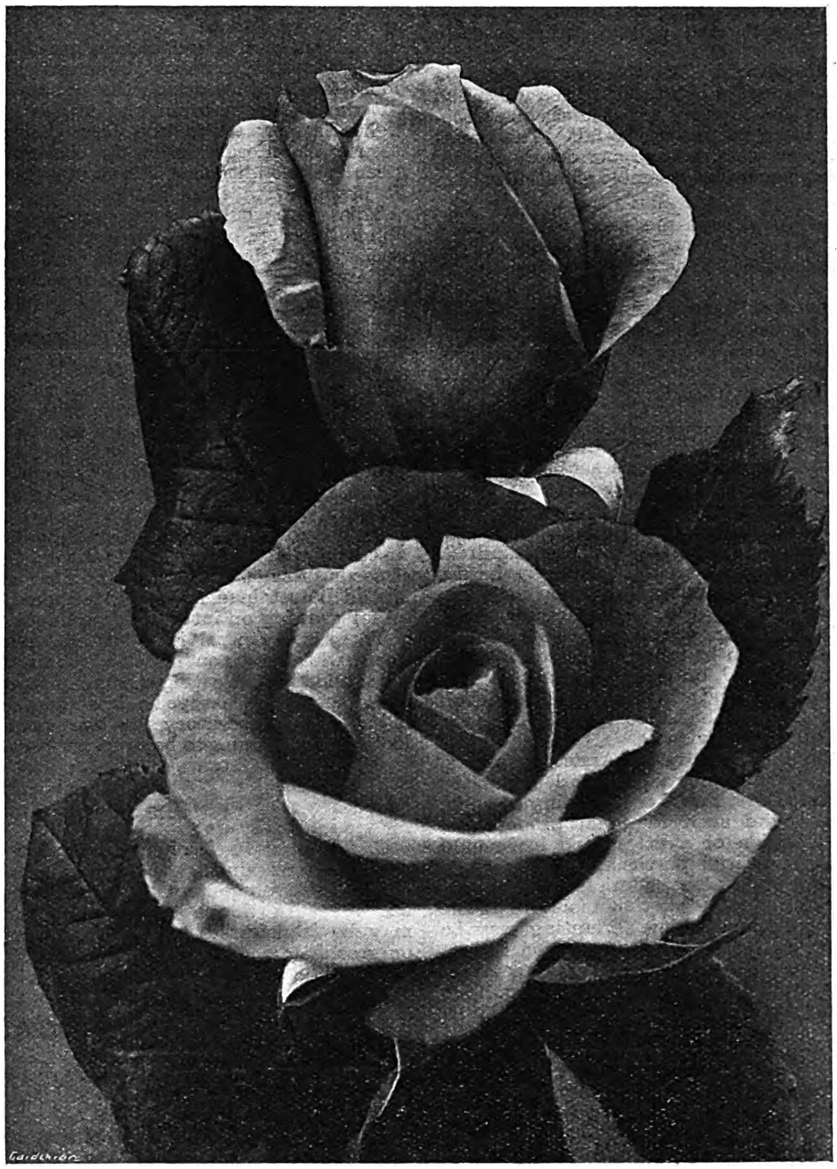


FIG. 18.—ROSE PORTADOWN.

N.R.S. Certificate of Merit, June 29. Flowers cherry-crimson. Shown by Messrs. Samuel McGredy and Son (see p. 15).

Cucumbers.—To secure an abundant supply of Cucumbers during the autumn months, it is necessary to have young, healthy plants ready to plant in their fruiting quarters early in July. The older plants which have been carrying fruits for a considerable time may be discarded altogether, or, if in good health, they may be relieved of the bulk of the crop and cut well back, when they should again break into growth, and if supplied with stimulants produce another crop; but it is only when these old plants are healthy and vigorous that this method is worth while, and more satisfactory crops may be gathered from young plants.

Summer Pruning.—The summer pruning of fruit trees on walls should now be commenced, and a start should be made on those growing on south and west walls. The growths of Peaches should be regulated and only sufficient tied in to furnish the trees comfortably, when the actual fruiting wood of this season has been removed at the winter pruning. Cordon and horizontally-trained Pear and Apple trees should have all outward-growing shoots cut back to within four leaves of the base, and the leading shoots secured into position, but not shortened. Where Plums are growing vigorously and making long shoots, less severe pruning should be given and by training in so many of the current year's growths as may be accommodated conveniently, endeavour to correct the balance which has evidently been upset by excessive pruning, or too rich a rooting medium. In dry districts it is necessary to keep the fruit-tree borders, especially at the foot of south or west walls, well supplied with water, and a mulch of strawy manure, or even newly-mown grass, is of great assistance in conserving the moisture.

TREES AND SHRUBS.

STEPHANANDRA INCISA.

In the locality of New York, this interesting Rosaceous shrub is quite hardy, and it proves a valuable subject for the garden planter. As a single specimen, or grouped in a bed on the lawn, or planted towards the front of a shrub border, or even as a hedge plant, it is equally useful and beautiful, although its adaptability for this latter purpose does not appear to be generally appreciated.

A native of Japan and Korea, Stephanandra incisa—or, as it is frequently catalogued, S. flexuosa—has a graceful, pendulous habit, the long, slender branches being zig-zagged and interwoven to form an almost impenetrable mass.

The foliage, which in the young stage is tinted a pleasing red, is of a deep, rich green hue throughout the summer, and assumes an attractive reddish-purple tint in the fall. The leaves are triangular, with the margins deeply incised, so that they somewhat resemble giant Hawthorn leaves.

In June the flowers are produced in loose panicles, and although individually small, in the aggregate they form a conspicuous feature.

Stephanandra incisa is easily and surely increased by means of cuttings of the dormant wood inserted in the fall, or by means of root cuttings placed in heat in the spring. *T. H. Everett, New York, U.S.A.*

LEIOPHYLLUM BUXIFOLIUM.

The Sand Myrtle, sometimes catalogued as Ledum buxifolium, is one of the most delightful of shrubby plants suitable for cultivation on the rock garden. A native of north-eastern America, it was introduced to Britain over one-hundred-and-ninety years ago, and is perfectly hardy.

It varies from six inches to fifteen inches in height and is evergreen in character, while during May and June the flowers are produced with great freedom in terminal clusters. They are rose in the bud, but open white with a pink tip to each petal, and when the shrub is in full bloom the flowers almost completely hide the Box-like foliage from view.

As is the case with many American plants, the Sand Myrtle dislikes lime and should be accommodated in a medium consisting of loam, fibrous peat and sand in equal proportions, with the addition of a little good leaf-mould if desired. A position on the shady side of the rockery suits this plant admirably, and care should be exercised to see that moisture at the root is at no time lacking. Planting may be carried out in spring, and propagation is best effected by means of cuttings placed in a compost of fine, sandy peat with a little bottom-heat, during July or August. *E.*

COPROSMA PETRIEI.

This shrub ranks among the really uncommon ones which are suitable for growing on the rock garden or rocky bank, in full sunshine. It is a dwarf, procumbent evergreen shrub, forming a close mat of interlacing growths, which are densely furnished with tiny, narrowly-oblong leaves, about one-quarter-of-an-inch in length.

It is said to produce large, purple fruits up to half-an-inch in diameter, but my plant has never produced the slightest semblance to a berry, which leads me to the opinion that the species is dioecious, and that I am the possessor of a male plant, but, unfortunately, I have not examined it when in bloom, and no authorities with whose works I am acquainted throw any light upon the subject.

C. Petriei is stated to be a native of the southern island of New Zealand, although it is seldom noted in the floras of those isles, but whatever its history may be, or whatever additional charms its fruits may impart, I am content with it as an unique and quite attractive evergreen shrub, which is quite hardy and happy when covering a large, flat rock in a position fully exposed to the sun. *M. W.*

INDOOR PLANTS.

PLECTRANTHUS CHIRADZULENSIS.

This comparatively new introduction to our gardens, with its charming blue flowers, promises to be a valuable addition to our winter-flowering plants under glass. It is propagated easily by means of seeds or cuttings, and from plants propagated from cuttings during May quite large specimens may be grown. Here, however, in the neighbourhood of London, such plants suffer severely from the effects of fogs, and a greater measure of success is obtained with smaller plants propagated during August, which make attractive specimens in five-inch or six-inch pots. In the open country, of course, the bad effects of fogs and lack of winter light are not experienced.

Plectranthus chiradzulensis grows freely in any good potting compost, in an ordinary greenhouse temperature during the summer months, but during the autumn and winter a slightly higher temperature is desirable; when in flower it may be afforded ordinary conservatory or greenhouse conditions. The young plants should be stopped twice to induce a bushy habit.

This rare subject was exhibited by Sir John Ramsden before the Royal Horticultural Society, on February 24, 1925, when it received an Award of Merit, and was described in *The Gardeners' Chronicle*, Vol. LXXVII, p. 156.

CLERODENDRON FALLAX.

This subject is very useful for summer and autumn flowering in the conservatory, while it may also be used for providing a display in the stove during the winter months. Those which are now in flower should be retained to provide a supply of seeds to be sown during the autumn; from this sowing plants should be obtained for an early display next year. This plant may also be increased readily by means of cuttings of the young side-shoots, therefore, if seeds are not available a number of plants should be retained for stock purposes, so well as for growing on into large specimens.

There is a general idea that C. fallax is of no use when grown on, but this is a mistaken one, for at the time of writing a group of large plants, grown on from last year, has been in flower in a cool conservatory for two months, and looks like continuing to be so for at least another two months. Seedling plants are usually more robust, but on the other hand, those raised from cuttings flower earlier and their foliage is usually not so coarse.

C. fallax grows freely in any good potting compost, and during the growing season it enjoys an average temperature of about 60°, but when in flower during the summer it may be transferred to the cool conservatory or greenhouse. *J. C.*

HARDY FLOWER BORDER.

ANTHEMIS TINCTORIA VAR. E. C. BUXTON.

I grew this plant for the first time last year, and was so enamoured of it that I determined to increase it, and have now, as a result of dividing the original clump and inserting the first batch of shoots that appeared this spring as cuttings, with very little trouble managed to secure a good stock of it. The cuttings have grown amazingly and give promise of a display of blooms later in the season, while the older plants are now flowering freely and form an attractive and invaluable feature of the herbaceous border.

This form of the well-known Ox-eye Camomile is a valuable acquisition, for it seems to possess all the traits which go to the making of a first-class border plant. In the first place it is quite hardy, for it passed through last winter, a severe enough test, without suffering the slightest injury, and started into growth this spring as vigorously as ever. Moreover, it is of good border habit, forming compact clumps about two-and-a-half feet in height, of firm growths, clothed with elegant and finely divided leaves. The flowers differ from those of the type in that they are of a pale sulphur-yellow shade, quite distinct from the bright yellow ones of Anthemis tinctoria. They are produced from mid-June onwards, and are not only effective in the border, but are very attractive when cut and used for decorative purposes.

There is no point in prescribing any special soil or position for it, for A. tinctoria var. E. C. Buxton requires only the conditions which are afforded to the general types of hardy herbaceous border plants, to ensure its success; and the plants, when tall enough, should be staked and tied in the usual manner, for the plants are usually so bushy that winds and heavy rains are liable to damage them. *Kent.*

TRADESCANTIA VIRGINIANA VAR. JAMES C. WEGUELIN.

As a lover of the Virginian Spiderworts from early boyhood, I have been on the look-out for varieties of this old-fashioned flower, and I owe to Messrs. W. E. Th. Ingwersen, Ltd., the possession of a very distinct and beautiful variety called James C. Weguelin. I received it last year, and it came into bloom with me for the first time in June of this year. It bears out to the full the description given of it, and is a strikingly attractive plant.

It is less than a foot in height, and has the characteristic foliage of Tradescantia virginiana. The flowers, however, are considerably larger and are, in fact, the largest of any form of the Virginian Spiderwort known to me. The colour is a beautiful soft azure-blue, and the flowers are single.

T. virginiana var. James C. Weguelin marks a distinct advance in point of size among the Tradescantias, and, as is well-known, these Tradescantias, including this variety, are thoroughly hardy and excellent border plants. *S. Arnott.*

FLOWER GARDEN.

MYOSOTIS WELWITSCHII.

Why the late Mr. Reginald Farrer should have advocated the ignoring of this charming Forget-me-not is difficult to understand, for although perhaps not comparing with the better-known species and varieties, it is nevertheless so distinct as to merit wider acknowledgment. True, it is a biennial, but this fact does not justify the advice that it should be ignored.

In the *English Rock Garden*, Farrer dismisses it as "not perennial, and should be ignored, though vivid in the blue of its flowers and fairly modest in its 6-inch stature." It is certainly vivid in the colouring of its blooms which are of a clear light blue shade, but the modesty of stature is compensated by the spreading and almost rampant habit, for plants put about nine inches or so apart within a very short period become a close mass of interlaced and matted growths. These, during early summer, after the majority of the Forget-me-nots have long since finished flowering, sparkle with the bright blooms, set among the pale green, hairy leaves.

M. Welwitschii is a subject which may be employed successfully for a variety of purposes. It may be planted in beds in the wilder portions of the garden, in ordinary soil and in either a sunny or semi-shaded position, where each year it should seed itself freely, and all that is required is to thin, and if necessary transplant, the seedlings. It is useful for filling a bed on the rock garden in conjunction with early-flowering Primulas, such as Primula rosea, while if a position may be secured for it on the raised margin of a pond, it will undoubtedly prove a very pleasing feature.

MIMULUS GLUTINOSUS.

A beautiful semi-shrubby subject from California, the Shrubby Mimulus, as it is often called, might be used much more extensively for summer bedding purposes, for well-grown plants provide a succession of brilliantly-coloured flowers, in shades of cream, buff and orange, throughout the summer and autumn; in fact, until the frosts destroy them.

Some authorities state that this subject is comparatively hardy or, at least, so winter-resistant as the so-called hardy Fuchsias, and that if the plants are cut hard back in the spring they start vigorously from the base. This may be the case in the warmer parts of this country, which are blessed with mild winters, but my experience is that although Fuchsia gracilis and F. Ricartonii may pass through the winter and break into growth freely in the following spring, at the end of the winter the plants of Mimulus (Diplacus) glutinosus are as dead as the proverbial "door-nail."

However, it is such an easy subject to propagate that there is no reason why the fact that it is not hardy should prevent its culture. It may be raised from seeds, but the best method of increasing it is by cuttings of the young shoots, which may be rooted at the present time. These should be grown on quickly to form sturdy plants for wintering in a cold frame from which frosts may be excluded. In the spring they should be re-potted into five-inch or six-inch pots, using a fairly rich compost, and the growths should be shortened to induce them to form bushy specimens for planting out when the likelihood of frosts has passed, *i.e.*, at Dahlia planting time. If planted in a sunny position and in well-cultivated ground, they should grow to at least three feet in height by the end of the season, and the flowers should be produced throughout the length of the growths. The branches are furnished with extremely sticky leaves, which seem to have the effect of keeping the plants remarkably free from insect pests; the young shoots are also covered with this glutinous excrescence.

There is a variety of M. glutinosus termed puniceus, which is distinct from the type in that it has smaller flowers, which are rich orange or deep velvety-crimson in colour. *W.*

BULB GARDEN.

LILIUM REGALE.

As each succeeding July comes round the garden value of Lilium regale is emphasized. It is a hardy, graceful species, generous in flowering, and appears to have few likes or dislikes in regard to soil and position. Probably all the bulbs in this country have been raised from seeds, consequently it is surprising to find so little variation in habit and flower. I have one bulb—there must be several by now, however—raised from seed, which flowers a little later than the rest, and has darker stems than is usual; moreover, the rose-red shade on the outside of the outer segments is darker and is retained with very little loss of colour after the flowers have expanded fully; the flowers are of average size, but appear to be a trifle rounder than those of the lighter-stemmed forms. Perhaps other growers and lovers of this delightful Lily may have discovered variations! *C. H. C.*

ALLIUM TRIQUETRUM.

ALTHOUGH Farrer's prediction that Allium triquetrum "promises to develop into a popular vegetable" has not come true, this bulbous plant from cool, moist places in Spain is an interesting and pleasing member of a family that is somewhat despised for garden decoration. It is readily recognised by means of its stout, three-sided stems, which bear several pendulous, whitish flowers that are somewhat like those of our southern Bluebell, or of a Hyacinth, in shape, but wider at the mouth (Fig. 19).

A. triquetrum was cultivated by Philip Miller in 1786, and is figured in *Bot. Mag.*, t. 869, but the text accompanying this illustration is unusually brief, if one excepts the synonyms and references to the several names. There is, however, a statement to the effect that the plant is a "native of Spain, France and (according to Desfontaines) of the Algerian territory, where it grows at the edges of the fields."

The species is found wild in Guernsey and has naturalised itself in certain parts of the southern countries, having, probably, escaped from gardens. It likes a cool spot, and appears to dislike the hot and rather dry places that suit certain other garden species. *B.*

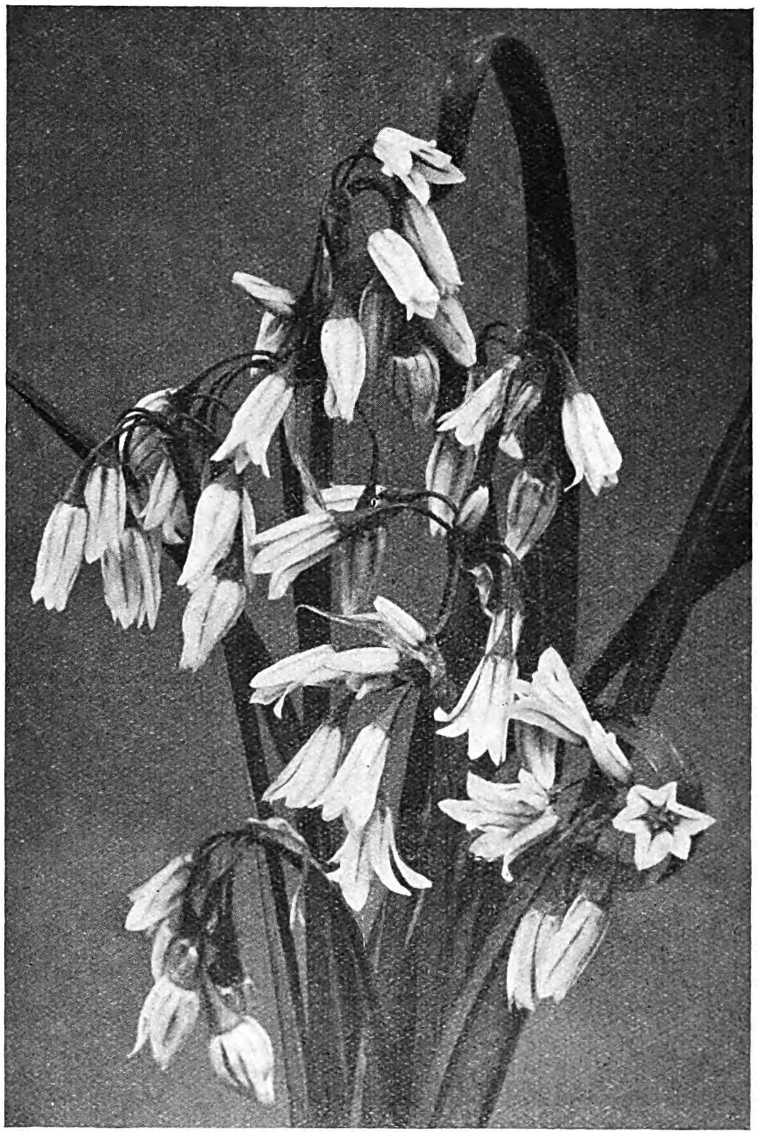


FIG. 19.—ALLIUM TRIQUETRUM.

THE GENUS PRIMULA.

(*Continued from p.* 32).

CALDERIANA (Balf. f.). Calder's P.
(Petiolaris-Roylei.)

A VERY variable species, with a small root-stock and thick, smooth, non-mealy, lance-shaped, blunt leaves, broad at the tip and with uneven sharp teeth on their margins; they are from four to five inches long and taper into a winged stalk. Flower stem about six inches tall, slender, smooth below, slightly downy and purple upwards among the blossoms, which are borne in an umbel of about twelve. The corolla is dark purple, about half- to three-quarters-of-an-inch across, with broadly oblong, elliptic, or rounded, notched or toothed lobes; tube about three-eighths-of-an-inch long, cylindrical, smooth outside and ringed at the mouth. Flowers in June.

Grows on rocky hill-tops in peat, at Changu in the Sikkim Himalaya at 12,500 feet above sea-level.

Culture: Peat and fibrous loam in a moist, open spot in the rock garden, is indicated.

CALLIANTHA (Franch). Beautiful-flowered P.
(Nivales).

Perennial, probably of not long duration. Leaves oblong or ovate-oblong, two to four inches long, covered with yellow meal below, tapering into a short, narrowly winged stalk; margins coarsely toothed or slightly scalloped. Flower stem three to nine inches tall, powdered with yellow meal amongst the bracts and blossoms, which vary from a deep rose with a yellow eye, to rich deep purple-violet; they are borne in a loose umbel on stalks a quarter- to half-an-inch long. Corolla about one inch across, cup-shaped; lobes obovate, notched and irregularly toothed. Flowers in May and June.

This beautiful plant is found in moist alpine meadows and in thin Pine woods, in moist, rocky places in Yunnan and south-eastern Tibet at from 12,000 to 13,500 feet above sea-level.

Var. nuda (Forrest), is quite free from meal except when in the fleshy, leaf bud stage; the flowers are lavender-purple or amethyst colour, and expand in June; it is found in northern Burma at 12,000 feet above sea-level.

Culture: As for P. Ageniana.

CANA (Balf. f.) Hoary-leaved P.
(Obtusifolia.)

Like most of the other members of this section the root-stock of this species is furnished with large scales covered with sulphur-yellow meal in the form of resting buds. Leaves about three-and-a-half inches long, including the blade, which is oblong, elliptic or rounded, about two-and-a-half-inches long, thick, leathery; margins sub-equally toothed; nearly smooth above, densely covered with sulphur meal below. Flower stems mealy, three to four inches tall, numerous, bearing an umbel of twelve to sixteen pink blossoms, each with a yellow eye. Corolla about half-an-inch across, divided into five narrowly egg-shaped, slightly notched lobes; tube cylindrical, about three-eighths-of-an-inch long. Flowers in June and July. It is referred by Prof. Wright Smith to P. Caveana.

This species was collected in Sikkim, eastern Himalayas, but the exact locality of its habitation has not been recorded.

Culture: Good gritty loam in a damp, half-shady spot, is indicated.

CAPITATA (Hook. f.). Capitate P.
(Capitatae.)

Deciduous perennial, but gives best results when treated as a biennial in cultivation. Leaves oblong, lance-shaped, three to four inches long, tapering to a short, winged stalk, blunt or pointed, finely toothed, usually densely covered with white meal below, slightly aromatic. Flower stem six to fifteen inches tall, rather stout, densely covered with white meal. Flowers stalkless, in a dense, rarely loose, many-flowered head. Corolla deep blue-purple, about half-an-inch across, with broadly heart-shaped, notched lobes; tube somewhat longer than the calyx. Flowers in August and September.

This beautiful plant is found in moist mountain pastures and in half-shady places, among rocks in the Sikkim Himalaya, 12,000 to 15,000 feet above sea-level. *Bot. Mag.*, 4,550.

Var. grandiflora has a rather loose umbel of slightly stalked blossoms, with corollas about five-eighths-of-an-inch across. It is figured in the *Bot. Mag.*, t.6, 916. This is the form in cultivation.

Culture: Loam, peat and leaf-soil, in a moist, half-shady spot; mulch in spring and press into the fresh soil. Introduced in 1850.

CAPITELLATA (Boiss.). Lesser capitate P.
(Farinosae.)

A tufted deciduous perennial, somewhat variable in size according to the height above sea-level of its habitat. Leaves three-quarters to four inches long, strap-shaped, lance-shaped or spathulate, but little narrowed at the base, blunt or rather pointed, nearly entire or slightly toothed, more or less mealy. Flower stem one-and-a-half-inch to ten inches tall, mealy, bearing a dense head of rose-coloured flowers about a quarter-of-an-inch across, with broadly heart-shaped lobes; tube twice as long as the calyx.

Grows in damp places amongst short herbage and on wet rocks, on the mountains of Persia and Afghanistan, reaching an elevation of 10,500 feet above sea-level.

Culture: Fibrous loam and sand in a damp spot, is indicated.

CARDIOPHYLLA (Balf. f.). Heart-leaved P.
(Rotundifolia.)

This species was formerly confused with, and mistaken for P. rotundifolia (Hook. f.) Rootstock furnished with numerous rather large scales covered with sulphur-coloured meal. Leaves small at flowering time, about six inches long including the stalk, and one-and-a-half-inch to two inches across the blade, which is kidney-shaped or rounded and heart-shaped at the base, somewhat thick and fleshy in substance, concave, covered with slightly viscid glandular hairs above and with dense yellow meal below. Flower stems seven to nine inches tall, mealy, bearing one to two superposed globular umbels of twelve to eighteen blossoms of a lilac or reddish-purple colour on densely mealy stalks half-an-inch to three-quarters-of-an-inch long. Corolla about five-eighths-of-an-inch across, divided into five broadly egg-shaped or rounded, slightly retuse segments. Flowers from May to August.

Found on the Sandakphu and Singaleelah Ranges of south-western Sikkim, at from 11,000 to 13,000 feet above sea-level.

Culture: As for P. cana. *A. W. Darnell.*

(*To be continued*).

ALPINE GARDEN.

CAMPANULA RHOMBOIDALIS.

CATALOGUES are more than a little confusing regarding the nomenclature of the fine Bellflower we know as C. rhomboidalis, for some refer it to C. azurea, a now superseded name. I am following the late Mr. Reginald Farrer in using the title of C. rhomboidalis, but, rather curiously, Farrer does not say anything about C. azurea, either as a separate species or as a synonym. But whether we obtain it under the correct name of C. rhomboidalis or as C. azurea, it is a really good Campanula. Its height varies from about one foot to eighteen inches, the stems being clad their whole length with rhomboid leaves and surmounted by sprays of very large, deep blue flowers. It is an excellent plant for the rock garden or the border, but is probably more effective in the former, where, associated with dwarfer flowers, it stands up conspicuously among its neighbours. There are varieties of various shades of blue, shading away to white, and some of these are very attractive. There is no difficulty to be experienced in the cultivation of C. rhomboidalis, and in general appearance it might be likened to a giant-belled Harebell. About thirty years ago we used to grow a semi-double Campanula under the name of C. rhomboidia. It was a form of C. rotundifolia and, when raised from seeds, a proportion of the seedlings when flowered were simply the single C. rotundifolia, but I have lost sight of this form for many years.

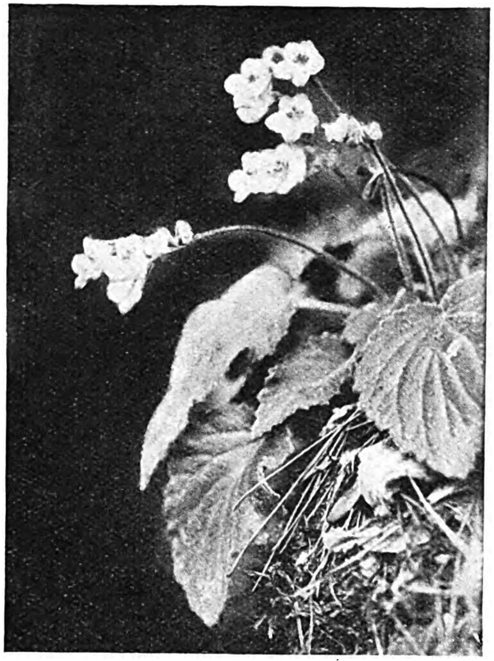


FIG. 20.—OREOCHARIS PRIMULOIDES.

EPILOBIUM MACROPUS.

UNDER this name I have in my rock garden a delightful little Willow Herb, about which I can find very little information. It came to me from a good source, but a perusal of Mr. Reginald Farrer's descriptions of the dwarf Epilobiums causes me to doubt the correctness of the name. Farrer dismisses it briefly, but tells us that E. macropus is "altogether purplish." If this is so, then my plant is wrongly named, and I think that it is probably E. chlorifolium, a rather uncommon species and better than E. glabellum.

My plant forms a low, spreading carpet of miniature green leaves, which may probably colour later, and bears on miniature slender stems small flowers of white, just tinged with pink. It withstood the very adverse climatic conditions of last winter, and is growing in gritty soil in a bed facing north-west. It is a pleasing little carpet subject and seems to spread well, but is not too aggressive. *S. Arnott.*

HYPERICUM REPTANS.

IT is an odd fact that this beautiful species is not more generally grown in rock gardens. One not infrequently comes across others labelled with its name, but the true plant is certainly not commonly seen. Yet there need be no confusion between it and other dwarf Hypericums, since its most characteristic features are distinct and unmistakable. Given a broad rock face or gentle slope of gravelly soil, H. reptans covers it with a dense mat, an inch or so in height, and of a vivid apple-green, with just that hint of emerald of which the race is so fond. This mat is composed of ruddy, thread-like stems densely furnished with oval leaves which are thin in texture and smooth. During both spring and autumn the rich verdure of this foliage is flecked with yellow and red and during late summer the whole wide mass becomes ablaze with the big golden blossoms. These lie literally upon the foliage "like Dog-roses of electric gold, and on the outside their buds are varnished with a burnished mahogany-crimson, most strange and brilliant among the unfolded pale gleam of the flowers." Farrer, in *The English Rock Garden*, was right when he added that this "most lovely of its race should be set, like a city, upon a hill, so that the faces of its flowers may not be hid, but stare forth at the passer-by from their sheeted background of green."

H. reptans is, indeed, a plant of priceless merit in the rock garden; and the happy possessors of broad slabs of rock who have not yet invited it to mantle the latter's surfaces with its undying green and blaze of gold, have in store a great delight. I have found this splendid plant quite hardy under most trying conditions, but drainage should be thorough, the aspect sunny and open, and the root-run stony. It may be raised either by cuttings or from seeds. *A. T. J.*

OREOCHARIS PRIMULOIDES.

THIS little-known Gesneraceous plant is often found growing in association with Conandron ramondioides, on a cliff facing north, in Japan. It is seldom found on the flat, and seems fond of cool, shady and moist places, but it succeeds quite well in a pot.

The flower has a resemblance to that of a Streptocarpus, but is not like that of a Primula. The colour is purple, with dark purple veins, and whitish in the throat; it is one-and-three-quarter centimetre in width by two centimetres in length. The species is stemless and produces two to thirteen flowers on each of several short scapes, and makes quite an attractive plant. The radical leaves are rounded-ovate, thick, hairy, dark green and long-petioled.

In winter, Conandron ramondioides is dormant and without leaves, but Oreocharis primuloides retains its leaves and is quite effective, particularly when the dark, grey, rock forms a background.

The plant in the accompanying photograph (Fig. 20) was growing on a high cliff, and it was somewhat dangerous and difficult to support myself and the camera on stones projecting from the cliff, consequently I failed to picture the whole of the radical leaves. Oreocharis primuloides enjoys the tiny hollows filled with leaf-mould, but some plants are found on very steep faces, where the soil is loam, fertilised with the decayed leaves, where it is associated with Selaginella involvens, the Japanese Resurrection Plant, in the sunny portions. This proves that Oreocharis primuloides resists drought and adapts itself to variable conditions.

As already mentioned, it is easy to grow in pots and also I am growing several plants successfully under a Maple tree in the garden. It flowers in May and June, and I hope soon to find a place for it either in the rock garden or the cool house, possibly in both, where it may succeed. In its native habitat, O. primuloides frequently experiences severe frost and snow in winter. *K. Yashiroda, Tonosho-Kyoku, Kagawaken, Japan.*

PLANTS NEW AND NOTEWORTHY.

HIPPEASTRUM ARECHAVALETAE, BAKER.

A COLD-HOUSE bulb was sent to the Royal Gardens, Kew, shortly before the late Mr. J. G. Baker retired from the post of head of the Herbarium. One of his last acts was to make a request that a bulb from this importation should be sent to me, and this flowers every year in my garden. Although it came from the Argentine Republic it is thought to be indigenous to Uruguay.

As to the correct specific name of this plant, and of some of its allies, few, if any, of these plants are now in cultivation in our gardens, and it seems a hopeless task to pursue the specimens (often fragmentary) in our herbaria, and the descriptions given by various writers, some of whom were not well acquainted with the genus, in order to standardise their specific names. Faced by this lack of reliable data, it is necessary to accept whatever specific names have been given already, unless they are clearly in error, but it must not be supposed that this acceptance carries with it any guarantee of specific rank.

From many parts of South America have been obtained Hippeastrums with a white ground and with the typical vittate markings of the well-known H. vittatum, which was introduced into our gardens in 1769 from Peru; the H. breviflorum, of Herbert, from the Argentine Republic, and the H. Tweedianum, of Hooker's *Herb.*, with H. Arechavaletae described below, are clearly not to be all included in the same species. But it is interesting to reflect how these riband markings of red on a white ground seem to be practically ineradicable, and reappear in many of our garden Hippeastrums after about one hundred generations since the "blood" of H. vittatum was introduced by hybridisation.

H. Arechavaletae, in common with these riband-marked species generally, carries more flowers to the umbel than do our garden forms, and gives an average of six flowers to each spike of blooms (Fig. 21). One other character is apparently linked with the two given above, and that is fragrance. In this genus there are no other species than those with white flowers, or white banded with red, which are fragrant. H. vittatum types, H. Arechavaletae and H. solandriflorum, are all fragrant. This character extends, in some degree, to our vittate-marked garden forms, but not to the self-white form raised recently, and which is apparently an albino form of another section of our garden Hippeastrums.

Apart from botanical interest, H. Arechavaletae and the vittate forms generally are well worth growing, planted out in a cold house with a dry covering in times of severe frost. They are quite deciduous, are hardier than our garden Hippeastrums, and need no support from sticks.

H. ARECHAVALETAE, BAKER.

Bulb.—Strictly deciduous, of medium size, and rarely if ever forming offsets.

Leaves.—With the flowers, six or seven, about two feet long by two to two-and-a-half inches at their widest part, which is close to the rounded apex.

Scape.—About three feet high, bearing an umbel of five or six flowers which expand in pairs, not more than four flowers being expanded on any one day. Span of umbel about thirteen inches. In May or June.

Pedicels.—Sub-erect, one inch to nearly two inches long at the flowering period.

Flowers.—Having a horizontal pose when expanding, but becoming drooping as they fade; reflexed only towards their apices. Colours of H. vittatum, but riband markings more regularly distributed on all the segments; fragrant. Regular in shape, but the narrower, lowest segment somewhat isolated. Segments one to one-and-a-half inch wide, with limb exceeding six inches, of which the tube occupies about three inches. Span four inches.

Ovaries.—Curved with the tube upon expansion of the flower. Placenta completely occupied (longitudinarily) by ovules, in rows of forty or more.

Fruit.—Not available.

Style.—Equal in length to the limb; stigma—trifid, recurved.

Stamens.—Shorter, in three ranks; pollen—yellow.

HIPPEASTRUM BARBATUM.

(Herbert. App. Plate 21.)

HERBERT presumably reconstructed the specimen of Hippeastrum barbatum in the Linnaean Herbarium with description, and drew his fragmentary coloured figure from it. For he states that "No other writer had noticed this plant, and that it has never been brought to Europe." The Linnaean specimen came from Surinam, and I find no record of this plant since 1837 until the spring of 1928, when live bulbs were sent to London from Guiana.

Those who had not seen this species in flower were inclined to place it as an albino of H. equestre, which it resembles in some respects. It is distinct in other respects, and is bearded in a way so remarkable that no doubt exists as to the propriety of the specific name originally given to it.

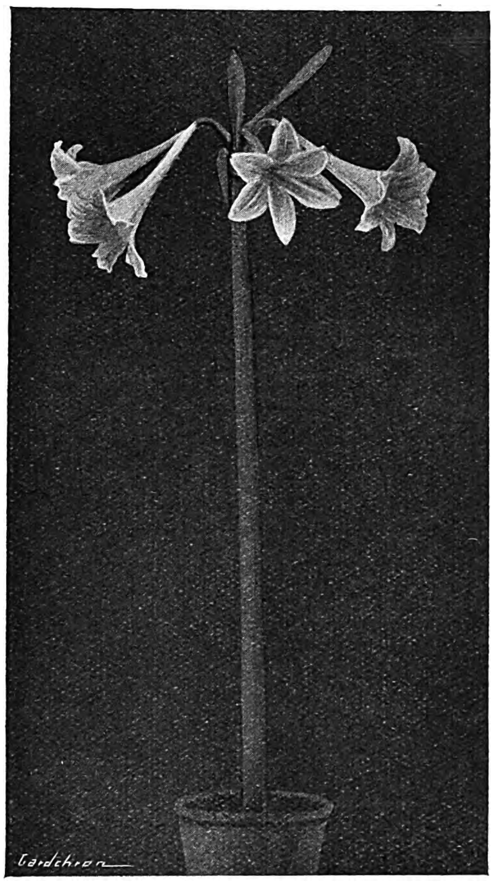


FIG. 21.—HIPPEASTRUM ARECHAVALETAE.

On May 31 of this year, I was accorded an opportunity of seeing two of these plants in flower for the first time in English gardens, and found them to fit fairly well with Herbert's description.

The flowers are strangely irregular in shape, and are bearded at the throat in a manner affected by no other Hippeastrum, having long tufts of hairs curled about like the wisps of a wild man's beard.* The poise of the inflorescence resembles that of H. equestre, but the upper segment is neither much wider than the rest, nor is it reflexed upwards as in H. equestre.

Bulbs.—Rather small, about two inches in diameter.

Leaves.—Not fully grown at flowering period. Under one inch wide.

Scape.—Under two feet high, erect, bearing two flowers opening in succession.

Valves.—Erect, not deciduous during flowering period.

Bract.—One, foliose. (This shows that the umbel may carry three flowers).

Flowers.—Shortly pedicellate (half-an-inch) or nearly sessile, deflexed in the tube, but the face of the flower carried at a horizontal pose, scentless; white with yellowish-green base, and a ruddy exterior keel along each segment. Very irregular, the surface of the segments often corrugated, and the three outer segments projected forward towards their apices.

Segments.—Less than three inches long, the three outer being one-and-a-half-inch wide, the two upper-inner one-and-a-quarter-inch wide, the lowest the narrowest.

Tube.—Deflexed, as in H. equestre, one-and-a-quarter-inch long, ruddy exterior.

Stamens.—Contiguous, shorter than limb.

Style.—Equal to the limb.

Stigma.—Obscurely tricapitate, but not mature at the time the flower first opens.

Pollen.—Golden.

Ovaries, Ovules and Fruit.—No opportunity for examination.

This is not a plant of horticultural merit, nor of value for crossing, but it possesses much botanical and historical interest. *A. Worsley, Isleworth.*

PRIMULA REPTANS (HOOK.)

PRIMULA enthusiasts who are in possession of Coventry's books, *Wild Flowers of Kashmir*, cannot fail to have admired the lovely little plant pictured in Series 1, t. 31.

Primula reptans belongs to the small section Minutissimae, which contains about twelve species. Dr. Wright Smith, in his "Sections of the Genus Primula," which is contained in the last issue of *Notes from the Royal Botanic Garden, Edinburgh*, states of this section: "None have been satisfactorily established in cultivation. They are much too small to be of garden interest." Farrer, in *The English Rock Garden*, Vol. 2, p. 175, is much more enthusiastic, and in his inimitable style describes this species as follow: "P. reptans is much tinier than P. minutissima, and creeps over the ground on the highest passes of Kumaon, rooting as it goes in a hearty manner, and forming little wandering mats of infinitesimal outspreading foliage, so deeply toothed that the wee stalked ovals look like those of some gin-fed Chrysanthemum alpinum; and on the mass stand stemless the wide-eyed, long-tubed stars of soft pale purple, staring straight up to the day. This should have the choicest of morainy-mixtures when caught, and be kept constantly damp below when growing."

By the kindness of His Highness the Maharajah of Kashmir, some half-a-dozen broad masses of this Primula were safely sent from its native mountains to London, and its behaviour in cultivation is probably just as hearty and vigorous as in its native habitat.

It would appear that in P. reptans there is at least one species of this section that may be grown with the greatest ease. Plants are now growing in gardens north and south, and some time must pass before its behaviour on the rockery or moraine may be determined, but it has already been voted a treasure for the alpine house.

The plants arrived in December last and were placed in shallow pans, where they form dense mats more like a clump of mossy Saxifraga than any other Primula—so dense that they have been thought to be pans of seedlings sown too thickly and much in need of pricking out. Its power of creeping and rooting as it grows is astonishing, and before a good crop of flowers is to be expected it may require to be broken up severely.

Flowers, so far, have been few and are of a deeper shade of purple than that shown in the figure in Coventry's book. He describes P. reptans as a beautiful alpine Primula, with minute leaves forming dense, moss-like patches interspersed with solitary blue-purple flowers. It is distinguished from P. minutissima by its solitary pedicelled flowers, and the leaves with recurved margins. It blossoms in July at elevations of 13,000 to 14,000 feet, being frequent on Apharwat, and not found outside of Kashmir. *T. Hay, Hyde Park.*

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* I gathered a distinctly bearded var. of H. equestre growing wild not far from Caraccas, but this "beard" was a regular fringe around the throat, not comparable with that of H. barbatum.

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MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

IV.—ON THE BARAIL RANGE.

MY time in the Naga Hills, apart from the excursion to Manipur, was divided into three periods: (1) The ascent of Japoo, already described; (2) a trip along the west flank of the Barail range, two days' journey south of Kohima, and (3) rambles round Kohima, these being daily diversions between the more intensive explorations. I shall now describe our southern trip, undertaken during the week preceding Christmas, in perfect weather; I was told there were white Magnolias in the forests here, but I believe they are really Manglietias! The main idea was to see something more of the original forest, so much of which has been destroyed in the Naga Hills; but the Barail range, or at least the northern end of it, is a forest reserve, and I hoped to find some Orchids there.

Leaving Kohima on December 17, we marched eleven miles up a well-cultivated valley to a large village called Khonoma. The Nagas of this district have a reputation for robust independence even now, and had put up a stout defence against the British when they first came to the hills. A small stone fort still crowns the spur on which the village stands, but it has long since been dismantled, and is now closely invested by huts.

Khonoma, being off the Manipur road, is rarely visited by Europeans other than officers on tour. There is some wonderfully neat terracing in the valley. Slopes of 50° or more have been carved into narrow steps, shored up with logs and branches cut from trees felled on the spot, for the cultivation of Maize; while the gentler slopes which ebb in shallow waves to the trough of the stream are more broadly terraced for the mass production of Rice. Where the gradient steepens all round to the funnel-head of the valley, and Maize again replaces Rice, the terraces are banked with stones and planted with pollard Alders, giving the appearance of a park. Then the slope becomes altogether too steep, and cultivation is replaced by forest. A horse-shoe-shaped cliff abruptly closes the head of the glen, and a great bare, rock face gleam yellowly in the bright sunshine. Along the topmost ridge the forest shows patchily against the pale sky like moth-eaten fur.

Entering the mouth of this valley the first day, I noticed several flowers along the bank; even in the middle of winter, and at the altitude of 4,000 to 5,000 feet, there are flowers here! Boenninghausenia albiflora, one or two white-flowered Begonias, a tall, large-leafed Thalictrum with small, untidy flowers, and Kalanchoe rosea were the chief ones. This last is an awkward-looking, tumble-down, and fat-leafed Crassula with fine heads of cherubic pink flowers; Clarke remarks that all the Bengal Kalanchoes have yellow flowers. In the bungalow compound were Roses and Cryptomerias.

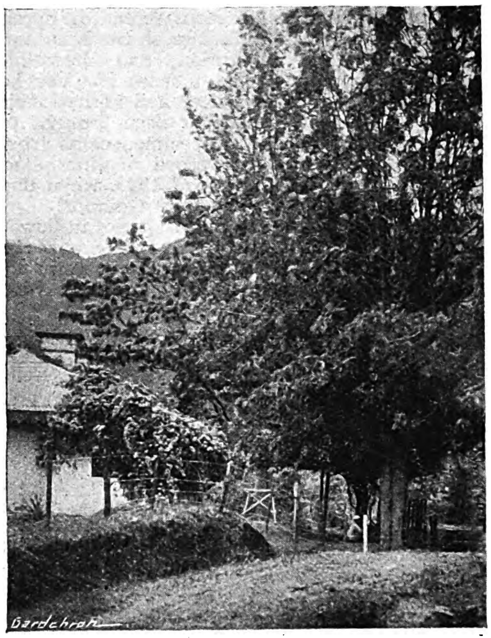

FIG. 22.—BUNGALOW ON THE MANIPUR ROAD.

The plants shown include Grevilleas, Roses and Bougainvilleas.

FIG. 23.—MR. F. KINGDON WARD'S NAGA INTERPRETER.

Khonoma stands at the same height as Kohima, but after crossing a spur of the Barail range at about 6,500 feet, we descended through the forest into a more bracing valley, where it was hotter by day and colder by night. The slope, which caught the spring tide of sunshine, was mostly covered with grass and Bracken, now withered to russet; but it was surprising to see high up on this face, below the cliffs, at an altitude of nearly 6,000 feet, a number of tall Palm trees—most likely Trachycarpus (Chamaerops) Martiana. The north side of the valley, however, was clad with evergreen forest. The foliage had a hard, metallic glint in it, without lustre; it was more grey than green, with a suggestion of dulled silver, and the shadows were inky-black. The commonest trees were species of Oak (Q. semiserrata, Q. spicata, and others), Castanopsis, Manglietia, Michelia, Ilex, Araliaceae, Lauraceae, Rhododendron arboreum, and Acer sikkimense. There were no Conifers, but I found a climbing Rose in fruit—close heads of small, smooth, yellow hips, like R. bracteata, and several winter-flowering epiphytic Orchids not yet over.

We halted at the next bungalow, called Zakhara, where there was a good deal of cultivation. Amongst the secondary growth a Rhus was colouring beautifully, and the Buddleia-like Leucosceptrum canum was opening out its bottle-brush spikes. A common climbing plant here, too, was Porana racemosa (Convolvulaceae), a pretty, white-flowered, romping subject which I have never seen at home. Yet it ought, I think, to be cultivated in the greenhouse, for its abundance of starry, white, tottering, pagoda bells, and the charming nonchalance with which it grows over its neighbours without seriously harming them. It might possibly do in the open, against a wall, in sunny parts of Britain. (But are there any sunny parts?) It flowers in November and December at lower elevations, earlier in the Naga Hills; unless these are different species.

We decided to stay at Zakhara in the heart of the primaeval forest. Next day, with two Naga coolies, I started up the flank of the mountain to the 7,000-feet ridge above us. It was steep, but not very thick. Trees easily recognised by their trunks or their fallen fruits were Birch, Michelia, Manglietia, Quercus and Eriolaena, with an undergrowth of Arundinaria callosa, a prickly Bamboo. At the top I found a dense growth of Phyllostachys, the 'Irroratum' Rhododendron, and a Rowan in fruit; nothing else of note, in the depth of winter. The north face of the ridge dropped almost sheer for thousands of feet to the foot hills, which flattened out on to the plain of Assam, and melted away into the haze. The view from this cliff was magnificent. One looked straight down on to an ocean of tree tops which, where they caught the sun, shone dully like pewter waves, printed with black shadows. Beyond that lay a choppy sea of cotton-wool clouds, swamping the Brahmaputra valley, and still further away, a gun-metal bank of mist; on this were stranded a fleet of ships, and the shaking air threw a mirage of white sails high against the turquoise road to heaven. They were the snow peaks of the Himalayas.

In the temperate rain forest the trees usually have tall trunks, smooth and straight, without plank buttress roots. They are dressed in green moss, and all the bigger trees are covered with epiphytes, chiefly Ferns, Orchids, Ericaceae and small Zingiberaceae. There is not here that preponderance of epiphytic Monocotyledons that one finds in the hill jungle; climbing plants, too, are more scarce, the forest being so much more open that there is not the same necessity for plants to climb in order to reach the light of day. And the forest is more open because there is less competition. Species of Clematis, Aristolochia, Vitis, Smilax and Aeschynanthus are the commonest woody climbers.

On December 20, I walked several miles through a beautiful forest to a pass over the ridge, whence I ascended a peak about 8,000 feet high. Towards the summit several of the Japoo Rhododendrons appeared, including R. Macabeanum, and the actual summit was covered with a thick, bushy growth of Gaultherias, Pieris, Quercus, Rhododendron manipurense, Buddleia macrostachya, Daphne papyracea (D. cannabina), Rubus lineatus, Viburnum, etc. I got back late in the day after an enjoyable fourteen-mile walk, although there was not very much to show for it! It was quite comfortably warm in the middle of the day, but immediately the sun dropped behind the western range a chill fell on the air, and we were glad to spend the evening by a big log fire. It happened to be a particularly cold night, and after dinner we sat by the fire for some time. When I went to my room, I found my bed on fire; in fact, it had been smouldering for some time, and was now well alight. My servant, having been told

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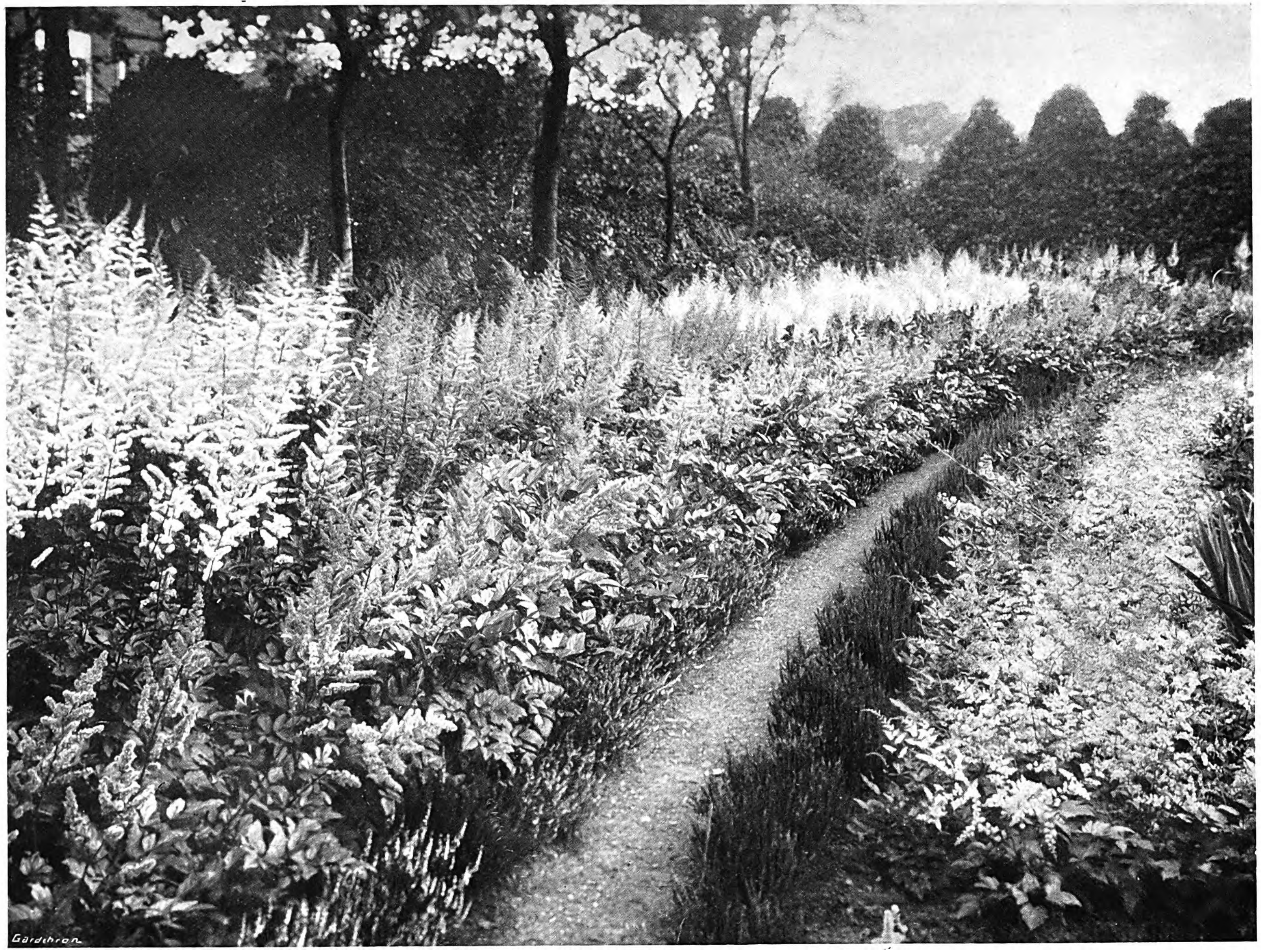
* Previous articles on Mr. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII, and July 7, 1928.



ASTILBE ARENDSII AND A. SIMPLICIFOLIA HYBRIDA.

to warm master's bed, had thoughtfully trundled a red hot boulder into it, with igneous results. Two blankets were burnt to a cinder, and I could have put my head through the hole in my flea bag. One takes certain things in duplicate on an expedition, as a precaution; but not bedding. I borrowed a blanket here and a rug there for the night, but nothing more could be done about it till we got back to Kohima, and not very much there. For the next few nights my bedding was composed chiefly of straw, which was, at any rate, warm.

We spent a very enjoyable three days at Zakhara, with clean, cloudless skies day and night; the minimum temperature sank to within a few degrees of freezing point—indeed, there was hoar frost on the ground each morning, and until the sun rose over the ridge about 9 o'clock, the air was keen. By day the shade temperature rose so high as 67° or 68°.

On the return journey we spent a day at Khonoma, to enable me to climb the Barail range. Making a long day of it, I ascended a peak about 9,000 feet high to the south of Japoo. At the top were the usual Rhododendrons, R. Macabeanum, R. manipurense, and the 'Triflorum' (I did not see R. Johnstoneanum here), with Ilex and Berberis Wallichiana, neither plant fruiting; in fact, neither looked as if it had ever flowered, or ever would. From here we had a peep into the mysterious 'elephant valley,' on the far side of Japoo, where a herd of elephants was trapped, according to local tradition, under peculiar circumstances; anyhow, the elephants are there, and never leave the valley. There, too, grows Primula prolifera, in great quantity, the only other known Primula from the Naga Hills being P. Listeri; and neither of these is confined to the region, being rather Sikkim species. Nor did I see either of them on the Barail range. The two most interesting plants found this day were discovered much lower down the mountain, Lilium giganteum and a Clematis with cream-coloured sepals and piquant purple stamens—probably C. nepalensis. It hangs from the bushes in long streamers of buoyant green leaves, tied with true-lovers' knots of flowers whose colours chime and ring melodiously.

I forgot to state that on the mountain top I found Daphne papyracea (D. cannabina) in bloom—it has the most deliciously scented flowers of any Daphne I know, blush-pink or almost white in colour.

On December 24, starting at 9 o'clock and marching fast, we reached Kohima at 1 o'clock, to find nearly everyone away for Christmas. But a party of four from the plains on their way through to Manipur halted the night with us, so we spent a cheerful Christmas Eve together. *F. Kingdon Ward.*

NATIONAL ROSE SHOW AND INTERNATIONAL CONFERENCE.

EVERY two or three years an opportunity is afforded me of visiting the National Rose Society's Summer Show, and during June I had the pleasure of seeing it for the first time at Chelsea. Although a late season, and not too favourable, was against an outstanding display, the exhibits were fully up to expectations and the attendance—at any rate, on the Friday when I paid my visit—must have gladdened the hearts o' the executive, although, perhaps, not altogether those of the visitors, as it was difficult to get near some of the stands owing to the crush of people. The weather favoured the event and would have been ideal on the Friday if it had not been for too strong a wind which severely tested the canvas at times, and made the partaking of tea in the large marquee rather an exciting undertaking. Viewing the show as a whole, the point that struck me forcibly was the poor setting afforded by the Chelsea site compared with the former one, the Botanic Gardens, Regent's Park. Exigencies of space, no doubt, have compelled the Society to seek more commodious although less pleasing surroundings.

In connection with this summer's show an International Conference with excursions was held, and I had the opportunity of taking some advantage of this. I listened to the papers read in the morning and regretted my inability to attend the afternoon session.

Mr. Osborn, of Kew, commenced with an account of Rose species. Some two hundred of these are now recognised by botanists, but only a tithe, so far, has taken part in the creation of our garden Roses. There is still scope here, and especially for the production of a hardier race than that of the Hybrid Tea, capable, for instance, of withstanding the Canadian winter. Contrary to the view apt to be taken by the uninformed, our native species have taken very little part in the making of our garden Roses. To their credit we only have the Scotch Roses—little grown now, although the double yellow variety is by no means to be despised as an early-flowering bush Rose—and the vigorous Penzance Sweet Briars excellent for a Rose hedge.

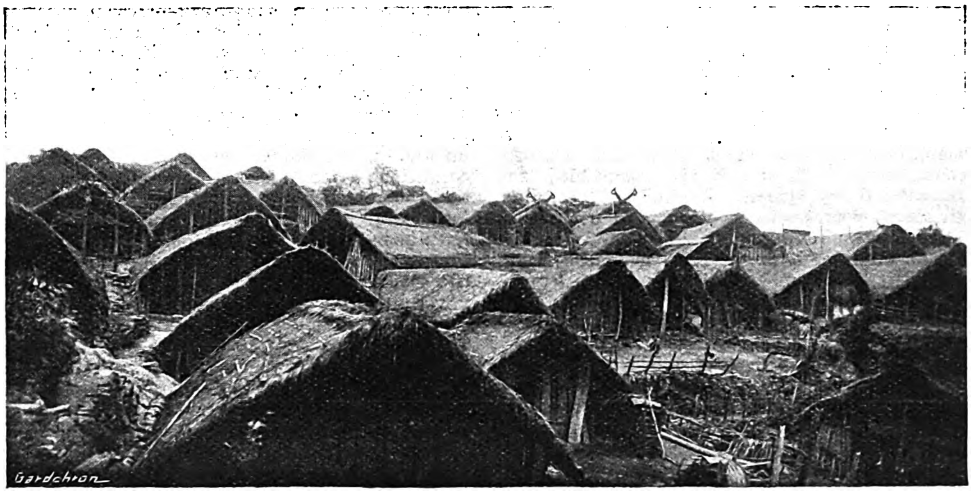


FIG. 24.—THE NATIVE VILLAGE OF KOHIMA.

One wonders whether some use might not be made in hybridisation of the wild Roses from hedgerows. There is fine colouring—a soft shade of pink—in some forms of Rosa villosa (mollis), and much strength one imagines could be secured from the Dog Rose (R. canina), although increased stamina in climbers is not pressing, thanks to the introduction of Rosa Wichuriana, but is so in our bedding Roses, the conspicuous fault of which is lack of vigour. Would that the glorious Roses we now have were capable of growing well on their own roots, and that we could dispense with the trouble of contending with suckers from the Briar stock.

FIG. 25.—SEMA NAGAS DRAWN UP FOR THE DANCE.

Appropriately following Mr. Osborn's paper was one by Major Hurst on the "Genetics of the Rose." This contribution, although scientifically of great importance, was, I fancy, beyond the complete comprehension of most of the audience (see pp. 35 and 54). One hopes such a valuable communication will be available in a simpler and less condensed form in the next *Rose Annual.* Major Hurst may yet show the way how to combine all desirable characters in one and the same variety, and especially how to make sure of retaining the very desirable quality of fragrance.

The morning's sitting ended with a chat on the "Future of the Rose," by the President, Mr. H. R. Darlington. He had a very good word to say for the comparatively new Rose, Shot Silk—the variety which might be said to have dominated this year's Rose show. Its perfect bedding habit was revealed to those of us who availed ourselves of the privilege of visiting the President's Rose garden at Potter's Bar on Sunday. A bed there of this variety was of even growth, without a gap and full of promise. It is pleasing to recognise that this Rose is of British (Irish, to be correct) origin. As a nation, we have been well to the fore in the raising of new Roses from the time of Bennett onwards. The names of Paul, Cant, Dickson and McGredy are familiar to us all. But it is well to remember that the French pointed the way, and until recently an impartial judge would have awarded the palm to the continent for the number of outstanding varieties produced. Now, I think, we are running level. America, although much later in the field, has already done wonders. One has only to mention the varieties General MacArthur, Richmond, Madame Butterfly (although here the honour is divided, as it is a sport of a British-raised variety, Ophelia) and Los Angeles. I had the pleasure of a few words with the producer of this last variety at the Conference.

It was a satisfaction to hear Mr. Darlington utter a word in defence of the fragrance of modern Roses. They are as fragrant now as ever they were. What we may be losing in purity of scent, through the blending of the Damask and Tea odours, and these more recently with the less pleasing aroma of the Pernetianas. The scent eminently desirable to preserve unmixed in some of our varieties is that of the Damask Rose.

Perhaps the reason for the no-scent gibe so often thrown at our modern Roses arises from the fact that some varieties of striking merit as to form and colour are scentless. In the heyday of the Hybrid Perpetuals the pink beauty, although quite odourless, Baroness Rothschild, might be mentioned, and in more recent times Frau Karl Druschki, re-christened Snow Queen. A similar Rose, but with scent, yet awaits creation, and perhaps a fortune for the introducer.

To an outsider it might have seemed a risky proceeding to issue for the excursions open invitations to a Society with a membership of 15,000, but evidently the Hon. Secretary was alive to the probabilities. I calculated that about one-hundredth part of the members availed themselves of the President's and Mrs. Darlington's invitation—a comfortable number for their garden and for the tea which was kindly provided. Although, so far as I was aware, there was no formal expression of thanks, I am sure we all felt greatly indebted to our hosts for the delightful outing and for the opportunity of seeing the Rose garden of one of our leading rosarians.

The idea of excursions in connection with this Society has often occurred to me, but been dismissed from my mind as impracticable owing to the large membership. But judging from this experiment, such affairs appear quite manageable, and one hopes the executive may see its way to arange others, at not too long an interval. They need not necessarily be from London as headquarters. They might occasionally be carried out in connection with the Provincial Show.

The visit of the Society to Kew was favoured by ideal weather, and the Rose beds round the Palm House were in excellent order and bloom. The Dell devoted to rambler Roses has much of interest and beauty to show, although it was apparent that its full floral glory had yet to come with the flowering of the later Wichuraiianas. The large collection of Rose species was inspected, a little late for most of them, but Rosa moschata was a fine exception.

Kew, at present, I suppose, may be considered our National Rose garden, and so far as space and soil allow, the authorities there are doing as much as may be expected for a single genus. A garden with our national flower as its chief feature is still a desideratum. A trial ground may be the beginning, but usually a new enterprise of this character is begun by an enthusiast with the means, time and ground at his disposal. May these lines catch his eye! Essex, owing to its soil, sunshine and proximity to the metropolis, is probably the most suitable county for such a project. *Cumbrian.*

SEED PRODUCTION IN VANCOUVER ISLAND.

YEARS ago, an adventurous spirit returned to the Motherland and reported that on Vancouver Island, B.C., he had seen salmon so abundant in the rivers that they were actually pushing one another out on to the banks; he said he had seen Strawberries in the field in such quantities that the field looked red, and some of the berries so large that they would not go inside an ordinary tea-cup. Then he tried to put into words the wonders of the flowers he had seen growing, but soon found his powers inadequate. Well, I do not desire to draw the long bow, but merely state that to see the Sweet Pea at its best, one must see it growing under natural conditions at the south end of Vancouver Island. The climate is wonderful. It has been described as being like Ventnor in February—bright and clear with a salty tang in the air; and like Mendips in April—every day a "grower" with a fresh wind; and from May to September warm, but not hot, with moisture in the soil from the plentiful supply that fell in the winter—dew in the early morning, and usually no rain during these months.

About twenty years ago, two Yorkshire lads discovered that they could grow as good, or better, Sweet Pea seeds than could be produced anywhere else in the world—Messrs. Crosland Bros. Great strides have been made in the Sweet Pea and seed-growing industry since those days. During the war, this "more English than England" section of the Empire was practically carried on by women, old men and the physically unfit, and so there was no seed industry. With the return of peace all sorts and conditions came to British Columbia. Some with and some without knowledge took up this fascinating industry of seed production. There have been years of testing, not only of the seeds but also of the growers. Not all have withstood the test, but a wonderfully high percentage have, and to-day the growers have one common aim, *i.e.*, to produce the best seeds on the market. The best seeds are those which give the highest and strongest percentage of germination and at the same time are true to type and stock. The best seeds are those that give satisfaction to the producer, the seed merchant, the retailer and the flower lover. The large and enterprising seed firms in England are showing their confidence in their fellow empirists, and ever increasing orders are finding their way to this favoured province in the rich Dominion of Canada.

Approximately five hundred acres of land on Vancouver and the islands adjacent are planted for seed production of Sweet Peas, and other flowers, and vegetables. About one hundred acres are under Sweet Peas, for seeds, and two hundred acres under garden Peas, also for seeds.

In one way the United Kingdom has the advantage of this district, namely, that owing to the large population, even in rural districts, fifty exhibitions may be held in the United Kingdom to one in British Columbia. In the past season a victory was recorded for Vancouver Island. Mr. J. Bland exhibited a seedling Sweet Pea at the Scottish Trials which won a Certificate of Merit; it is a new lavender which he has now most fitly named Victoria.

There must of necessity be considerable difference between the methods used on land that has been under cultivation for very many years and land that has never been ploughed before, and from which the giant stumps of the Stanley Firs have only just been "blown." On Vancouver Island, so soon as the autumn rain has thoroughly soaked the ground, clearing commences. First the brush and small trees are cut and piled; then the larger trees are cut down and sawn up into such lengths as a pair of horses can haul on to a pile. If there is enough wood to pay to cut it up, the trees are cut into four-foot lengths and piled for cord wood. When all the trees have been cut down and piled, the stumps have holes made under their roots and a sufficient amount of stumping powder is pushed well under, a detonating-cap is then fastened to a sufficient length of fuse-wire and placed in the middle of the powder, then the whole is well tamped, the end of the fuse wire is split; warning is given by crying "Fire, fire!"; a match is lighted and applied, and the firer moves to a place of safety. Supposing that the "blow" was satisfactory and that the roots are free for the team, the stump is hauled to the pile. So soon as possible a fire is lighted and everything is burned. The trees and stumps having been cleared, then comes the work of stoning, levelling and ploughing. It is quite an ordinary proceeding to remove fifteen to twenty double-waggon loads of stones to the acre and to spend at least two days with the plough and scrape, levelling the land before ploughing. But what a difference in the ploughing! There is no sod, but in its place a sheep-skin of roots. Roots of Bracken, Sal-al, Salmon Berry, Oregon Grape, wild Spiraea and other plants too numerous to mention, but each one seeming to have a tougher root than the last. Those who imagine all the stumps have been "blown" are sadly deceived. A Cedar that blew down about the beginning of the eighteenth century has rotted away, but the roots extending far and deep, are as sound as when the Cedar stood, a giant of the forest, 150 feet high. When the ground has been cleared and levelled with the smoothing harrow, it receives a dressing of 1,500 lbs. of agricultural lime and about 400 lbs. of superphosphate to the acre. Certain growers consider the application of acid phosphate essential for seed-growing purposes.

After some very heavy rains the weather turns bright; windy, but warm; this is at the end of January. The soil is a trifle cold still, but when the Sweet Peas have germinated there is not much danger of frost, so sowing begins. The land is drilled north and south, the drills being 3 ft. apart and 4 inches deep; the seeds are then placed four inches apart in the drills and covered by hand with the hand-plough and then tramped and rolled, to firm the soil. Some growers prefer to sow the seeds in flats and let them grow until they are in their fourth leaf, and then transplant them into the field. There are difficulties in both methods. By the first, the Sweet Peas have a chance to grow without a check—and so do the weeds; by the second method, the plants are bound to receive some check, but so soon as they are planted the ground may be cultivated so that the weeds are put out of action.

Frequent cultivation has the effect of conserving the moisture near the surface and thus making it available for the young plant. So soon as laterals begin to extend, the plants have to be bushed or wired. This means a lot of work and a heavy expense. For three reasons it is necessary on Vancouver Island: (1) When the plant begins to flower the bushing or wire holds the plants off the ground and shows the flowers better; (2) when examined for rogues, and when the pods are ripened, the haulm is lifted clear of the ground, and so the picking is greatly accelerated; and (3) in the autumn, if rain falls before the Peas have all been harvested, being clear of the ground they will dry very quickly, and many seeds may be saved that would otherwise become mildewed.

For the purposes of rogueing, picking and eliminating errors in picking, the seeds are planted in blocks and the rows are made not more than 125 feet long. If the rows are made longer the seed container is filled before the end of the row is reached, and the picker has to walk to the end of the row to empty and then walk back to the place where the container became full. Contrast in colour blocks is very helpful when rougeing, as contrast strengthens the colour sense and reduces fatigue.

Hand picking enables the grower to compete with growers in other countries, because the seeds ripen on the vine and are fully developed before being gathered. Thus the seeds are fatter, more virile, and the germinating qualities higher than in the case of seeds reaped with a machine.

When the seeds are sown, each variety is numbered, and on each corner of the plot a stake with the number on it, is driven firmly into the ground. The number and variety is entered in a note book. Each time the variety is rogued, the number of rogues that are taken is entered. This gives a two-fold check; one against the grower, showing the thoroughness of the rogueing, and also the quality of the seeds sent out, or supplied to the grower. When the harvest commences sacks are prepared to receive the seeds. Sacks are the only safe containers for the ripe pods of the Sweet Peas split with such force that the seeds are thrown to a great distance and unless safely enclosed in a sack the seeds are sure to become mixed.

Before the sacks are taken to the field they are clearly numbered, both inside and out. Pickers are repeatedly warned against accident, and if an accident does occur, by which varieties are mixed, they must notify the grower. It is essential to seed-growing that the grower shall have the full confidence and the good will of all the pickers.

When the sacks are full they are taken to the seed-house and kept warm and dry until the threshing takes place; this is done with a flail, followed by fanning and grading with one of the standard machines.

The last process is, perhaps, the most difficult, namely, the hand-picking of all the seeds. It is wonderful how many bad or deformed or wrong-looking seeds are thus removed; but what a difference it makes to the grower! After all, it is a pleasure to send out seeds that will give real happiness to the flower-lover. In the colours of the Sweet Peas, he sees the colours of the rainbow, and as the rainbow means hope, so also the seed producer on Vancouver Island continues to hope that he may yet excel in all that pertains to Sweet Peas. *B.*

NOTICES OF BOOKS.

Gardening in Malaya.

Much planting has been done in Malaya during recent years in connection with the Rubber industry, and this has transformed large areas of picturesque jungle into trim, well-ordered plantations. Although this has added enormously to the wealth of the country it has not contributed to its beauty, and English residents now crave for gardens reminiscent of those of the homeland. To assist those who attempt garden-making in Malaya an excellent book* has just been issued. It is by Miss Kathleen Gough, and is the result of the author's personal experience during seventeen years' residence in Malaya. Based on articles she originally contributed to the *Malay Mail,* and expanded into book form by reference to standard works on the subject, the book now forms a comprehensive manual on tropical gardening in all its phases.

In a new country, as the author remarks, the three main factors to be considered in making a garden are the climate, the soil, and the conditions of local labour. The climate in Malaya makes it a land of continuous growth; there is no winter and spring, the seasons being varied only by the rainfall, which divides the year into long and short wet and dry periods. As to the soils in Malaya, these are said to be poor for the most part, being sandy or peaty on the coast, and clayey or lateritic on the hill-tops.

The local labour consists of Chinamen, Malays, Javanese and Tamils. Of these the Chinaman is the only one with any real knowledge of plant cultivation and, in his way, he is an expert. The local market gardens are run entirely by Chinamen, and they are also clever at cultivating and training certain pot plants. But there is no trained labour available for making and tending the kind of garden the author advocates, which is, as nearly as possible, a replica of an English garden, with trees and spacious lawns opening to pleasant views beyond, and inviting one to spend in it long, restful hours. Many of the Malay gardens are said to resemble collections of postage stamps, being interesting in detail, with their specimen shrubs, tidy beds of flowers, and plants in pots, but lacking in restfulness and beauty. As the author expresses it, they look "so extremely unsat-in."

After describing the methods of cultivation and manuring, and the usual garden practice, there follows a chapter on garden-planning, which gives excellent common-sense rules for laying out a garden on English lines. This is followed by hints for the grouping of plants for colour and scent under the heading of "The Charm of Flowers." Lawns being essential to a garden of the English type, a chapter is devoted to their making and care. The indigenous grasses in Malaya are said to be mostly too coarse and vigorous for lawn-making, but several introduced grasses give good results. Of these the "Bermuda Grass" (Cynodon dactylon) is said to be the most satisfactory for tennis lawns, golf greens and places receiving hard wear, whilst the Australian Blue Couch (Digitaria didactyla) and Carpet Grass (Anonopus compressus) are recommended for general turfing. Of trees there are plenty to select from in Malaya, as the Peninsula is a land of trees. Not all are suitable for gardens, however, being either too large and vigorous, or giving too dense a shade. Palms also are plentiful, but the author does not recommend their general use in gardens as being too eastern and tropical in appearance.

Shade being acceptable in a hot climate, the planting of trees in avenues to form shady walks is recommended. Amongst other trees suggested for the purpose, the Conifer named Dacrydium elatum is said to be the most desirable. This tree, locally known as "Ru Bukib," is indigenous to the high hills of the Peninsula, but is said to be little-known and seldom grown. The foliage is described as being deep rich green throughout the year, and the habit symmetrical and conical, resembling that of clipped Yews at a distance.

Useful lists of trees, shrubs and climbing plants, pot plants, plants for beds and borders, Orchids and flowers for cutting, are given and these make up the greater part of the book. Each plant mentioned is described in non-technical language, and particulars as to its value for garden purposes and methods of cultivation and propagation are supplied.

A chapter is devoted to tropical fruits and one to vegetables. As regards the former there are said to be many difficulties in the way of establishing orchards of tropical fruits, these difficulties coming under the heading of soil, fungous diseases and pests. Of the pests, the human species is said to cause the most damage by pilfering and thefts, and to be the most difficult to control, as fruit trees in Malaya are looked upon as public property. Of vegetables, a good range is possible if the necessary time and trouble are given to their cultivation, but few gardens are said to be self-supporting in this respect. The common practice is to grow vegetables in boxes instead of in the open ground, but this method does not give very satisfactory results. Not all the English vegetables may be grown successfully in Malaya; Cabbages, for instance, do only fairly well, while the ordinary green Peas of temperate climates have not proved a success. It is interesting to learn that Australian seeds have given the best results in the case of several kinds of vegetables.

Concluding chapters deal with insect pests and fungous diseases and formulas for mixing sprays and washes for their control are given. It will be seen that the book has a wide scope, and it should certainly be in the hands of all present or prospective English residents in Malaya, or any tropical country for that matter, as it is a well-written and trustworthy guide for would-be owners of English gardens in tropical lands.

The Potato.*

Within the compass of 264 pages, including an appendix, glossary and index, a large amount of up-to-date information is given concerning the Potato in health and disease, reproduction by seed and vegetative means, culture, manuring, etc. Its origin and early history are of perennial interest, and are entered into rather fully in the first chapter. After discussing the point, the author confesses that only three facts were certain, namely, that it is indigenous to South America; that it was introduced to Europe towards the end of the sixteenth century; and that there was one introduction into England and one into Spain.

Chapter II deals with the history of the Potato varieties and breeders. During the nineteenth century, twenty-four varieties are mentioned as epoch-making, ranging from Ox-Noble to Kerr's Pink. The Potato named Rock is supposed to be the oldest on the market, as it was cultivated before 1795. A brief history, where known, is given of the origin of these celebrated varieties, including Beauty of Hebron and Early Rose, which were obtained from America and much used as parents for a time. The raisers in some cases are accredited, from Paterson to Mr. James Henry, who raised Kerr's Pink, gathering the Potato Plum (Apple) in 1906, sowing the seeds in 1907, and giving some to Mr. Kerr, of Banff, for trial. He had a sale in 1912, when a fifty-foot pit sold for a shilling a bushel, before he emigrated to Canada. This brief history of it was given by Mr. Henry himself in another publication.

Probably most or all of the varieties of Potatos in cultivation are heterozygous, and in a chapter on "Genetics and Variety Raising," it is estimated that five generations of inbreeding would be necessary to obtain anything like a pure or homozygous variety that would come true from seeds. If parents such as this were obtained it might be possible to build up new combinations of desirable characters. Self sterility, however, is liable to intervene and upset the operations. Certain characters are correlated and are transmitted by parents to their progeny in pairs or triplets, so that it is necessary to know these as a preliminary to further investigations in heredity. For instance, dwarf haulm is associated with earliness and liability to blight; tall haulm with later varieties and resistance to late blight; hard flesh goes with keeping qualities, blight resistance, and cooking qualities; soft flesh the opposite; deep eyes with a deep hollow at the heel occur chiefly in round Potatos, etc. Mendelian results are found in breeding. Immunity to wart disease is dominant to susceptibility, although this may be disturbed by other factors, so that four immune types are recognised, namely, pure immunes, fifteen immunes to one susceptible, three to one, and nine to seven, respectively.

Other highly interesting information to breeders, cultivators, etc., are that variations in Potatos are mostly in the colour of the skin of the tubers and colour of flowers; the existence of bolters and wildings that are degenerates; that immature tubers for seed are of no importance as far north as Aberdeen, although they may be in the drier and warmer climate of England; on cultivation, manuring, diseases, pests, and injury from various causes. Thirty-nine varieties are fully described in an Appendix. The above information is contained in thirty-three chapters, and there are thirty-eight photographic illustrations. The book is of great value to cultivators and others in the British Isles.

The Protection of Woodlands.

In this work,* Mr. G. W. St. Clair Thompson approaches the subject in a new direction, for instead of describing the various influences that exert a harmful effect upon woodlands and detailing methods whereby these evil influences may be counteracted, he shows how much better it is to anticipate and prevent injury by diseases and other agencies, by the adoption of rational methods of cultivation, a careful study of environment, and the general encouragement of conditions that are best likely to prevent trouble, than to allow unsatisfactory conditions to arise and then take steps to deal with them, as is only too frequently the case. The author has treated his subject with great thoroughness and has gone to a good deal of trouble in showing the inter-relationship of woodland birds, animals, insects and plants, and also the means by which woods may be protected against or by these agencies. In the preface, the author writes: "Natural is to be preferred to artificial protection . . . . . . When silvicultural methods fail, it is necessary to introduce biological measures of control, and when both these natural forms of protection are unavailing, then, and only then, is it economic to take special artificial precautions." Chapter I deals largely with the ecological side of forest life. Chapter II is a study of forest birds; Chapter III, of forest animals; and Chapter IV deals with practical forest protection.

The book is very interesting and well worth a place in the library of all who have to do with trees and their cultivation, whether they are grown in the forest or garden.

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* *A Garden Book for Malaya.* By Kathleen Gough, F.R.H.S. London: Messrs. H. F. and G. Witherby, 1928. Price 16/-.

* *The Potato: Its History, Varieties, Culture and Diseases,* by Thomas P. McIntosh, B.Sc., Inspector, Board of Agriculture for Scotland, Edinburgh. With a preface by Professor J. A. S. Watson, School of Rural Economy, University of Oxford. Edinburgh: Oliver and Boyd, Tweedale Court. London: 33, Paternoster Row, E.C. 1927. Price, 12s. 6d. net.

* *The Protection of Woodlands by Natural as opposed to Artificial Methods,* by G. W. St. Clair Thompson, B.A., Dip. For. (Cantab.). London: Messrs. H. F. and G. Witherby, 326, High Holborn, W.C.1 (1926). Price 10s. 6d. net.

THE ROCK GARDEN AT EDINBURGH.

DURING a recent brief visit to the Royal Botanic Garden, Edinburgh, one of the most fascinating features was a large colony of Meconopsis grandis, with its large, Poppy-like, deep blue flowers borne in the greatest profusion. Its striking colour, bold habit, and the freedom of growth and flower stamps it as a plant of good garden value. There were others giving evidence of floral beauty, such as M. Baileyi, M. rudis, M. integrifolia and the well-known M. Wallichii, all planted in large colonies.

Primula species which attracted my attention were large colonies of P. muscarioides, with dark violet-blue flowers, and all enjoying the rudest health; P. Forresti, in the crevices of the rocks, finely in flower; and P. Winteri, long past its flowering period and now ripening seeds. Of the newer and lesser-known kinds, P. szechuanica with stout stems and umbels of yellow, drooping, Cowslip-like flowers, appealed to me more especially on account of the recurving petals and strong growths. P. chionantha, with heads of creamy-white flowers was noteworthy, and although not new, is worthy of note as a good species. Omphalogramma Elwesiana was just opening and by its appearance, gives promise of a very good plant. Primula melanocarpa, with long, linear lanceolate leaves and umbels of violet-rose flowers, is undoubtedly an acquisition, and judging from its appearance should be a good garden plant, as it seems to have vigour and freedom of flowering. Its height is about one foot.

The most striking, however, although botanically distinct, is Omphalogramma vinciflorum, formerly known as Primula vincaeflora. At Edinburgh it may be seen in grand form in several places. The flowers are solitary, very large and dark violet-blue. I noticed a colony of P. tangutica, but its curious tawny colour would not appeal to everyone.

Shrubs in the rock garden included masses of Bryanthus empetriformis and Lonicera mitis, which has golden-yellow flowers produced in pairs of about one inch in size and pendant, but the dwarfer species of Rhododendrons appealed to me most.

Rhododendron repens, in a large colony, although just over, gave evidence of a feast of colour, and still carried a few solitary crimson flowers; while R. calostrotum, with large, deep rosy-pink flowers, was a striking example of floral beauty at the time of my visit. Of the dwarfer blue or purplish-blue kinds, R. keleticum gives promise of being a very good and popular garden plant, when stock is available. It forms small bushes about one foot across and six inches high, covered with soft lilac-blue flowers. R. russatum, R. intricatum, R. fastigiatum and R. impeditum are equally as noteworthy in their shades of colour. R. chryseum, with lemon-yellow flowers, is interesting, as also are R. prostratum, R. flavidum, R. herpesticum and R. Baileyi.

Of the taller-growing kinds, R. Luscombei, R. decorum, R. sperabile, R. fulgens, R. hippophaeoides and R. humicola commanded attention by their varied colours.

Of other alpine plants in flower I noticed a fine colony of Trillium grandiflorum roseum, Shortia uniflora grandiflorum, Helonias bullata in large colonies, Violas of many species, Haberleas, such as H. Ferdinandi Coburgi and the white-flowered variety, and Lewisias of many kinds. *E. Scaplehorn.*

GENETICS OF THE ROSE*.

(*Concluded from p.* 36).

POLYPLOID ROSES.

The other species of Rosa are polyploids with more than two septets of chromosomes, and these are all made up of various combinations of the chromosomes and characters of the five fundamental diploid species.

Regular tetraploid species with four septets are:—Rosa Huntii, a new species from China with a pair of A and a pair of B septets.

R. centifolia, the oldest Rose in cultivation with a pair of A and a pair of C septets. This species has numerous sub-species including R. damascena, R. gallica, R. provincialis, R. pumila, R. parvifolia and R. pomponia (Rose de Meaux).

R. palustris, with a pair of A and a pair of D septets, with its sub-species R. corymbosa, R. Hudsoniana, R. humilis grandiflora (of gardens), and in part R. carolina of Linnaeus, 1762 (not 1753).

R. Davidii, with a pair of A and a pair of E septets, and its sub-species R. setipoda, R. roseo-Moyesii, R. Fargesii and R. crasseaculeata.

R. spinosissima, with a pair of B and a pair of C septets, and its sub-species R. myriacantha, R. Ripartii and R. hispida of Sims (not some R. hispida of gardens, which are hybrids).

R. pimpinellifolia, with a pair of B and a pair of D septets, and its sub-species R. hemisphaerica, R. lutea, R. altaica, R. lutescens, R. ochroleuca, R. grandiflora and R. Rapinii.

R. multibracteata, with a pair of B and a pair of E septets, and its sub-species R. reducta and R. bella.

R. virginiana (=lucida), with a pair of C and a pair of D septets, and its sub-species R. baltica, R. suffulta, R. Lunellii and R. saturata.

R. pendulina (=alpina), with a pair of D and a pair of E septets, and its sub-species R. pyrenaica, R. laxa of Retzius (not of Lindley, or the garden R. laxa, which is a pentaploid), R. oxyodon, R. lagenaria and R. intercalaris.

Regular hexaploid species with six septets are comparatively rare:—R. Wilsonii, with a pair of A, B and C septets; R. manca of Greene, with a pair of A, B and D septets; R. Moyesii, with a pair of A, B and E septets; R. nutkana, with a pair of A, D and E septets; R. Bourgeaviana, with a pair of B, C and D septets; R. Engelmanni, with a pair of B, D and E septets; and R. Sayi, with a pair of C, D and E septets.

Regular octoploid species with eight septets are even more rare; R. Tackholmii, a new species with a pair of A, B, C and D septets; and R. acicularis, with a pair of B, C, D and E septets. This is a circumpolar species.

Irregular tetraploid species with both paired and single septets are R. omissa, with a paired A and single C and D septets; R. recondita, with a paired C and single D and E septets; R. mollis, with a paired D and single C and E septets; R. pomifera, with a paired E and single C and D septets; and R. rubrifolia, with a paired D and single A and E septets.

Irregular pentaploid species with both paired and single septets are:—R. agrestis, with a paired A and single B, C and D septets; R. canina, with a paired A and single B, D and E septets; R. micrantha, with a paired A and single B, C and E septets; R. tomentosa, with a paired A and single C, D and E septets; R. rubiginosa, with a paired B and single A, C and D septets; R. elliptica, with a paired B, and single A, C and E septets; R. glutinosa, with a paired C and single B, D and E septets; R. pseudo-mollis, with a paired D and single A, B and C septets; R. coriifolia, with a paired D and single A, C and E septets; R. glauca, with a paired D and single A, B and E septets; R. Froebelii, with a paired E and single A, C and D septets(=R. laxa, Hort.).

Irregular hexaploid species with paired and single septets are R. Pouzinii, with a paired A and single B, C, D and E septets; R. inodora, with a paired B and single A, C, D and E septets; R. Jundzillii, with a paired C and single A, B, D and E septets.

The experimental proof of these analyses rests entirely on genetical experiments, many of which have been carried out already. Time will not allow these to be shown here, but last summer I was able to demonstrate these experiments to the Genetical Society when they met at Cambridge.

From the scientific point of view our experiments with Roses have thrown a good deal of light on the problem of species. The old and much vexed question, What is a species? is now, so far as the Rose is concerned, no longer a question of the personal opinion of doctors who differ, it is simply a matter of genetical experiments combined with the counting of the chromosomes in critical cases, while in ordinary cases the species may be determined by the use of a taxonomic table of the septet characters of the five fundamental species.

The point of real importance is that with modern methods of analysis we now have experimental proof that *a species is a real entity* made up of a chromosome complex of associated genes. The old systematists instinctively recognised this although in their day they were unable to demonstrate it experimentally.

By the same methods we are also able to determine definitely the sub-species within the species, and the varieties within the sub-species. This clears the way for a better understanding of the distribution of Roses in space and time, and in the end will no doubt help to solve the ultimate problems of the evolution and origin of the species.

IMPROVEMENT OF GARDEN ROSES.

Now we come to consider how we may apply these new scientific facts to the improvement of our garden Roses. Perhaps the best way to do this will be rapidly to go through our garden Roses and see what they really are in their septet characters. The oldest cultivated Roses, R. centifolia, R. gallica and R. damascena, cultivated by the Greeks, Romans and Egyptians, are tetraploids with paired A and C septets. The old Chinas and Tea Roses are diploids with paired A septets, or triploid and tetraploid varieties with three or four A septets. The old Noisettes and the new Polyantha Pompons, are diploids with a pair of A septets. The Boursault Rose is a diploid hybrid with single A and D septets. The old Bourbon is a triploid hybrid with a paired A septet and a single C septet. The old Hybrid Perpetuals are for the most part tetraploids with paired A and C septets. The old Hybrid Teas are tetraploids with three A septets and one C septet, while some of the modern H.T.'s are tetraploids with four A septets. The original Pernetiana seedling was a tetraploid with single septets of A, B, C and D, while later varieties have three septets of A and one B septet. The old natural hybrid Rosa × alba and its offspring "Maiden's Blush" is a hexaploid with paired A and C septets and single D and E septets. Most of the Penzance Hybrid Sweet Briars are hexaploids with paired A and C septets and single B and D septets, although "Lady Penzance" has paired B and D septets and single A and C septets, while "Catherine Seyton" is a pentaploid with a paired A septet and three single B, C and D septets.

From these analyses it is evident that in order to break new ground in Roses it is necessary to introduce the chromosomes and characters of the E septet into our present A, B. C and D Roses. This may be done by crossing with such species as Rosa Moyesii, a hexaploid from China with paired A, B and E septets, or R. nutkana, a hexaploid from North America with paired A, D and E septets. A similar result can be obtained by crossing with R. rubrifolia a tetraploid from the Alps with a paired D septet and single septets of A and E. To get the desired result, however, care must be taken to use this species as the female parent, since the pollen cells only carry the single D septet which gives the characters of R. cinnamomea only, while the egg-cells carry the three septets A, D and E, which give the characters of R. rubrifolia. In the same way the hexaploid natural hybrid Rosa alba carries in its egg-cells the four septets A, C, D and E, while the pollen-cells carry only two septets, A and C. It is only by using R. alba as the female parent that one can get the R. alba characters, in using R. alba as the male parent one only gets the characters of R. damascena.

Hybrids between garden Roses and the above species are more likely to be fertile than direct hybrids with the pure E species Rosa macrophylla, which would give for the most part sterile triploids. Fertility in the second generation is necessary in the formation of a new race of Roses, since it is only in the second generation that we can get the recombinations of characters that we require and most of the desirable qualities in garden Roses are recessive in the first generation.

We now know definitely that fertility is largely bound up with the pairing of the chromosomes in complete septets. The chief desirable characters carried by the E septet are smooth, erect, cane-like stems, graceful foliage, large brilliant flowers and long, pendulous fruits of many colours. These characters would be a welcome addition to our garden Roses, and may be secured in the second generation, if the breeder has any luck. In attempting to add these new characters, great care must be taken not to lose the desirable characters of form, colour, fragrance and perpetual-flowering that we already have, and here arises a real difficulty which a knowledge of the septet characters will help us to overcome. For instance, the A septet provides us with the delicate translucent colours of the China and Tea Roses, while the combination of the A and C septets gives us the deep velvety crimson of the Hybrid Perpetual.

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* A paper contributed to the International Rose Conference by Major C. C. Hurst.

The B septet gives us the rich yellow of R. lutea which comes out in some of the Pernetianas. The C septet provides us with the delicate and refined old Rose fragrance of the Cabbage Rose, and the A septet gives us the musky odour of the Musk and Tea Rose, while the combination of both A and C septets produces the rich damask perfume of some of the old Hybrid Perpetuals. The B septet gives us some disagreeable odours, the D septet provides some spicy scents, while the E septet gives little fragrance. True perpetual-flowering is peculiar to the A septet. It is unknown in a wild state, although I have observed two definite cases in wild seedlings raised at Cambridge. It first appeared as a recessive mutation in Chinese gardens in the sub-species R. chinensis. The gene for perpetual-flowering is either identical or very closely linked in the same chromosome with the gene for dwarf habit of growth. This should assist the breeder materially in creating a dwarf perpetual R. Moyesii.

There are also further but more remote possibilities of raising entirely new races of garden Roses by the use of four other distinct diploid species usually classed as Rosa; but which our septet analyses prove to be four distinct though related genera of the Rose tribe. One of these, Hesperhodos minutifolia, with its sub-species, H. stellata and H. mirifica, so far refuses to cross with Rosa. This primitive genus from the Western United States is a desert plant with small leaflets resembling some of the fossil Roses found in the Miocene beds of Colorado, which are the oldest Roses known. It has large, striking flowers and prickly fruits, and in the distance the plant is not unlike a Gooseberry bush.

Two of the other genera have produced hybrids with Rosa. Ernestella bracteata from China and India, although rather tender, has large white autumnal involucrate flowers and hairy stems; it has been crossed with a yellow Tea Rose giving the beautiful "Mermaid" which, although bearing single flowers, is quite sterile at Burbage and Cambridge.

Platyrhodon microphylla, from China and Japan, the so-called Chestnut Rose with cup-shaped fruits covered with fleshy spines, seems more promising in its fertility since I have succeeded in raising the second generation of a cross with Rosa rugosa. The results, however, although extremely interesting from the scientific point of view, are not very promising horticulturally, since the grandparent R. rugosa has been reproduced in facsimile several times, while the others resemble the parent hybrid with strange mutational variations.

The remaining genus, Hulthemia persica, from the salty deserts of central Asia, is the Rose with simple leaves and no stipules, with Cistus-like flowers, yellow, blotched with red; it has been crossed with Ernestella, with which it gave the beautiful hybrid known as R. Hardii, which, however, is quite sterile at Burbage and Cambridge, and is difficult to keep alive out-of-doors. Since one of the parents comes from the hot plains of Bengal, this is not altogether surprising, and the other parent Hulthemia is equally difficult to cultivate in our wet climate.

In view of these facts, there does not seem to be much hope of raising new races of garden Roses outside the genus Rosa of Linnaeus. In that genus, however, there is plenty of scope by introducing, as suggested, the chomosomes and characters of the E septet which are lacking in our present garden races.

MARKET FRUIT GARDEN.

The rainfall of June, 2·31 inches, was considerably over the average, but most of it was accounted for by a heavy downpour on one day, so that for all practical purposes it was a dry month. Towards the end, in fact, further showers would have been welcome in my district, as sun and wind quickly dried the land. Several night frosts were experienced, and to these, no doubt, must be attributed the disappointing yield of Strawberries, which fell far short of the great promise which they showed earlier. The cold nights may also account for the unhappy appearance of a good many fruit trees and bushes, the foliage of which has not been of good colour. The "June drop" of Apples has been severe, and was increased by sawfly attack. However, a good deal of thinning of dessert varieties has been necessary, and the fruits now hanging are clean and look promising. Cox's Orange Pippin is still the heaviest crop, which seems to be the general experience this season. Why this tender variety should have withstood the unfavourable conditions better than others is a mystery. In my case it is not because the trees failed to crop last year, for they did very well then. Worcester Pearmain will not be plentiful, although I have one block which is bearing fully, and has done so for several years. There should be some grand specimens of this variety, which may be more profitable than a heavy crop of smaller fruits. Plums show up more than they did, and will be quite a useful crop, although very far from being a full one. Black Currants were ready for picking at the end of the month, and are yielding better than was expected.

Pruning Stunted Trees.

In my notes for January, I mentioned that I was trying various methods for pruning Apples which had got into a stunted condition, with a view to reviving them. This experiment is now showing very interesting results. The work was done in March. A number of trees were treated by the method kindly suggested to me by Mr. R. R. H. Moore in the issue of March 17, as being Lorette's system for treating "the older fruiting laterals." With reference to this, Lorette states: "Old fruiting laterals which are bare of new growth, and on which fruit is borne at a point further and further from the main branch. I have not hesitated when the trees are in full leaf, to cut back these laterals to their base on the old wood, leaving neither leaf nor any other sign of life. This pruning has given me astonishing results. At the present moment all the fruiting branches thus treated bear numerous eyes and darts (undeveloped fruit spurs). This same operation carried out in winter pruning usually produces vigorous shoots." My treatment, of course, would come under the heading of winter pruning. It has certainly given me good results. Where spurs were cut clean off very freely, probably about half of them, the trees are greatly revived, showing a great many new shoots. These do not always spring from the base of the old spur, but often lower down the branch, which becomes refurnished with young laterals. On other trees only a few of the largest old laterals were cut off. This has done some good, but was not sufficient on these badly-stunted trees. If they had been taken in hand at an earlier stage it might have been enough to prevent them from becoming stunted. On one tree, instead of cutting the spurs clean off, I pruned them back to within about half-an-inch of the parent branch. Here again there has been a striking production of young shoots, almost all the shortened spurs pushing out two or three. I am not sure that this method may not prove to be rather better than that of cutting spurs clean off, as it produces shoots just where they are wanted.

Getting clean away from Lorette's method, I tried slitting the bark of the stems and branches. Making vertical slits just through the bark of the stem is, of course, an old practice as a remedy for trees which appear to be "hide-bound." I have tried it before with very small result. This time, however, I was much more drastic. Not only were three or four slits made right down the length of the stem, but the slitting was carried so far as possible up all the main branches. The result is astounding. In nearly every case where the slit occurs on a branch, shoots have pushed out along the length of the slit, on either side of it. I doubt if this is such a good method of reviving stunted trees as the spur treatment already described, because one cannot very well carry the slits right to the ends of the branches, where some of the new growths are wanted. It should prove exceedingly useful, however, for refurnishing lengths of bare wood wherever they occur in fruit trees. I expect to find a great deal of use for this operation. It may be considered dangerous, because likely to give easy entrance to disease; but I doubt if there is much risk of this if the slitting is done during late spring, for the wounds are then open during the safest time, and very soon heal over.

Another method tried was "hatpeg" pruning. Three well-placed branches were sawn off about a foot from the main stem, as if for top-grafting, the idea being to secure shoots with which to furnish the tree with new branches. The shoots are appearing as expected; but the result does not appeal to me greatly so far.

The effect of extra nitrogenous manuring was tried on two trees. The whole plantation, which is in grass, had received fertilisers providing nitrogen, phosphates, and potash, the dressing including 3 cwts. per acre of nitrate of soda. This works out at rather more than 1½lb. of nitrate of soda per tree. In the case of these two trees, I increased the nitrate of soda until it amounted to 5 lb. per tree, a dressing commonly recommended by American writers. So far, I cannot see any definite result from the extra manure, which suggests that 3 cwts. per acre is sufficient.

Altogether, this little experiment has given me far greater results than I expected, and should help me a great deal in the pruning of old trees. It may be mentioned that definite results did not begin to appear, until the early part of June, although the swelling of dormant buds could be noticed before that.

The Coming of Capsids.

Until this season capsids have done no damage to fruit trees or bushes in my district, although they have gradually been drawing nearer. This happy immunity from a very troublesome pest may no longer be claimed, as there is a severe attack on Red Currants, Gooseberries and Black Currants. In my own case the insects are most plentiful on Baldwin Black Currants. I understand that the species present is not the one which does damage to the fruits of Apples, although it does attack the leaves. Yet, while thinning Apples, I have found specimens disfigured with marks suspiciously like those produced by capsids. I am not much alarmed by the appearance of this pest on bush fruits; but it may be a very serious matter if Apples become affected, because this may upset my present successful spraying programme. Spraying against capsids should be done during the fortnight before the opening of the blooms, and that is just when the most important of sprayings against scab has to be carried out. There really is not time to do both, unless one has two spraying outfits and two gangs to operate them. Two possible solutions of the problem suggest themselves:—(1) A winter wash which will kill capsid eggs or prevent their hatching; (2) a combined insecticide and fungicide for use just before flowering, to control capsids and scab at the same time. With regard to the former, spraying twice with one of the proprietary tar-distillate washes at ten per cent. strength is said to answer; but one might as well recommend sprinkling with gold-dust. I understand, however, that very successful control of capsids has been secured at the Long Ashton Research Station by spraying once with a tar-distillate prepared at the station. Perhaps this offers the most hopeful escape from the menace. With regard to a combined insecticide and fungicide for use before flowering, this should not be beyond the reach of horticultural chemists. May we not have a spraying oil which will emulsify with Bordeaux mixture? One can mix the proprietary oil wash Volck with this fungicide; but it has not been claimed that this oil controls capsids. Possibly something cruder on the same lines would answer the purpose.

FRUITS ON SANDY SOIL.

Any grower who clings to the old idea that Apples and Black Currants need heavy land, should see the trees and bushes on the variety trial ground at Wisley. In a season when Apples in most places are not looking at all happy, the young trees there are showing clean, healthy growths, and fine leaves of good colour. Nowhere else have I seen such flourishing bushes of Black Currants, the amount of new wood produced every year being extraordinary, although this vigour is no doubt partly caused by the loss of most of the crop through frost for two years in succession. The good results obtained on this sandy soil are due mainly to very thorough surface cultivation. Under this treatment there is probably plenty of moisture at the roots. That good cultivation has had more to do with the success than has manure may be assumed from the fact that the only manure available is of poor quality. It is a pity that the situation is so liable to frost; but frost damage has been unusually severe in many districts in the last two seasons, and the misfortune can hardly continue. These trials are already very interesting, and they should become more so every year as the trees come into bearing. *Market Grower.*

FRUIT REGISTER.

APPLE BEDFORDSHIRE FOUNDLING.

THIS is a large and excellent culinary Apple, with many qualities to recommend it, and it keeps in good condition until the end of March.

The fruit is nearly four inches across and about three-and-a-half inches deep, rounded-ovate or inclining to oblong in shape, with irregular and prominent angles which extend to the apex and form ridges around the eye. The skin is dark green, shading to pale greenish-yellow on the shaded side, but tinged with orange on the surface exposed to the sun, and lightly marked with fawn-coloured dots. The open eye is set in a deep, narrow and angular basin, while the short stalk is inserted in a deep cavity. The flesh is yellowish and tender, with a pleasantly sub-acid and somewhat sugary flavour.

Bedfordshire Foundling is an excellent variety for planting in calcareous, loamy soils; it is free in growth and on the whole, very productive.

APPLE ASHMEAD'S KERNEL.

THIS dessert Apple was probably raised about 1750, or even before, for it was grown in Mr. Wheeler's Gloucester nursery in the year 1776, grafted from the original which had been destroyed in consequence of the land being required for building purposes.

The fruit is of medium size, round and flattened, but sometimes slightly elongated; the skin is light greenish-yellow, covered with yellowish-brown russet and tinged with brown on the side exposed to the sun. It has a small and partially open eye placed in a moderately deep basin, and the short stalk is inserted in a round and deep cavity. The flesh is yellowish, firm, crisp and juicy, with a sugary and highly aromatic flavour. It keeps well until May. *Pomona.*

APPLE LEMON PIPPIN.

THIS variety is so characteristic that it never fails to evoke interest, and it is quite a good Apple when in season, *i.e.*, from October to April. The medium-sized fruits are about three-and-a-quarter inches long by two-and-a-half inches broad, oval in shape, and with a prominent, fleshy elongation covering the stalk, hence the resemblance to a Lemon. The skin is lemon-yellow, sparsely strewn with russet spots, and sometimes marked with patches of thin russet, while the firm, crisp flesh is briskly and pleasantly flavoured. The tree does not usually attain a large size and makes a moderate-sized bush of good form, healthy and hardy.

Lemon Pippin is an excellent culinary Apple and is quite good for table use. An Apple of great antiquity, it is mentioned in Ellis's *Modern Husbandman* (1744), and was for long known as the Quince Apple. *Ralph E. Arnold.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Osmanthus Delavayi.—I am much obliged for the interesting and valuable information given by various correspondents (see Vol. LXXXIII, pp. 355, 384, 439 and 470), concerning the above plant. I had previously seen several bushes of it that were relatively small, and judging by the small leaves and short growths, I concluded that it was destined to be a dwarf species, and not capable of assuming the height of O. Aquifolium, O. Fortunei and O. fragrans, with the numerous varieties of the first named. For some years past I have not been able to get so far afield as previously, and so have not been able to see what was taking place in the country with regard to this plant. *J. F.*

Malmaison Carnation, Duchess of Westminster.—Raised by Mr. N. F. Barnes, Eaton Hall Gardens, Chester, many years ago, this Carnation has not yet been surpassed in its class. The plant is a vigorous grower, the flowers have the true Malmaison scent and colour, and are produced on long, firm stems. Outside Eaton Hall Gardens, I know of no gardens in which this variety is better grown than in those of Albury Park, Guildford. Here, annually, a great number of plants are to be found in grand condition, some in twelve-inch and others in ten-inch pots, with smaller plants in eight-inch ones. Mr. H. Turner, the gardener, devotes a very large span-roofed house to this variety, because of its supreme suitability for decorative work. In early June the plants were fast lengthening their flower stems, while the buds of a few forward spikes were sufficiently open to cut. Excepting when retarded for special occasions, the latter part of June finds this Malmaison Carnation at its best for cutting. Forethought of treatment in the early stages, however, provides plants for much later use. Large, staked plants of this Carnation make a fine feature if grouped in the cool conservatory among other plants. Here they take no hurt while in flower, and the delicious fragrance is wafted about the house to add greatly to the pleasure of all who visit it. After flowering, so soon as convenient, propagation of plants for another year is begun, and is best accomplished, as with that old variety Princess of Wales, by layering the growths in a sandy mixture in a cold frame. By doing this operation in at least two relays, the first step is taken towards spreading the flowering season over a lengthened period. *C. T., Ampthill.*

Geranium sanguineum lancastriense.—At least four varieties of G. sanguineum have been recorded and described. The variety G. s. lancastriense was, until recently, recorded in British floras under the name of G. prostratum of Cavanilles, but of Perroon in the *Flore Complete Illustree en Couleurs de France, Suisse et Belgique.* Neither of these describe the British plant as having striated flowers. They merely state the flowers are pinkish, flesh-coloured, or rather pale rose almost flesh-coloured, according to the authority. Philip Miller, in 1759, in describing it, writes: "This is the Geranium haematodes lancastrense, flore eleganter striato." *Rau Historia.* This distinctly describes the flower as striated, and Miller has been adopted in the *London Catalogue of British Plants* as the author, giving the name as G. sanguineum v. lancastriense (Mill.) who regarded it as a species. His Latin has also been corrected. The flower, as usually seen in gardens, is pale rosy-pink or flesh, with veins of a bright pink. The stems are usually described as dwarf, tufted and decumbent, but that could also apply to G. sanguineum in the same habitat on the sands in Walney Island, Lancashire, while both forms may be strong and upright in gardens. I have a recent description by a visitor to the island who states: "I have been for G. sanguineum var. lancastriense in Walney Island. It is a curious vegetation—a line of shingle, and then a flat piece of land, with practically nothing on it but short grass and G. sanguineum, quite prostrate. Occasionally you get a pink-flowered plant, but not often." It would seem, therefore, that G. sanguineum and its variety are merely ecads, adapted for existence on a wind-swept island. *J. F.*

Harding Cup for Paeonies.—It is not clear to me whether M. E. Mills was a competitor for the last of these cups, but I presume so. What are the facts? The first time a Harding Cup was offered, four years ago, there were only two entries, both of which were represented by double varieties only, and the Cup was not awarded. The wording in the book of arrangements is "for the best exhibit of three flowers of each of six varieties of Paeonies shown by an amateur." No mention of double or single sorts. However, I think I am right in stating that the winner of each cup has had both forms in his exhibit. The R.H.S. in its *Rules for Judging*, states "As regards the relative merit of the exhibits, the decision of the judges is final." Could there be any doubt that the judges on the late occasion gave their decision on anything other than the "relative merit of the exhibits"? No doubt it would be better in a cup competition, where there is such a choice in both single and double varieties, to state definitely the number of each admissible. It would certainly help to put all exhibits on the same plane and clear the judges of having a preference for one form of the flower. *X.*

Achillea Lewisii.—It was with considerable interest that I read Mr. Arnott's notes on this very pretty and useful, long-flowering and accidental hybrid Achillea, in the issue of *The Gardeners' Chronicle* for June 30 (Vol. LXXXIII, p. 465). I think Mr. Arnott is the first to connect me with this plant in print, but he is perfectly right, for it was I who found, not raised, this welcome addition to our rock gardens in the year 1909, when engaged on a long contract of remodelling the gardens of Mr. Hugh Lewis, then of Mayfield, South Croydon. The Achilleas argentea and tomentosa were growing close together by the side of some steps leading from the rock garden down to a gravel path, and it was in this gravel path that I noted a rather distinct seedling of an Achillea, and lifted and potted it, and was delighted to find it turn out to be this attractive plant. In a joking way I pointed it out to the owner of Mayfield as a new plant, and on his enquiring what I would call it, said Achillea Lewisii of course, and proceeded to increase the plant on a piece of nursery ground adjoining Mayfield, upon which I had a small hardy plant nursery in those days. To please Mr. Lewis, some young plants were given to a few of his friends, with the result that a few years later it seemed to have got into the hands of the late Mr. Miller, of Clarkson Nurseries, Wisbech, who promptly showed it before the Royal Horticultural Society under the name of Achillea King Edward, I think, and obtained an Award of Merit for it. Naturally, I regretted I did not put up my find before Mr. Miller, but I did not wish to put this plant into commerce until I had a really good stock of it and so lost the coveted honour I had hoped to gain. I still call my find by the original name, but recognise that to comply with botanical usage the name should be written Achillea × Lewisii, to clearly indicate its hybrid origin and not mislead botanists into thinking the plant a new species. Perhaps my disappointment as described above may be a warning to other raisers or finders of new and distinct forms of plants, to either show their novelties before much stock has been raised of it or to take steps to prevent leakages of the stock, which may enable other people to become first in the field. I do not wish to imply that my old friend, the late Mr. Miller, acted unfairly; I do not know how he obtained his specimen and I am quite certain that he did not know I was working up a stock of this plant at the time, and feel convinced that had he known these facts he would have stood back in my favour. However, under either name, the above plant is, as I recognised at once, one of the most notable additions to the small Achilleas suitable for the adornment of our rock gardens, easily grown in any good soil, and well-drained, sunny position, where it may produce its soft, creamy-yellow flowers in steady succession from May until late autumn. *W. E. Th. Ingwersen, The Birch, Sharpthorne, East Grinstead.*

A New Chrysanthemum Pest.—I read with considerable interest the communication signed *Somerset*, which appeared in your issue of July under the above heading. Similar damage to that described is caused by a leaf-miner commonly attacking Anchusa italica. It is, of course, impossible to determine whether the miner here concerned is identical with that described as attacking garden Chrysanthemums, without a comparison of the mature flies, but it is of interest to note that attack by a leaf-miner causing "blobs" instead of tunnels in the leaves was first observed here on Anchusa some years ago, that it occurs on all specimens of Anchusa italica grown, that it has now spread to Chrysanthemum maximum, completely spoiling the appearance of the foliage and that a careful examination this week showed one or two cases of attack on garden Chrysanthemums in pots (these had been sprayed with a special nicotine leaf-miner wash some weeks ago, which probably saved them from serious attack). A single case of the "blob-producing" miner has been observed on Lychnis coronaria. It would be of interest to learn whether in other cases where this pest has attacked garden Chrysanthemums, its appearance has followed the introduction of Anchusa italica, a plant which has recently become increasingly popular in its varieties "Dropmore" and "Opal." *H. B. Ward, Elleray, Newstead Road, Lee.*

Rock Gardens at Chelsea Show.—May I be permitted to suggest through the medium of your paper that the officials responsible for the Chelsea Show make a change in the construction of the rock gardens by selecting a site other than on the slopes, as although the rock gardens are exceedingly fine, they are more or less a repetition each year of mountain scenery or mountain gorges. Many of my friends to whom I have spoken since the show have been in agreement with me, when I have suggested that the sites for the rock gardens should be allocated, by way of a change, to level ground, as this would demand a complete change in the type of construction, and would be a benefit, I believe, to those who desire rock gardens, but who are not blessed by nature with sloping ground. *F. Baker, Superintendent Portsmouth Parks.*

Roscoea capitata.—In the notes by Sir Herbert Maxwell in your issue of July 7, p. 12, Roscoea capitata is mentioned as being "probably a misnomer." This name is given in the *Index Kewensis*, and a description of it is to be found in Hooker's *Flora of British India* (Vol. VI, p. 208). In this the flowers are described as follows:—"Flowers many, in a dense oblong peduncled spike, corolla tube not larger than the calyx, limb pale blue, upper segment oblong cuneate, tip narrow - emarginate." *B. O. Mulligan.*

FOREIGN CORRESPONDENCE.

DICENTRA CUCULLARIA.

A native of rich woods from Nova Scotia to North Carolina, and westward to Minnesota, Kansas and Missouri, this tufted herbaceous perennial makes a pretty and interesting feature in such localities during April and May, when the white and yellow, fragrant, nodding, flowers are produced, few or several on each erect, slender stalk.

The individual flowers are from half-an-inch to two-thirds-of-an-inch in length, and the breadth across the spreading basal spurs exceeds the length. The leaves are all basal and finely divided in such a fashion that they possess a Fern-like elegance. The under surface is paler than the upper, and the plant possesses a bulbous perennial base.

Locally, this plant is known as Dutchman's Breeches, and it differs from another species, D. canadensis, in having two divergent outer petals. D. canadensis has numerous small tubers, and the inner pair of petals is decidedly crested. Dicentra eximia is a pink-flowered species, and occurs in similar localities to the preceding. *T. H. Everett, New York, U.S.A.*

SOCIETIES.

GUILDFORD GARDENERS'.

The sixth annual exhibition of this successful Society was held on July 11, at Stoke Park, Guildford. The site is a particularly happy one, in beautiful surroundings, with plenty of fine trees.

This exhibition was fully equal to the best of those previously held, and in the majority of classes there was keen competition. Several hundreds of exhibits were provided by the school children of the town, who showed Antirrhinums in pots, and wild flowers in abundance; there are separate classes in each section for girls and boys, and all competitors must be under fifteen years of age. The children's exhibits and the two table decoration classes filled one large tent; the other classes and the trade displays filled one very large marquee and proved attractive and instructive. Yet another tent was devoted to domestic classes, including children's work, while a large tent contained numerous exhibits of poultry, cage birds, rabbits and guinea pigs.

Competitive Exhibits.

Some very fine blooms were shown in the class for six vases of Carnations, six blooms of one variety in each vase; the first prize was won by Sir J. Leigh (gr. Mr. Hally), Witley Park, Godalming, with first-rate examples of Lord Lambourne, Lady Inverforth, White Pearl, Baroness Brienen, Eileen Low and Tarzan; second, J. J. Joicey, Esq., The Hill, Witley; third, Neil Gorsage, Esq. (gr. Mr. S. H. Huntley), Woodlands, Shirley. The best set of nine vases of Sweet Peas, distinct, was shown by F. W. Franks, Esq. (gr. Mr. Humphrey), Loampits, Tonbridge, who showed fine spikes of Youth, Gleneagles, Powerscourt, Constance Hinton, Ivory Picture, Pinkie, Mammoth and Columbia; second, Mr. Alfred Gurr; third, Mr. T. Poole, Wonersh.

The collections of twelve kinds of hardy herbaceous flowers made a bright display, and the competition was excellent. Mr. R. Soutar excelled with large bunches of fresh blooms of Alströmerias, Lychnis chalcedonica, Delphiniums, Thalictrum and Aconitums; second, Mr. T. Poole; third, Mr. J. N. Cross, Postford House.

J. Godman, Esq., (gr. Mr. A. Howell), Park Hatch, Godalming, arranged the best group of Roses, and although the arrangement was a trifle flat, it contained beautiful flowers of large-flowered and rambler varieties; second, Mr. J. N. Cross; third, J. J. Joicey, Esq., whose stands and vases were much too prominent.

For four dishes of outdoor fruits, Mr. F. P. Hood led with Strawberries, Raspberries, Loganberries and Nectarines; second Mr. Neil Gossage. For four kinds of choice fruits, F. F. Smallpiece, Esq. (gr. Mr. W. F. Benfield). led with Madresfield Court Grapes, Dymond Peaches, Coiner Gooseberries and Red Currants; J. J. Joicey, Esq., second, with Peaches, Nectarines, Muscat of Alexandra Grapes (not yet at their best), and Emerald Green Melon.

D. R. Lyle, Esq. (gr. Mr. S. Norsworth), had the best collection of six kinds of vegetables, and Mr. Neil Gossage came second.

All the foregoing classes were open to all. Other sections were provided for members only and for those members employing one gardener, and those who cultivate their own gardens.

The leading prize-winners in these sections included F. F. Smallpiece, Esq., who had the best collection of annuals; Lt.-Col. Broome (gr. Mr. E. Hewett), Send Barn, Send, who showed the best Begonias; Mr. T. Poole, Delphiniums; P. A. Molteno, Esq. (gr. Mr. A. Tebenham), Parklands, Shere, a collection of vegetables; Mr. E. J. Malyor, Schoolfield, West Horsley, Sweet Peas; Mrs. Stirling, a bowl of Sweet Peas; Mr. R. Ayres, The Drive, Peaslake, Roses, in two classes; Mrs. McCraken, Ardwell, Guildford, a bowl of Roses; Miss M. Young, a vase of rambler Roses (ten entries); Mr. A. C. Crookenden, Woodridings, hardy flowers; Mr. F. Cobbett, annuals; W. T. Patrick, Esq., fruits; and Mrs. Portsmouth, Plymhurst, Guildford, vegetables.

In the open class for a table decoration, the prizes were awarded in order of mention to:—Miss Ansell, who used deep salmon-pink Sweet Peas; Mrs. H. Bartlett, mauve Sweet Peas; and Miss Smeed. In another and similar class, for members, Mr. A. P. Beaumont was placed first for pale Erigerons; and Mr. C. V. Schilt second, for an arrangement of Violas.

Non-competitive.

In addition to trade displays there was a nice group of Orchids from J. J. Joicey, Esq. (gr. Mr. Mackay), Witley; Sweet Peas from Mrs. Farnham; and fine Carnations from Sir John Leigh, M.P. (gr. Mr. C. Hilling), Witley Park.

Gold Medals were awarded to Messrs. Fogwills for a splendid exhibit of vegetables, and to Messrs. Bide and Sons, for a display of Sweet Peas.

Silver Medals were awarded to the Witley Nurseries, for a good lot of Carnations that might have been better displayed; and to the Godalming Nurseries, for a well-arranged exhibit of well-grown hardy flowers.

Other exhibitors were: Messrs. J. Peed and Son, Mr. Harry Dixon, Messrs. Jackman and Son, Mr. T. E. Evans, the Crastock Roseries, Mr. J. Denyer, Chalk Hill Nurseries, Messrs. Wm. Cutbush and Son, Messrs. Spooner, Mr. A. Blandford and Messrs. J. Cheal and Sons, all of whom contributed materially to the success of the show.

NORFOLK AND NORWICH HORTICULTURAL.

This year, the above Society held its summer show in conjunction with the Royal Norfolk Agricultural Society, and three large tents were devoted to the exhibits, which, generally speaking, were of a high standard of excellence. The Roses, Sweet Peas and Table Decorations were particularly fine, but the exhibits of fruits were not up to standard. Competition in the various classes was keen, while the groups staged by the various nurserymen formed an important feature.

Herbaceous flowers, in most instances arranged with artistic effect, provided a prominent display, Mr. H. T. Empson winning the premier award with a group containing many choice and rare subjects. Mr. J. A. Christie showed the best six vases of flowering shrubs; annuals were shown in profusion, and the exhibit of Delphiniums by Mr. G. Lang, Plumstead, was magnificent, the spikes of Bluebird being particularly fine. Irises, of several sections, were shown well, and Lilies were also noteworthy, Mr. J. A. Christie receiving the premier award for them. The Carnations shown by Mr. E. C. Bond were of fine quality, while there were numerous exhibits of garden Pinks and Sweet Williams.

Mrs. Copeman's Begonias were of outstanding merit, as also were the Pelargoniums, both Show and Zonal varieties, and Gloxinias, with which Mr. J. E. Moxey secured first prizes, while in the classes for Roses, although the competition was not so keen as usual, the blooms displayed were of good quality; especially so were the eighteen blooms exhibited by Mr. H. Deacon, which were the best in the premier amateurs' class. There were several really fine baskets of Roses and some of the groups were very effective.

The exhibits of Sweet Peas were confined to a separate tent, in conjunction with the decorative tables. Mr. A. E. Lark took the first prize for twenty-four vases of distinct varieties, while Mr. C. H. Walter was easily first for twelve bunches. The numerous smaller classes were well contested, while the freedom with which Sweet Peas were used in the table decoration classes illustrated well the value of Sweet Peas for this purpose.

The exhibit arranged by Messrs. Daniels Brothers, Ltd., was outstanding in its conception, and consisted of masses of Gladioli, Sweet Peas, Irises, Delphiniums, Lupins and Poppies; while Messrs. A. J. and C. Allen set up a prominent group of Roses, the best varieties being Golden Gleam, I. Zingari and Emma Wright.

Messrs. Henry Morse and Sons staged a fine display of choice Roses, including the sweetly-scented Lily Kemp; and Messrs. Bakers, of Wolverhampton, had a large collection of herbaceous and alpine plants. Carnations were shown in fine condition and variety by Messrs. Allwood Brothers; Mr. R. C. Notcutt showed herbaceous plants and flowering shrubs; while indoor plants, such as Gloxinias, Streptocarpus and Crassulas, together with Caladiums and Codiaeums, comprised the fine group arranged by Messrs. John Peed and Sons. Messrs. R. H. Bath, Ltd., showed fine Delphiniums and Paeonies, and Roses were exhibited by Messrs. Winders, Ltd., and also by Messrs. A. Reeves and Co.

Delphiniums, Paeonies and other herbaceous plants were shown well and in variety by Messrs. G. W. Miller, Wisbech; and Messrs. Stark and Sons, Ltd., arranged a good collection of Sweet Peas, Poppies, Scabious and other hardy subjects.

The third tent was devoted to fruits and vegetables, and allotment holders' exhibits, the latter being, in general, very meritorious. Major A. L. Bruce was the only exhibitor of Grapes, and he was also the only exhibitor of six varieties of fruits; Mr. J. E. Money was first with a dish of Peaches. Mr. G. Lang received the premier prize for a collection of vegetables, his Peas and French Beans being especially good.

It is of interest to note that next year the Norfolk and Norwich Horticultural Society celebrates its centenary, and in conjunction with the Summer Show the National Sweet Pea Society will hold its Provincial Show, at Norwich, on July 11 and 12, 1929.

ROYAL HORTICULTURAL.

July 18.—There was an interesting show in connection with the customary fortnightly meeting of the Society at Vincent Square, Westminster, on this date. Sweet Peas of exceptionally good quality were the principal floral feature, and there were also good Roses, Carnations and border flowers. The Floral Committee recommended four Awards of Merit to novelties, and selected three others for trial at Wisley. The competition for Cherries, Gooseberries, etc., was only moderately successful and cannot be considered representative of our small fruits. The Fruit and Vegetable Committee had no other exhibits of moment. The Orchid Committee recommended two Awards of Merit to novelties, and there were a few small collections.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Mr. Gurney Wilson (Hon. Sec.), Col. Stephenson Clarke, Mr. R. G. Thwaites, Mr. R. Ashton, Mr. T. Armstrong, Mr. Fred. K. Sander, Mr. Charles H. Curtis, Mr. A. McBean, Mr. H. G. Alexander, Mr. J. Cowan and Mr. A. Dye.

Awards of Merit.

Laelio-Cattleya lustrissima var. majestica (*C. Warscewiczii* × *L.-C. Lustre*).—This handsome hybrid has very large flowers of rich mauve and purple colour with a deeper lip that has a few light veins in the throat. Excellent in form and substance. Shown by Mrs. Carl Holmes (gr. Mr. W. J. Penton), The Node, Welwyn.

Cattleya Lorna var. Seagull (*Enid alba* × *gigas alba*).—A chastely beautiful variety, with white sepals and petals, the latter broad and slightly frilled at the margins; lip white at the base, and bright violet-purple at the wide front portion, where there is a frilled, white margin. Shown by Messrs. Black and Flory.

Groups.

The pretty exhibit from Messrs. Charlesworth and Co. contained a beautiful, branched spike of Odontoglossum Felicity, and good examples of O. Serapis, O. Indian Chief, Vuylstekeana Leda, Miltonia William Pitt, Cattleya Eleanore, with clear white sepals and petals and a big violet-purple lip; Brasso-Laelio-Cattleya Canada, Cryptochilus sanguinea and Dendrobium Dalhouseanum.

Messrs. J. and A. McBean contributed the quaintly attractive Odontioda Speculation, of unknown parentage, and with curious yellow shading on each side of the lip; Odontoglossum Toreador, O. Aphrodite, Laelio-Cattleya Profusion, L.-C. Thyone and L.-C. Valencia.

A wonderfully beautiful specimen of Miltonia vexillaria var. Constance Wigan, with eleven fine spikes, was shown by Robert Paterson, Esq. (gr. Mr. Merry), Stonehurst, Haywards Heath (Cultural Commendation). The same exhibitor showed Miltonia Bleuana, Stonehurst var., very beautiful; and M. Nadia, Stonehurst var.

Messrs. H. G. Alexander, Ltd., showed the beautiful white Cattleya Mirabou (Gaskelliana alba × Astron), the bright Sophro-Laelio-Cattleya Goldfinch, and the handsome Westonbirt variety of Cattleya Hesperus.

In Messrs. Stuart Low and Co.'s group we noticed good specimens of Dendrobium thyrsiflorum, D. Parishii, Cattleya Gatton Ruby, C. Harold, Odontioda Wilsonii, Saccolabium retusum, Cypripedium I'Ansoni and Aerides curvifolium.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. J. F. McLeod, Mrs. Ethel M. Wightman, Mr. C. F. Langdon, Mr. William Howe, Mr. J. M. Bridgeford, Mr. D. Ingamells, Mr. Montagu Allwood, Mr. E. R. Janes, Mr. A. E. Vasey, Mr. R. Findlay, Mr. James B. Riding, Mr. W. B. Gingell, Mr. D. B. Crane, Mrs. Helen Lindsay Smith, Mr. Charles E. Pearson and Mr. W. D. Cartwright (Secretary).

Section B.—Mr. Gerald W. E. Loder (in the chair), Mr. W. J. Bean, Mr. R. C. Notcutt, Mr. James Hudson, Mr. F. G. Preston, Mr. G. Reuthe, Mr. James Comber, Mr. Reginald Cory, Mr. L. R. Russell, Mr. A. Bedford, Mr. Mark Fenwick, Mr. E. H. Wilding, Lady Beatrix Stanley, Mr. G. Yeld, Mr. C. Williams, Mr. T. Hay, Mr. Charles T. Musgrave, Sir William Lawrence, Bt., Mr. W. B. Cranfield and Mr. N. K. Gould (Secretary).

Awards of Merit.

Carnation Sydney Crowhurst.—This is a border variety of large size and apparently free flowering habit. The bright purple flowers are exceedingly fragrant. Shown by Mr. J. R. Crowhurst.

Cichorium Intybus var. rosea.—A well-grown pot plant of this variety of the Chicory was shown. The plant was about three feet in height and bore goodly numbers of nearly double, pale pink flowers. It is a useful plant for the large herbaceous border. Shown by Lt.-Col the Hon. Cuthbert James (gr. Mr. J. Farringdon), The Dower House, Forty Hill, Enfield.

Monardella macrantha.—A very uncommon and handsome dwarf perennial from North America. It is of compact, erect habit. The small, opposite, entire, cordate leaves are highly aromatic and the bright scarlet flowers are borne in a close, sessile, terminal head surrounded by hairy bracts. The calyx is pale green, hairy, nearly an inch long, and slightly swollen at the base. The tubular flowers are about twice the length of the calyx. In the illustration in *Bot. Mag.*, t. 6,270, the flowers are rather larger than those of the plant which received the award. Shown by Mr. T. Hay, Hyde Park, London.

Rose George Daken.—This is a small, double H.T. variety of ordinary merit and recommended for bedding purposes. The foliage is of an attractive purplish tint. The flowers are pale salmon colour lightly flushed with deep pink. Shown by The Burbage Nurseries.

For Trial at Wisley.

Hemerocallis J. S. Gayner.—A particularly handsome Day Lily. The flowers are large, widely expanded and of rich, deep yellow colour. Shown by Mr. George Yeld, Orleton, Gerrard's Cross, Bucks.

Kniphofia Triumphans. — A large and strikingly handsome spike of bright orange-scarlet flowers. It was stated to have been raised from K. nobilis × K. Mt. Etna. Shown by Messrs. M. Prichard and Sons.

Rose Charmaine.—This dwarf free-flowering variety was classed as a "Poly Pom Pom." The semi-double flowers, which are about the size of those of Rose Tausendschon, are bright pink in the bud state and become paler when mature. It appears to be a desirable, free-flowering, dwarf variety. Shown by The Burbage Nurseries.

Groups.

The whole of the table space at the end of the hall was filled by Messrs. Sutton and Sons with a magnificent display of Sweet Peas. The many varieties were especially well-grown and the exhibit was arranged with exceptional taste and skill. The varieties of orange shadings were particularly successful, and these included Royal Sovereign, Colorado and Gold Crest. The richer colours were well represented by Charming, Delightful, Mammoth and Sybil Henshaw, while among the more delicate shades were delightful vases of Pinkie, Magnet, Susan, La France, and the cream-coloured What Joy. In another part of the hall Messrs. Bide and Sons staged a goodly group of Sweet Peas, in which they displayed excellent vases and stands of such popular varieties as Austin Frederick Improved, Hebe, Sybil Henshall, Colne Valley, Picture and Constance Hinton, with their variety Alma Beauty, a charming pink-flushed, cream-pink flower.

Roses were staged in considerable quantity and of great attractiveness. Messrs. B. R. Cant and Sons included splendid flowers of Mabel Morse and a large vase of Paul's Scarlet Climber in their good group. Messrs. F. Cant and Co. had equally choice blooms of Florence L. Izzard, with Covent Garden and other fine Roses, while Mr. J. H. Pemberton set up a goodly group of free-flowering and other Roses.

No doubt in anticipation of the Carnation Show, there were several considerable collections of this flower. Messrs. C. Engelmann, Ltd., had many of the best greenhouse varieties. Messrs. Allwood Brothers showed many greenhouse Carnations and also had collections of Dianthus Allwoodii, and a hybrid of Sweet William and another Dianthus, shown as "Sweet Wivelsfield." Mr. James Douglas set up an admirable collection of border Carnations.

On a floor space, Messrs. Hillier and Sons made an attractive group of uncommon trees and shrubs and hardy Nymphaeas. Messrs. M. Prichard and Sons showed many border flowers and alpines. Mr. H. Hemsley set up a considerable exhibit of his good Sidalceas. Mr. F. G. Wood included Helenium pumilum and various Campanulas in an interesting exhibit. Mr. G. W. Miller showed herbaceous Phloxes, Delphiniums and Lilium candidum. The Misses Hopkins and the Hollamby Nurseries made small rock garden exhibits.

An attractive display of Delphiniums was arranged by Messrs. Blackmore and Langdon. Messrs. B. Ladhams, Ltd., included generous masses of Lavatera Olbia in their collection of hardy border flowers. The Little Munden Nurseries also showed border flowers, and Messrs. Tuckers had many dwarf Campanulas with Verbascums. Many desirable varieties of the Day Lily (Hemerocallis) were shown by Mr. Amos Perry, who also had a good pot plant of Calochortus Vesta. Mr. S. Goodliffe staged border flowers, and Romneya Coulteri. Many alpines, including dwarf Campanulas, and border flowers were displayed by Messrs. Waterer, Sons and Crisp. Messrs. L. R. Russell, Ltd., had a few well-grown pot plants of Dracaena Doucetti Albertii and Dracaena indivisa Backii.

Fruit and Vegetable Committee.

Present: Mr. W. Poupart (in the chair), Mr. H. A. Prince, Mr. A. Poupart, Mr. H. S Rivers, Mr. W. H. Divers, Mr. H. Markham, Mr J. C. Allgrove, Mr. F. Jordan, Mr. E. Nea Mr. A. W. Metcalfe, Mr. E. Laxton, Mr. T. Pateman, Mr. P. D. Tuckett, Sir W. Lobjoit and Mr. A. N. Rawes (Secretary).

There were several exhibits of fruits before this Committee but no awards were made.

Mr. J. J. Kettle, Wimbourne, staged vases of fruiting sprays of Raspberry Lord Lambourne, a promising perpetual fruiting sort with large golden fruits; and a red-fruited seedling which seems to be a fairly good cropper. A collection of Gooseberries and Black and Red Currants was shown by Mr. H. Hemsley, Crawley.

The fruit competition held at this meeting could hardly be termed a success, for the number of entries in all the classes was very limited, in too many instances confined to one or two, and in no classes could the competition be termed keen.

Lord Swaythling (gr. Mr. F. J. Rose), Southampton, won several first prizes. He was the only entrant and received the first prize in the class for three varieties of Cherries, showing dishes of Bigarreau Napoleon, Duchess de Pallau and Morello, while he received the premier award for three varieties of Gooseberries, with Broomgirl, Whinham's Industry and Lancashire Lad; for three varieties of Red Currants showing Laxton's Perfection, Comet and Raby Castle; and for three varieties of Raspberries, with Lloyd George, Pyne's Royal and an unnamed variety.

C. G. A. Nix, Esq. (gr. Mr. E. Neal), Tilgate, Crawley, was another prominent prize-winner, for he was placed first in the class for a collection of Gooseberries, showing good fruits of Langley Beauty, Trumpeter, Leveller, Keepsake, Whinham's Industry, Speedwell, Whitesmith and Dan's Mistake; also in the class for three varieties of Black Currants, with Boskoop Giant, and Seabrook's Black exceptionally good. He was placed first in the class for one dish of Figs showing the variety Brown Turkey; and for twelve dishes of fruits mentioned in the schedule, his exhibit including Gooseberries, Cherries, Figs, Black and Red Currants and Raspberries.

In the class for one dish of any sour Cherry, D. Saunders, Esq., Norbury, received the first prize for Morello Cherry; while W. J. Abbey, Esq., Tonbridge, received the premier awards in the sections for single dishes of red, yellow and green or white Gooseberries, showing Lancashire Lad, Leveller and Lancer respectively.

W. West, Esq., Winchester, was successful in the class for one dish of Black Currants, with Seabrook's Black, and again for one dish of Red Currants. G. Mayer, Esq., Woldingham, was awarded the second prize for Raspberries (the first prize was not awarded); and W. G. Stuart, Hanwell, received a first prize for a dish of Loganberries.

THE ROYAL SHOW.

The Horticultural Section of the Royal Show, at Nottingham, which commenced on July 10, was held under ideal weather conditions. This section has had phenomenal success since its formation, and under the skilful management of Sir Arthur Hazlerigg and Mr. Peter Blair, it goes on increasing in popularity every year. The exhibits were staged in two large tents, in picturesque surroundings, and a remarkable display of rich colour and exhibits of the finest quality were staged.

The groups of miscellaneous plants, such as Roses, Carnations, Begonias, Sweet Peas, hardy herbaceous subjects and cut blooms, could not have been excelled, and the same high quality was noticeable throughout the trade exhibits.

In Class One, for a group of miscellaneous plants, Messrs. James Cypher and Sons won the premier award with a brilliant group of Codiaeums, Dracaenas, Alocasias, Palms, Liliums, Laelio-Cattleyas and many other flowering plants. Mr. W. A. Holmes was a very close second with a particularly attractive and well arranged group of similar subjects. Messrs. Bees, Ltd., were first for a collection of Delphiniums, with a superb display of splendid spikes in great variety; Messrs. Hewitt and Co. were placed second.

Messrs. Blackmore and Langdon won the first prize with their marvellous exhibits of Begonias; Messrs. Bowell and Skarratt were first for a group of aquatic plants; and Messrs. Wood and Sons were second, both the displays being excellent, but they required rather more room to be really effective.

Messrs. Engelmann, Ltd., secured the first prize for a collection of cut sprays of Carnations with flowers of excellent quality in great variety, and Mr. H. Lakeman was first for a collection of border Carnations, also with many choice blooms.

The best collection of Sweet Peas was staged by Messrs. Robert Bolton and Son, followed closely by Mr. J. Stevenson, who put up two charming exhibits.

In the class for collections of hardy perennial plants and cut blooms, it is doubtful if finer exhibits have ever been staged at one show. Messrs. Bees Ltd. were placed first with a bold arrangement of Delphiniums, Verbascums, Liliums and many other hardy flowers, well grown and charmingly displayed. Messrs. Artingdale and Sons were a close second, with another finely-arranged group. Messrs. M. Pritchard and Son were placed third; and Messrs. Harkness and Sons, fourth. Messrs. Artindale and Sons were first for the best representation of a hardy perennial border.

Large Gold Medals were awarded to Messrs. Sutton and Sons, for Sweet Peas in great variety; Messrs. Allwood Bros., for Carnations and Allwoodii Dianthuses; Messrs. Thos. Robinson and Sons, for Roses; Messrs. Wallace and Co., for an ornamental garden; The King's Acre Nurseries, Ltd., for fruit trees in pots; Messrs. Alex. Dickson and Sons, for Sweet Peas and Roses; the Studley College, for a collection of fruits; and to Messrs. Waterer, Sons and Crisp, for shrubs and Conifers.

Gold Medals were awarded to Messrs. L. R. Russell, Ltd., for stove and greenhouse plants; Messrs. Webb and Sons, for plants and cut flowers; Mr. H. Lakeman, for border Carnations; Messrs. J. Peed and Sons, for stove and greenhouse plants; Messrs. Robert Bolton and Son, for Sweet Peas; Messrs. Hodsons, Ltd., for a rock and water garden; Messrs. Wm. Lowe and Son, for Roses and Delphiniums; Mr. C. Gregory, for Roses, and Mr. George Mariott, for Roses.

Silver Medals were secured by Messrs. R. H. Bath, Ltd., Messrs. W. Cutbush and Sons, Messrs. Daniels Bros., Messrs. Ellisons, Messrs. Jarman and Co., Messrs. Kelway and Son, Messrs. Stuart Low and Co., and Messrs. Wilson and Agar.

PUBLIC PARKS AND GARDENS.

Ossett Town Council has received sanction from the Ministry of Health to borrow £500, to adapt land at Storrs Hill as a recreation ground and £823 to lay-out Illingworth Park.

The Chorley Town Council has adopted a scheme for the levelling and drainage of Astley playing fields. The cost of the work has been estimated at £3,058.

The Salford Town Council is recommended to spend £3,200 on the upkeep and lay-out of fourteen acres at Broughton Park, for a new recreation ground, and £1,000 for the purchase of a lodge and nursery gardens.

The Yarmouth (I. of W.) Town Trust has granted the Privy Council a fifty-years' lease of fields near the Old Rectory for use as recreation grounds.

The Ministry of Health has approved the preliminary statement prepared by the Town Planning Committee in regard to the Oxford town-planning scheme. Lands aggregating 790 acres along the banks of the Thames and the Cherwell are reserved under the scheme for recreational or agricultural purposes.

NEW HORTICULTURAL INVENTIONS.

These particulars of New Patents, of interest to readers, have been selected from the Official Journal of Patents, and are published by permission of the Controller of H.M. Stationery Office.

Latest Patent Applications.

16,446.—Alley, S. E.—Horse or traction hoes. June 6.
16,550.—Bird, J. L.—Implements, etc., for digging root crops. June 7.
16,612.—Bunce, W. J.—Machines for distributing manure, etc. June 7.
16,342.—Gough, F.—Flower pots, etc. June 5.
16,220.—Shanahan, P.—Machines for harvesting root crops. June 5.

Specifications Published.

291,514.—Jackson, J.—Production of fertilisers from vegetable refuse.
291,557.—Thomas, G. C.—Scraping or cleaning devices for lawn-mowers and rollers.
282,330.—Liljenroth, F. G.—Method of producing mixed manures.
290,718.—Dunn, W.—Machines for distributing manure, seeds, etc.
290,774.—Berry, H.—Grass-box for lawn-mowers.

Printed copies of the full Published Specifications may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2. at the uniform price of 1s. each.

Abstract Published.

Patent No. 289,498.—An insecticide has recently been patented by V. Casaburi of 39, Via Poggioreale, Naples, Italy.

Insecticides, fungicides and disinfectants for destroying plant pests are incorporated with hemicelluloses obtained from Locust tree beans and applied as solutions, powders, or semi-solids. Suitable insecticides are copper salts, lead salts, arsenic salts, sulphur, etc., and in addition to the hemicelluloses any of the following materials may be incorporated:—Alkali metal silicates, oils, borax, etc. As an example, a suspension of the hemicelluloses in water is mixed with a mixture of caustic soda solution and paraffin oil. Fertilisers, such as ammonium salts, potassium salts, and calcium cyanamide, may also be added to the composition, the following being a preferred example:—Hemicelluloses previously mixed with calcium chloride, etc., lead arsenate powder, and calcium superphosphate. The fertiliser is caused by rain to enrich gradually the underlying ground.

THE LATEST TRADE MARKS.

This list of Trade Marks, of interest to readers, has been selected from the Official Trade Marks Journal, and is published by permission of the Controller of H.M. Stationery Office.

KEMET.

489,899.—All goods in Class 2, which includes chemical substances used for agricultural and horticultural purposes.—The Chemical and Metallurgical Corporation, Limited, 701, Salisbury House, London Wall, London, E.C.2. June 13.

FUNGOLEUM.

491,283.—Chemical substances used for agricultural and horticultural purposes.—The Strawson Chemical Company, Limited, 79, Queen Victoria Street, London, E.C.4. June 13.

462,436—6,508 S.—Illustration of a blackbird and the words "BLACKBIRD" BRAND for spades, shovels, and forks, all being goods in Class 13.—C. T. Skelton and Co., Ltd., Sheafbank Works, Heeley, Sheffield. June 13.

HIGHCARD.

490,631.—Substances used as food or as ingredients in foods, which includes fruits, vegetables, etc.—Edwin Gove Trump, trading as Trump's Stores, Fore Street, Sidmouth. June 6.

TRADE NOTES.

Valuable acquisitions in the way of tying materials are the two new types offered by Messrs. R. P. Lawson and Sons, Ltd., Rodney Street Works, Oldham Road, Manchester, under the names of "Plan-tie" and "Twix." The former is a suitable twine for tying up plants which require moderate support, while the latter is stouter and may be used where lasting support is necessary, for it has a breaking strain of nearly twenty pounds. Both materials are dyed green and are therefore not unsightly in appearance; they are not expensive, and are sold on handy, self-unwinding spools.

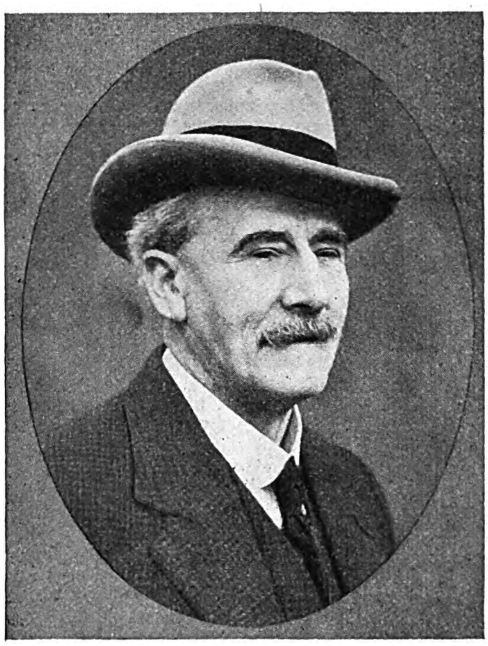
Mr. C. W. Pennell (Messrs. Pennell and Sons, Lincoln), who is a member and past president of the Council of the Agricultural Seed Trade Association of Great Britain and Ireland, has been nominated a member of the Council of the National Institute of Agricultural Botany at Cambridge in place of the late Mr. G. P. Miln.

On Saturday, July 7, the employees of Messrs. Edward Webb and Sons, Seedsmen and Fertiliser Manufacturers, Stourbridge, attended a garden party given by Major W. Harcourt Webb (Managing Director of the Firm) and Mrs. Webb, at their residence, Spring Grove, Bewdley, Worcestershire. The party, which numbered several hundreds, was conveyed by chars-a-banc and motor cars, and the grounds, gardens and house were thrown open to the guests. Luncheon and tea were served in a large marquee, and various competitions and games, including bowls, tennis, clock golf, cricket, fishing in the lakes, etc., were indulged in. Music was provided by the band of the 8th Worcestershire Regiment, while in the evening there was dancing on the lawn. The weather was glorious and a most enjoyable day was spent. At the close of the proceedings, on the motion of Captain J. Clayton (Director), a vote of thanks was enthusiastically accorded to Major and Mrs. Webb for their generous hospitality.

Patents and Trade Marks.—Any of our readers requiring information and advice respecting Patents, Trade Marks or Designs, should apply to Messrs. Rayner and Co., Patent Agents, of 5, Chancery Lane, London, who will give free advice to readers mentioning *The Gardeners' Chronicle.*

Obituary.

H. J. Jones.—For the better part of half-a-century the name of H. J. Jones has been intimately associated with horticultural progress. Particularly so in relation to Chrysanthemums and latterly Hydrangeas. The name will remain in the memory of horticulturists for many years to come, but alas! the man—the personality behind the name—is no more, for it is our sad duty to record the death of "H. J. J.," which occurred with tragic suddenness at Plymouth, on Tuesday of last week. Mr. Jones, accompanied by Mrs. Jones, went to Plymouth to put up an exhibit, and he was to have acted as judge at the show; he was taken ill on arrival and never recovered from the seizure. Within the limits of space at our disposal, it is difficult to record the history of one of the most remarkable men of our time. His life was one continuous struggle, and although often overtaken by difficulties, he was never beaten and rarely seen without a smile on his face. All through his long commercial life—he was seventy-two years of age—he was cheery and optimistic, and so lately as the Chelsea Show he was particularly happy when the King and Queen shook hands with him and congratulated him upon his successful display of Hydrangeas. Many years have passed since Mr. Jones and Mr. Norman Davis were associated in business as Chrysanthemum growers at Camberwell; when they dissolved partnership and sought more open country Mr. Jones returned to Lewisham, in 1890, and started the Ryecroft Nursery at Hither Green. Chrysanthemums were always his favourite flowers and not only was he a successful cultivator, raiser and distributor, but he was exceptionally clever at arranging his displays, whether at the Crystal Palace, the old Royal Aquarium, the Royal Horticultural Hall, or in the provinces. This cleverness and skill were equally noteworthy in connection with any other plant or flower he became interested in, such as Ivy-leaved Pelargoniums, Fuchsias, Michaelmas Daisies, Phloxes and Delphiniums, to mention only a few, and of all these he raised new varieties. He never put up a poor or badly-arranged exhibit. His awards included no fewer than one-hundred-and-seven Gold Medals and seventy-four Silver-gilt. Mr. H. J. Jones was a member of the Royal Horticultural Society's Floral Committee and of the Executive and Floral Committees of the National Chrysanthemum Society. Of the latter Society he was one of the oldest members and a very generous supporter, while as a judge and author, he had a deservedly wide and high reputation among Chrysanthemum lovers. His large-heartedness was proverbial; he could never resist an appeal for help and advice. In horticultural circles his charity found an outlet in the Royal Gardeners' Orphan Fund, where he was a member of the Committee from 1895 to 1905; in the latter year he retired "to make way for younger men," but in 1920 he was re-elected to the executive body and retained his interest in the work to the end of his life. Indeed, at the recent Festival, as a result of strenuous efforts and a "half-a-crown fund" he was able to add over £35 to the Chairman's list. There was a large gathering of relatives, friends and acquaintances at the beautiful Ladywell Cemetery, Lewisham, last Saturday morning, at the funeral of the late Mr. H. J. Jones. The chief mourners were: Mrs. H. J. Jones, Mr. and Mrs. Fred. Huggett (brother and sister-in-law of Mrs. Jones), Mr. R. Pulling, Mr. Charles Davis and Mr. and Mrs. H. Wood. Among those also present were: Mr. F. Streeter, representing the Royal Horticultural Society; Mr. David Ingamells, Chairman of the Royal Gardeners' Orphan Fund, and Hon. Treasurer and Vice-Chairman of the National Chrysanthemum Society; Mr. J. F. McLeod, Mr. William Howe, Mr. Thomas Stevenson, Mr. Frank Ladds, Mr. A. E. Vasey representing the National Dahlia Society; Mr. B. Carpenter, Finchley Chrysanthemum Society; Mr. A. C. Bartlett, Secretary of the Royal Gardeners' Orphan Fund and of the National Sweet Pea Society, and Mr. H. Crane. The funeral service was conducted by the Vicar of Southend Village who, in a most sympathetic address, made special reference to the great love the deceased bore for his fellow men and all flowers, and of the immense joy he found in the work he loved so well. The many floral tributes represented Mr. Jones' favourite flowers, particularly Chrysanthemums, Hydrangeas and Delphiniums. The chief Societies which sent emblems were the Floral Committee (Section A), Royal Horticultural Society; the Royal Gardeners' Orphan Fund, the National Chrysanthemum Society, the National Dahlia Society, the Finchley Chrysanthemum Society, and the members of the Lewisham Rotary Club. We join with many other friends in deepest sympathy with Mrs. Jones.



THE LATE H. J. JONES.

W. Taylor.—Just as we go to press, we learn of the tragic death of Mr. W. Taylor, of Bath, formerly of Longleat. We hope to give further particulars in our next issue.

ANSWERS TO CORRESPONDENTS.

Crops Failing.—*F. P.* It would appear that your ground is in an extremely sour condition, but without inspecting it, we cannot advise you. We would suggest that you send samples of soil taken from various parts of the garden to be tested at the R.H.S. Gardens, Wisley, from the Director of which you may obtain details.

Gardener's Notice.—*F. W.* The question of notice depends upon the arrangement made at the time of your engagement, but failing any such arrangement, it is usual to give a month's notice on either side.

Gooseberries Diseased.—*A. O.* Your Gooseberries are certainly attacked by the American Gooseberry mildew, and you are quite right in destroying them.

Melon Plant Diseased.—*J. T.* Specimen arrived in a very bad condition; the plant appears to be suffering from canker.

Names of Plants.—*W. U.* 1, Veronica virginica; 2, Spiraea filipendula; 3, Lilium Martagon; 4, Tradescantia virginiana; 5, send when in flower; 6, Lysimachia clethroides; 7, Campanula latifolia flore albo; 8, Salvia officinalis; 9, Hippophae rhamnoides; regret we cannot undertake to name florists' flowers, and suggest you send specimens to the nurseryman who supplied them.—*Sheila.* Rose not recognised; 1, Golden Privet; 2, send when in flower; 3, send better specimen, when in flower; 4, Pittosporum tenuifolium; 5, Aegle sepiaria.—*J. S.* Lycaste Deppei; 2, Panicum plicatum; 3, Zephyranthes verecunda; 4, Abutilon, probably Golden Ball. *C. F. F.* Syringa ligustrina amurensis.—*W. H. M.* 1, Lithospermum prostratum; 2, Santolina Chamaecyparissus; 3, not recognised; 4, Phlebodium aureum; 5, Anthericum Liliastrum variegatum; 6, Megasea cordifolia; (second list): 1, Cupressus pisifera squarrosa; 2, Deutzia crenata fl. pl.; 3, Berberis vulgare purpurea; 4, Cornus alba Spāthii; 5, Cotoneaster sp., probably C. pannosa; 6, Muehlenbeckia complexa; 7, Cassinia fulvida; 8, Veronica salicifolia; 9, Rhododendron, sp. not recognised; 10, Euonymus japonica microphyllus; 11, Potentilla fruticosa; 12 (?) probably Rhododendron hirsutum; 13, Cistus ladaniferus; 14, Pernettya mucronata.

Nectarine Pine Apple.—*W. H. W.* From the condition of the leaves it would appear that the soil is either sour or water-logged. You can do nothing with the trees until the autumn, when the borders may be attended to, drainage improved, and lime added. A dusting of powdered lime, raked into the border and watered in, may be of assistance now.

Communications Received.—C. E.—J. G. W.—F. J. C.—T. W.—M. W.—C. J.—W. L.—J. P.—W. F. S.—A. C. H.—A. T. J.—A. L.—W. D.—T. W.—S. H. B.—W. S.—H. C.—A. T.—C. M. H.—G S. L.

THE
Gardeners' Chronicle

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.1°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, July 25, 10 a.m. Bar. 32. Temp. 75°. Weather, Warm but overcast

The Tundra Flora of Russian Lapland.

Professor R. Ruggles Gates, who recently returned from a voyage of botanical discovery up the Amazon, has now written an entertaining and extremely interesting series of notes on a journey in the opposite direction—namely, to the Tundra of Russian Lapland.* His destination was Khibiny, the most northerly plant-breeding station in the world. This station, at which the breeding of plants of economic value is practised, lies within the Arctic Circle in latitude 67° 44′, or there about. In spite of the rigours of the climate which obtains in these frigid and windswept regions, many vegetables can be grown during the short summer. The Strawberry flourishes and its fruits grow to a large size—sweet are the uses of adversity! The Potato, Beet, Sugar Beet and Radish are all under trial, but with what results is not stated. Oats may be grown for fodder but fail to ripen in the short season of growth. So energetic, and as it would seem, sanguine, is Dr. Lichfield, the Director of the Station at Khibiny, that Flax, Hemp, the Castor Oil Plant and even Cotton and Maize are being tested. Cotton grows to no mean height and then promptly gives up the struggle and dies. Maize was observed which had reached two inches in height, but whether this is the best that it can do is not stated. The primary object of the Station appears to be to discover or breed plants which may be of service to those settlers who, aided by Goverment grants, can be induced to tempt fortune in these arctic regions. Each colonist receives a Government grant of £200, but the number of those who have availed themselves of this opportunity for Arctic colonisation is not metioned. The summer at Khibiny comes very near that libellously and inferentially ascribed by Byron to that of this country,—the English winter ends in July to begin again in August. There, summer begins in the middle of June and lasts from ten to eleven weeks. June frosts occur, autumn rains begin in August, the winds generally blow at any time of the year at the high rate of forty miles per hour. Then in October it begins to snow, and in November the lakes are frozen. Mosquitos flourish during the summer, but they cease from troubling by the end of August. From three hundred to four hundred species of flowering plants constitutes the flora of these Lapland Tundras. Of trees on the lower slopes of the hills are Pinus sylvestris var. lapponica and Picea obovata, the eastern form of P. excelsa. There are also small Birches, Betula pubescens and B. verrucosa, and B. nana occurs on the moors and increases in numbers on the upward mountain slopes. Calluna vulgaris and several Vacciniums make up the undergrowth, and among these moorland plants are to be found Rubus saxatilis, Ledum palustre and Epilobium angustifolium. At yet higher levels the Spruce, Picea obovata reacts in a curious fashion to the frigid conditions. On the south side only of such trees masses of branches arise from the roots, as a set-off, no doubt, to the death of the tree's top. Ascending yet higher, the common Juniper is found and the Arctic herbs, Linnaea borealis and the blue-flowered Geranium pratense. Above the tree line are Pinguiculas, P. vulgaris, and P. alpina, occasional Ferns in sheltered rock clefts, and Birches two feet high. Although the tree habit is lost—the winds see to that—trees in creeping form persist on the higher levels, and among these Godetia alpina flowers and sets seed. Linnaea borealis, which, as Dr. Gates remarks, grows in Canada in deep shade, comes out into the open on the mountain tops, surviving there with Saxifraga oppositifolia as its almost only companion. Yet further north the mountain flora comes down to the sea-level and, indeed constitutes the only vegetation. Along the shores of the lakes are not a few flowering plants, Silene acaulis, Papaver radicatum var. lapponicum, with large, yellow flowers, Saxifraga aizoides and so forth. These plants would seem to be very much at home for, strange to relate, they all flower twice during the ten to eleven weeks of summer. Necessity is the mother of invention, and the scanty supplies of natural fodder have compelled the settlers to turn to other sources for cattle food. Tree hay is made from young fifteen-feet tall Birches. The trees are cut two feet above ground level, and the small branches are left to dry. Branches and leaves serve as winter keep for sheep, but cows, more fastidious, will only take the leaves mixed with hot water and Rye meal. They receive, however, a supplementary winter ration of fish entrails, which impart a decided flavour to the milk. Sheep, as well as reindeer, become carnivorous in these regions. The latter pursue and feed on lemmings; the sheep make short work of dead seals left on the shore after their skins have been removed. Each of the chief animals has a cycle. When fruits are abundant birds increase; then it is the turn of the shrews, then the lemmings, whose flesh becomes transformed into fox flesh, which makes meat for the bears. The animal cycle seems to coincide with the eleven-year cycle of sunspots, and apparently this rhythmic development of successive forms of life is nowhere so evident as it is within the Arctic Circle. For a colonist who would find sustenance in enquiring into the nature of things, this northern Arctic station would seem to offer many attractions, but the less inquisitive might well wait until success in breeding Arctic vegetation had been consummated before accepting the £200 bounty, even though, as Dr. Gates points out, it need only be paid back in part and without interest in the course of ten years, and albeit that the land is also given and may be bequeathed to the settler's descendants.

Mr. George Forrest,—The many admirers of Mr. George Forrest, the celebrated traveller and plant collector, will be glad to know that he is progressing satisfactorily after undergoing an operation. We sincerely hope that Mr. Forrest's health will soon be fully restored.

Mr. Charles Bennion's Gift to Leicester.—Mr. Charles Bennion, of Thurnby Grange, Leicester, has purchased and presented to the public, Bradgate Park, Leicester. The park covers an area of nine hundred acres and contains the ruins of the house in which Lady Jane Grey was born. Mr. Bennion states that he bought the park to save it from being used for building purposes.

British Bulbs.—We learn that a further grant is to be made from the Empire Marketing Fund for the planting of British-grown bulbs, and it is hoped that next spring a display will be provided outside London, possibly in Scotland. The Empire Marketing Board is also comtemplating an intensive advertising campaign for British-grown bulbs.

Ken Wood.—On Wednesday, July 18, the London County Council formally took possession of the Ken Wood estate, an area of seventy-four acres, which together with Ken Wood House were bequeathed to the public by the late Lord Iveagh. Thus the preservation of all Hampstead Heath as public property has been assured; and the house will serve as a gallery for the pictures left by Lord Iveagh to the nation.

Blister Rust of White Pines in U.S.A.—The value of the White Pine and Sugar Pine timber in the United States is estimated at 550,000,000 dollars, and in addition there are several million acres of young trees which will become valuable timber in the future, so that the rapid spread of the blister rust fungus during recent years is viewed with no little alarm, and federal, state, and private agencies are urged by the United States Department of Agriculture to co-operate in a united effort to accomplish control of it. They are advised to destroy all Currant and Gooseberry bushes within infecting distance of the Pines, nine hundred feet is regarded as an ample protective distance, as these form part hosts of the disease.

An Old Dublin Florist.—Much interest and curiosity has been aroused in Dublin through the demolition of a shop-front exposing an old Oak beam, upon which the house rests, bearing the name, in large, gilded letters, "Grimwood and Son, Nursery and Seedsmen." The evolution of the firm appears to be as follows:—In 1792, John Grimwood was established in business; about 1830 the firm is referred to as John Grimwood and Son; in 1835, as George Grimwood and Son, and, finally, in 1844, as Grimwood and Son. The shop at 1, Charlemont

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* Notes on the Tundra of Russian Lapland by R. Ruggles Gates, *Journal of Ecology*. Vol. XVI. Feb. 1, 1928.

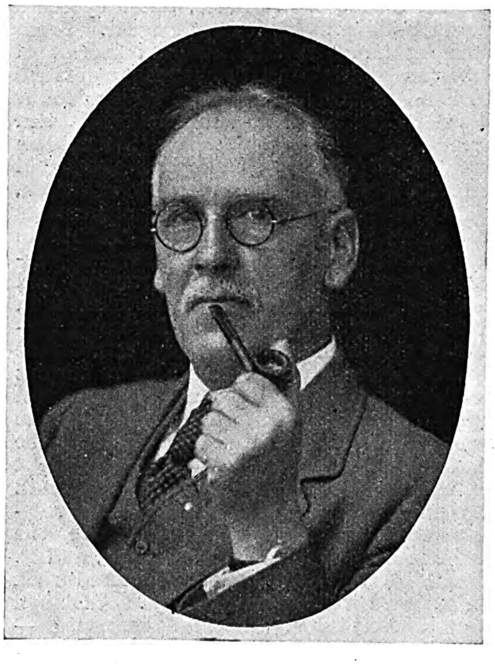
Street, once a fashionable area—now a deplorable slum—has since been used as a grocery and provision store, and latterly as a pharmacy. What a sequence—plants of the vegetable kingdom giving place to the materials made from them into foodstuffs and medicines. The nursery has been traced to Rathgar, Dublin, now a good residential suburb. Part of the wall and the arched entrance, long since bricked up, remain. Some old Pear trees hanging their branches over the pavement below bore good crops of fruits until two years ago. In the vicinity is to be seen an old specimen Fig tree situated, possibly, along the original boundary wall; for it is reasonable to assume that a nurseryman with a shop in so good a vicinity had an extensive nursery. The curious thing is that no one appears to have ever heard of the firm before, the only data available being through the medium of old directories and traders' lists. The name of Grimwood is uncommon, as it does not appear in the *Dublin Directory* for 1928. Those leaders of Irish horticultural commerce with a memory of more than half-a-century state that in their early days the nursery of note was Fergus Farrell's. However, Fergus and his nursery have departed. It is interesting to speculate on the many fine plants grown by Messrs. Grimwood and which are rarely seen nowadays. We can imagine John Grimwood, possibly a gardener with commercial instincts, plodding to establish a connection. George Grimwood, his son, would be an astute business man, eager to build upon the foundations laid by his father, and then comes the third generation, reaping the good of others' work, but possibly lacking the energy required to keep pace with competition and modern developments, for after 1844 we find no trace of this firm. "Out of the imperfections of his senses, Man has built a raft of thought to adventure into the seas of the Unknown. Where visible light ends, he still follows the invisible; where the note of the audible reaches the unheard, even there he gathers the tremulus message." (Sir J. Bose).

Census of Woodland of Great Britain.—The *Report* of the Forestry Commission on the census of woodlands and production of home-grown timber, 1924, gives the total woodland area of Great Britain as 2,958,672 acres, including 478,106 acres bare of timber and included in the category "felled" or "devastated." Of this total, there are 1,630,987 acres in England; 253,461 acres in Wales (including Monmouth); and 1,074,224 acres in Scotland. In England, there are 195,231 acres of Conifers, 338,456 acres of hardwoods, and 220,390 acres of mixed Conifers and hardwoods; making the total area of high forest, 754,077 acres. In Wales the respective areas are 46,940 acres, 43,957 acres and 22,106 acres, making a total high forest area of 113,003 acres; and in Scotland, 429,670 acres, 60,941 acres, and 59,199 acres, in all 549,810 acres of high forest. The total area of high forest in Great Britain is given as 1,416,890 acres, or 47·9 per cent. of the total woodland area.

Progress of Horticulture in the United States.—The increase of interest in gardens and gardening in the United States of America is well demonstrated by the *Report* of the Committee of Arboretums and Botanical Gardens, placed before the American Association of Nurserymen's Convention, held at Denver, Colorado, during June. The Editor of an American contemporary reported the establishment on the average of one new garden club a week, and it was suggested that the movements now in progress toward the development of arboreta and public gardens, in comparison to the present rate of growth of public interest in matters horticultural, are for the most part slow and inadequate.

Admiralty Horticultural Society.—It is a pleasure to record the steadily growing interest in horticulture as evidenced by the increase in the number of flower shows held in connection with Government Departments, the larger banks, insurance offices, and the like. For many years past the departments of the General Post Office have held exhibitions, and the exhibitions of the Prudential Assurance Company are well-known. The latest addition to such shows is the one held on July 24 at the Admiralty, Whitehall, by the Admiralty Horticultural Society. We had the privilege of looking in and found a splendid display of Roses and hardy flowers, and quite good exhibits of Peas, salads, collections of vegetables and hardy fruits. The class for a "bunch of flowers," open only to the women typists, resulted in such a wonderful display and so many entries that the judges awarded seven prizes instead of the prescribed three.

Mr. George Dillistone.—Mr. G. Dillistone comes of a family with horticultural associations extending back many generations, and there is a tradition that a member of the family worked with Le Nôtre. His father certainly spent a period under Sir Joseph Paxton, and his grandfather was evidently a keen plantsman, as there exists copious notes on plants that came under his notice about the year 1830. Among these are descriptions of Potentilla atrosanguinea, P. formosa, Aquilegia glandulosa, Clematis florida, etc., etc. There is also a volume of an old gardening dictionary published in 1728, scribbled all over with his revisions, additions and notes; he was also responsible for sending out the Pea that was for many years a most popular early sort, as Dillistone's First Early. Perhaps the most emphatic impression he made on horticulture was the raising and distribution of the Sturmer Pippin Apple. An uncle took the stock of this Apple with him to Tasmania about eighty years ago on a sailing ship, when the journey sometimes occupied more months than it does weeks now, and this was in fact the foundation of the Tasmanian Apple growing industry. With such antecedents it is not surprising that gardening and its attractions in one form or another should prove dominant in the present generation. Acting on his father's advice, Mr. George Dillistone spent his earlier years in acquiring knowledge in all branches of horticulture. A few years were spent in various nurseries, beginning at home, and with Mr. T. K. Ingram, Parkstone, Dorset; for two years he was engaged in the wholesale seed establishment of Messrs. Watkins and Simpson (then of Exeter Street), and Messrs. Hurst and Son. At the same time his father suggested that architectural garden design and landscape gardening was the career for which he was peculiarly fitted, and to this he finally turned. Many members of the gardening world became acquainted with him as manager of the landscape and garden design department of Messrs. R. Wallace and Co., and from 1907 onwards we remember him as a very tired man when the big shows, such as Chelsea, Holland Park, etc., opened. Appointed a director of the firm in 1919, after his return from Baghdad and the East (where he served as surveyor in the Royal Engineers), he continued in this position until 1925, since when he has pursued his calling in landscape and garden design independently. He was among the first thirty members who formed the nucleus of the Iris Society, and on the death of Mr. W. R. Dykes he was appointed Honorary Editor of the Society's publications, and although a very busy man (trips to Scotland, Cornwall, Isle of Wight and Wales within a month is an example of how he spends his life) somehow found time to organise the Iris Society's show in June last. As an occasional contributor to these pages and most of the contemporary horticultural publications, his name has become familiar to most garden lovers. We congratulate him upon the recent issue of the Iris Society's *Bulletin*.



MR. G. DILLISTONE.

Kew v. Cambridge.—A team of the Royal Botanic Gardens, Kew, Cricket Club visited Cambridge on July 14, to play against the Cambridge Botanic Garden Cricket Club. The game was played on Downing College Cricket Ground, and resulted in a win for the home team, thus reversing the result of the game played a year ago, when Kew won an exciting match by six runs.

R.H.S. Gardens Club Outing.—On Saturday, July 14, members of the R.H.S. Gardens Club visited Brighton and had the opportunity of seeing what labour a well-run public parks service really involves. They were conducted round the numerous parks, gardens, playing fields and nurseries by the Superintendent, Captain B. H. MacLaren, who proved an admirable guide, and who has raised the standard of municipal gardening to a very high level. The public gardens of Brighton are very tastefully laid out and admirably maintained, and successful attempts are being made to provide all parts of this rapidly growing town with easily accessible places of rest and recreation. Owing to the undulating character of the ground, the making of sports fields is costly and laborious, but the need is being met with marked success, particularly at the very large new sports arena on the outskirts of Brighton. Many of the gardens are quite new, and it is surprising that such good effects have been produced in so short a time. The Corporation is to be congratulated on acquiring so much of the lovely surrounding downs and thus preserving the amenities of the town for all time. Lunch was served in the Royal Pavilion Restaurant, and the Club was entertained to tea in Preston Park by Captain MacLaren, who was cordially thanked by Dr. F. V. Darbishire and Mr. M. A. H. Tincker (Vice-Presidents). At the subsequent annual meeting, Mr. F. J. Chittenden, Director of Wisley, was elected President of the Club for the coming year; Mr. F. Streeter was appointed Treasurer in succession to the late Mr. Frank Reader, and Mr. J. Fraser was re-elected Editor of the Club *Journal*.

Royal Botanic Society's Gardens, Regent's Park.—We learn that the Government has decided to take over, through H.M. Office of Works, the Royal Botanic Society's Gardens at Regent's Park, on the expiry of the lease, in 1932. Meanwhile, Lady Houston has given the Society £3,000 to enable it to keep the Gardens going until the lease runs out.

Horticultural Exhibition in Geneva in 1929.—The exhibition to be organised by the Geneva Horticultural Society is to take place some time during the month of September, the exact date not being yet fixed. In connection with the exhibition will be held the Estalla Competition, this being an international event which takes place every four years. It was instituted by means of a legacy left by a M. Marc Estalla, an amateur horticulturist, consisting of 15,000 francs, the interest of which goes to provide prizes for classes in floriculture, Conifers and horticultural sundries. Entries have to reach the Secretary, M. F. Lenglet, Case Postale, Stand No. 557, Geneva, before August 15, 1928.

Australian and Tasmanian Apple Exports.—The last shipments of this season's Australian Apples are coming along. They will not finish until the end of the month, but it is already certain that they will exceed the estimates and create a remarkable record. The latest available figures of actual shipments to this country since the first consignment arrived at the end of March approximates to 4,000,000 (four million) bushels, as against 1,500,000 last year (which was a very bad season), and 3,000,000 in 1926, which was an average year. Of this 4,000,000 bushels, fifty per cent. comes from Tasmania. Last year, Tasmania shipped something like ninety per cent. of the total, and in 1926 between sixty per cent. and seventy per cent. New South Wales actually produces nearly as big a quantity of Apples as Tasmania, but her domestic consumption is immense, and does not leave much for export. The following are the production and export figures:—

	Actual Production in Bushel Cases.	Exported to U.K.	Exported to Continent.
Victoria	2,800,000	581,500	203,000
Tasmania	4,000,000	1,840,000	160,000
S. Australia	1,000,000	350,000	50,000
W. Australia	300,000	30,000	115,000
N. S. Wales	1,000,000	50,000	—
TOTAL	9,100,000	2,851,500	528,000

The quality of the fruit has been averagely good. One or two new varieties have been introduced, but these are not encouraged. The trade prefers to stimulate the production in greater quantities of the old-established and popular varieties. The favourite Apple is the Granny Smith, a green Apple which "eats" much better than it looks. Export trade to the continent has grown immensely of late. It began only a very short time ago, but Australian Apples are already in widespread demand in Europe, particularly in Germany and the former territories of Austria. Very careful attention is being paid to the question of transport. Scientific enquiry into the question whether the vitamin value of the Apples is decreased by refrigeration has produced no very definite results, but it appears to have been established that fruit grown under conditions of hot, bright sunshine are particularly rich in vitamins.

Legacy to a Gardener.—The late Mrs. Margaret Jane Ridley, of Broughton Hall, Rugeley, Staffordshire, who died on May 27, left £200 to her gardener, Mr. William Tatlow.

Dried Sugar-Beet Pulp.—Sugar-beet pulp is a valuable feeding by-product in the manufacture of Sugar Beet. It is usually dried at the factory and sold to the farmers of the district or exported. In previous years, a good deal of it has been sent abroad, but farmers have learned to appreciate its merits as a food for stock. Those who supply the factories with Sugar Beet are given the first chance to buy back the pulp, and it appears that most of it for next year is already contracted to be sold to them. This is certainly good news, as it is a mistake to let good feeding material go abroad to foreign competitors. Last season, the total production of dried Sugar Beet pulp from the factories was over 90,000 tons, of which 66,000 was sold within the country at prices from £4 2s. 6d. to £5 a ton, ex factory.

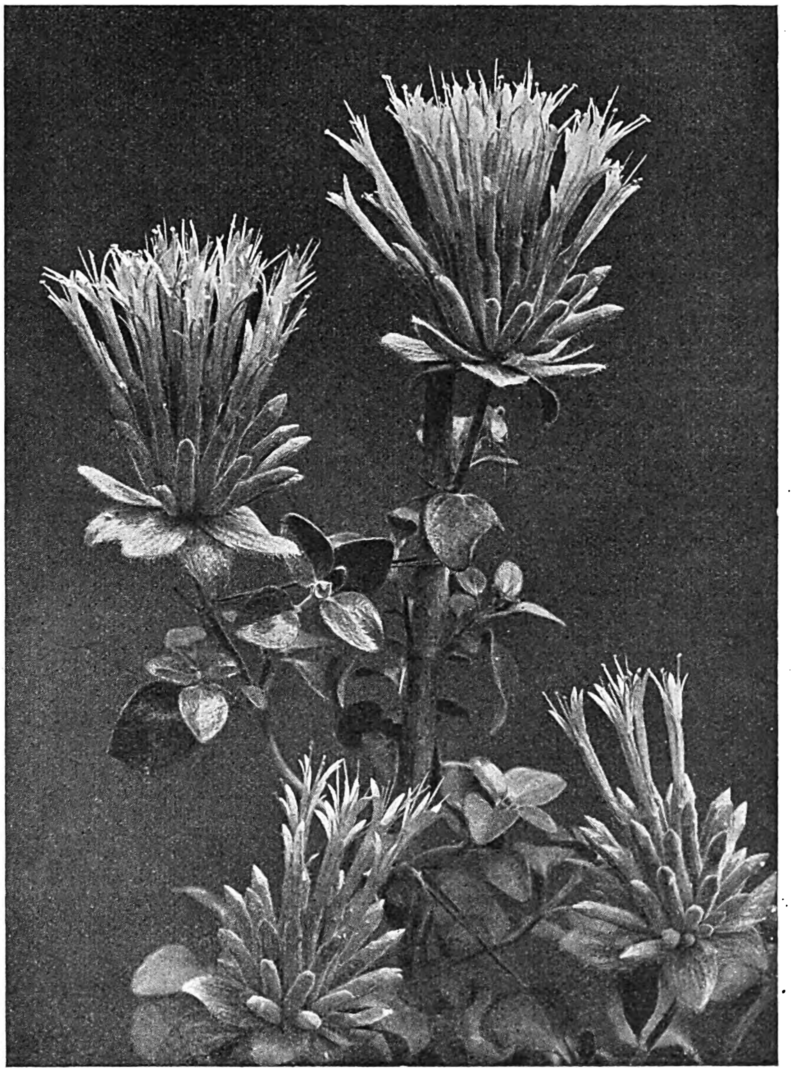


FIG. 26.—MONARDELLA MACRANTHA.
R.H.S. Award of Merit, July 18. Flowers scarlet. Shown by Mr. T. Hay, Hyde Park. (see pp. 58 and 69).

Grimsthorpe Castle Gardens.—By permission of the Earl of Ancaster, the extensive gardens at Grimsthorpe Castle, Bourne, Lincolnshire, will be opened to the public on Thursday, August 16, Saturday, August 25, and Wednesday, September 5, in aid of the Queen's Institute of District Nursing.

Scottish Society for Research in Plant Breeding.—At the annual meeting of this Society, held at East Craigs, Edinburgh, Mr. James Elder, Chairman of Directors, who presided, explained that on the suggestion of Mr. William Cuthbertson, they had approached the Empire Marketing Board for a grant in aid of an investigation into virus diseases of the Potato, and in a letter received from the Board of Agriculture intimating approval of the proposed scheme, it was stated that, subject to the funds being provided by Parliament, it was prepared to make a capital grant not exceeding £4,450 towards the cost of the buildings and equipment, and a maintenance grant not exceeding an average of £1,430 per annum for five years. The letter also stated that the revised proposals for the appointment of additional staff had been approved, subject to certain conditions regarding salaries.

Appointments for the Ensuing Week.—MONDAY, JULY 30: Harrogate Horticultural Association meets. TUESDAY, JULY 31: Royal West Renfrewshire Horticultural Society Council meets; Royal Horticultural Society Committees meet; Sundridge and Brasted Horticultural Society's exhibition. WEDNESDAY, AUGUST 1: Nottingham and Notts. Chrysanthemum Society meets; Scottish National Sweet Pea, Rose and Carnation Society's exhibition (two days); Dorset Horticultural Society's exhibition (two days). THURSDAY, AUGUST 2: Royal Lancashire Agricultural Society's exhibition (four days). FRIDAY, AUGUST 3: Bridport Chrysanthemum Society meets. SATURDAY, AUGUST 4: Blackburn Horticultural Society meet and lecture; Peel Park Flower Show (and 6); Manchester and District Pansy and Viola Society's show; Cummock Sweet Pea and Carnation Society; Lockerbie Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Use of Dried Scotch Fir Leaves.*—It may not be generally known how useful an article the dead leaves of the Scotch Fir may be to gardeners and others, in many parts of the country where they are abundant, for plunging pots in during winter; where plants require protection, they will be found as good in resisting frost as many substances that are used for that purpose. The most of your readers require fire-heat the greater part of the year, as well as many of our plants, and it is often an object of some importance to have a fire speedily lighted; the fall of the Fir leaves is early in the season, when the days are long and the weather warm; rake them together when they are in a dry state; a sack or two of them, well packed, and kept in a dry place, will serve a long time for lighting fires in furnaces or dwelling-houses. When a fire is wanted, take two or three handfuls of the leaves and place them in the grate, applying a lighted match to them, and the sticks and the coals laid upon them will soon be in flames. Fir leaves, I believe, would make very poor manure, but by burning them, the resin will be set at liberty, and a small quantity of potash and other salts may be obtained among the ashes. *P. Mackenzie Gard. Chron., July 23, 1853.*

Publications Received.—*The Journal of Pomology and Horticultural Science*; Headley Brothers, 18, Devonshire Street, Bishopsgate, E.C.; price 7/6. *The Journal of the South-eastern Agricultural College, Wye, Kent*, edited by S. Graham Brade-Birks; Headley Brothers, 18, Devonshire Street, Bishopsgate, E.C.; price 8/6; residents in Kent and Surrey, 4/6.—*Empire Marketing Board, May 1927 to May, 1928*; His Majesty's Stationery Office, Adastral House, Kingsway, W.C.2; price 1/- net. *Les Ravageurs des Arbres Fruitiers*, edited by Maurice-Mendel; Librairie Spéciale Agricole, 58, Rue Claude-Bernard, Paris.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

Brassia verrucosa.—This well-known, free-flowering and showy Orchid commences to grow after the flowers are over, and produces fresh roots from the new growths, at which stage any necessary repotting may be done. Being a robust grower, it requires ample pot room and a compost of Osmunda and A.1. fibre, used in a fairly rough state, with chopped Sphagnum-moss, crushed crocks and charcoal. Firm potting is essential and the plants grow well in a humid and buoyant atmosphere in the intermediate house. Syringe frequently between the pots during warm weather, and water sparingly until the roots are well established in the new compost, when ample supplies are needed until growth is complete, after which only sufficient water is required to keep the bulbs in a normal state. Scale insects often attack the plants and should be removed by careful sponging so soon as detected. The sweetly-scented Brassia Lanceana, and the distinct B. Lawrenceana, with its beautiful variety longissima, are now showing flower spikes and require plentiful supplies of water at the roots. During very hot weather the plants should not be placed close to the roof-glass, for the leaves are often injured by direct sunshine. It is not advisable to allow the late-flowering Brassias to carry flower spikes unless they are strong and healthy, for the flowers remain in perfection for a considerable time. The smaller and earlier-flowering B. maculata is growing fast and requires copious waterings until growth is completed.

Pleiones.—Specimens of this well-known genus of deciduous Orchids (usually known as the Indian Crocuses), such as P. lagenaria, P. maculata and P. praecox, are now in full growth, and those that are well rooted should receive copious supplies of water at the roots, while occasional applications of weak liquid manure may prove beneficial at this season. So soon as the foliage is fully matured feeding should be discontinued and water gradually withheld as the leaves fall. Pleiones thrive when suspended in a light, airy position at the cool end of the intermediate house, and during bright weather the undersides of the foliage should be syringed to keep red spider in check. After the leaves have fallen only sufficient water is needed to prevent the bulbs shrivelling. The plants usually flower after a short rest, and care is needed to prevent water from collecting in the new growths and causing decay.

THE KITCHEN GARDEN.

By Allan Falconer, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Radishes.—China Rose and Black Spanish Radishes may be sown now for winter use, when it is difficult to produce the smaller varieties. Frames from which early Potatos have been lifted should suit them, and the seeds should be sown thinly, while the beds should be kept fairly moist.

Herbs.—The drying of various herbs for use during the winter may now be attended to; such herbs as Sage, Thyme, Tarragon, Mint, Marjoram and Parsley are among some of the more useful for this purpose. Parsley is best gathered when there is a plentiful supply of large leaves, and if the beds are cut over at intervals, the resultant crop should be in good condition to withstand the frost and snow of winter. The leaves should be dried slowly on a rack over a kitchen oven, after which they may be crushed and put into airtight bottles. The other subjects may be tied in bunches and hung in an open, airy shed. It is not advisable to cut Sage and Thyme too closely, as by so doing the plants are weakened and do not withstand the winter. Dried Mint, mixed with some green Mustard, chopped fine, makes a good substitute for the green leaves when these are not procurable. All freshly-planted beds of herbs should be kept well supplied with moisture, and the free use of the Dutch hoe is necessary. A mound of good soil placed in the centres of good bushes of the broad-leaved Sage and Thyme, should encourage the branches to produce roots for dividing and planting the following year.

Harvesting Shallots.—If hot, dry weather prevails, Shallots should be lifted and dried on the ground, but it may be necessary to complete the ripening under shelter, as these subjects should be well ripened if they are to keep for any length of time. The tops of autumn-sown Onions may now be bent over to facilitate ripening.

Marrows.—The cold, wet and sunless weather experienced in the north during June and early July was very detrimental to the growth of all vegetable crops, and especially Marrows growing in the open, and with the advent of better weather every attention should be given to the latter to assist them to make growths and produce fruits, by supplying plenty of moisture at the roots, feeding with liquid manure and keeping the points of the growths pinched out. Dried blood manure is excellent for Marrows that are producing fruits.

PLANTS UNDER GLASS.

By J. Coutts, Assistant Curator, Royal Gardens, Kew.

Gloxinias.—As the Gloxinias pass out of flower they should be placed in a cold frame and watered regularly until the foliage shows signs of dying, when water should be withheld gradually. During the summer months these plants are subject to attacks of thrips and Begonia mite, and measures should be taken to combat or prevent both these pests. Gloxinias are very useful summer decorative subjects, and it is surprising that they are not grown more generally for this purpose, for if so desired they may be treated as annuals.

Muehlenbeckia platyclada.—This plant is very useful for growing with flowering plants in the conservatory or greenhouse, or for general decorative work indoors. For this purpose a succession of young plants should be maintained, for it may be increased at any time by means of cuttings, which are rooted easily in a warm propagating case. It grows freely in an intermediate temperature, and useful plants may be secured in five or six-inch pots.

Prostranthera rotundifolia.—An excellent plant for the cold greenhouse, this subject is nearly hardy in the south, if planted at the foot of a warm wall. It may be propagated by means of cuttings inserted now, selecting for this purpose the half-ripened, twiggy side-shoots. They should be placed in pots of sandy soil and stood in a case, or under a bell-glass, in a cool greenhouse. The young plants may be potted on as they require it, using a compost of light loam, to which a little fibrous peat may be added, with sufficient sand to keep the whole open and porous; they should be potted fairly firmly. This plant should break naturally, but if any shoots grow too rapidly it may be necessary to stop them. Plants raised now should make good flowering examples in five- or six-inch pots next year. If so desired they may be grown on into large specimens. Such plants should be stood out-of-doors in an open, sunny position during the summer to ripen the growths well, and if they are planted out in a bed or border in a cool conservatory, they soon make large specimens.

Corydalis thalictrifolia.—This is another useful subject, for it has graceful foliage and is very free-flowering; it is also useful for house decoration for it remains in good condition even under London conditions. It is easily raised from seeds which, if sown now in a cool greenhouse, provide a useful batch of plants for next year. Its successful cultivation presents no difficulties as it responds to ordinary greenhouse conditions and grows freely in any good potting compost.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Early Pot Figs.—So soon as the early pot Figs have been relieved of their crops, they should receive attention with regard to preparing them for fruiting next season. While some trees may require repotting, others may only need a good top-dressing of rich soil. Exhausted trees should be repotted in a compost of rich loam, with bone-meal, burnt earth and mortar-rubble added; the latter tends to keep the compost open. It is essential that trees required to produce crops early next season should not be allowed too much root space, therefore only those trees which show signs of exhaustion should be dealt with in this manner, and those so treated should be allowed to remain in a cool house for a short time, and careful attention should be given them with regards to watering and spraying. When the trees have become established in the new soil they may be stood out-of-doors in a somewhat sheltered place, plunging the receptacles in ashes to rather more than half their depth. Trees that were not repotted should be fed judiciously with liquid manure during the growing season and the foliage sprayed late each day with rain-water, to keep red spider and other insect pests in check.

Early Figs in Borders.—These trees should now be producing their second crop of fruits, and during this period they require extra attention, especially during hot weather, in respect to watering and feeding. Figs are generally grown in restricted borders, hence the necessity for keeping a watchful eye on their requirements at the roots. If the trees are grown well they not only produce two crops in one season but are practically perpetual-fruiting, but this condition may only be obtained by judicious thinning of the fruits and strict attention to pinching of the young shoots at intervals. During hot weather, the trees should be syringed vigorously late in the afternoon.

Tomatos.—If it is desired to have a crop of Tomatos early in the new year, there is yet time to sow the seeds. The seeds should be sown in warmth to ensure the quick germination of them, and so soon as the seedlings may be handled they should be placed singly into small pots and stood near the roof-glass to keep them short and sturdy. When they are well established they may be hardened gradually and grown under cooler conditions.

HARDY FRUIT GARDEN.

By T. E. Tomalin, Gardener to the Earl of Bessborough, Stansted Park, Emsworth, Sussex.

Figs.—The final thinning out of the new growths on outdoor Fig trees should be completed and those left to carry next season's crop, or to extend the branches, should be tied into place in order to allow the rapidly swelling fruits to receive all the available sunshine. An occasional soaking of the root area with well-diluted liquid manure should greatly assist the final swelling of the fruits. If birds or wasps are troublesome, the fruits should be enclosed in bags made of hexagon netting as they approach maturity. The trees should be examined daily, and as the ripe fruits are gathered, the bags may be transferred to the other fruits as these develop. In this way the whole crop may be saved without the trouble and inconvenience of netting the trees.

Early Apples and Pears.—Early varieties of dessert Apples, such as Mr. Gladstone, Beauty of Bath and St. Everard, are appreciated more if eaten soon after being gathered, because they loose flavour and become mealy when stored. Therefore the trees should be examined at frequent intervals, and the ripest fruits gathered and used when ready. Early dessert Pears, on the other hand, such as Williams' Bon Chrêtien, Jargonelle and Souvenir de Congres, require a few days in a cool fruit-room to mature them properly, but, as these early varieties do not keep long when they are ready for use, the season may be prolonged for these also by picking them a few at a time. Usually it will be found that those at the top of the tree, and at the extremities of the branches, become fit first, and their condition may be ascertained by gently raising the fruits to a horizontal position when, if ready to gather, they will part readily from the spur.

Raspberries.—When the crop has been cleared, the old canes should be cut out at the base and the new canes tied into position. If, owing to drought, growth is backward, a sprinkling of fertiliser should be applied along the rows and well watered in. Work the Dutch hoe frequently between the rows to keep down weeds and to conserve moisture in the soil by maintaining a fine tilth on the surface. There is no greater aid to growth than that provided by the regular use of this implement.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to the Duke of Devonshire, Chatsworth, Bakewell, Derbyshire.

Violets.—The recent dry spell has been very trying for Violets, and incidentally emphasises how necessary thorough preparation of the ground is for their successful cultivation; deep digging or trenching is the best method of ensuring this. Keep the hoe in constant use to ensure a fine tilth on the surface; this should conserve the moisture in the ground and economise the labour in watering. Apply water only if the plants are in danger of suffering from drought. When water is applied, a thorough soaking should be given; driblets are harmful. After watering, use the hoe the following day, so soon as the surface is dry enough to work on. If allowed to suffer from drought, Violets quickly become infested with red spider, which is probably the worst pest the Violet-grower has to contend with, and which, if not taken in hand at once, may ruin the plants for the season. During continued hot and dry weather the plants will be much benefited by light sprayings in the evenings, and if dusted at intervals with old soot (when the foliage is damp) this will be a great help in combating red spider. Care should be taken that the underside of the leaves are dusted. Keep all runners pinched off as they appear, all the energies of the plant being thus directed into building up strong crowns to produce fine flowers from October onwards, if transferred to frames carefully in September.

Dahlias.—Stake Dahlias as they require it and thin the shoots on old plants where necessary. Tie the main stems securely to the stakes, but allow the plants plenty of room for development. Keep weeds down by the constant use of the hoe, and mulch round the plants if the hot weather continues. Keep a sharp look-out for slugs, caterpillars and earwigs which quickly do harm to the tender shoots.

Herbaceous Phloxes.—See that the strong growths of tall-growing Phloxes are given supports as necessary. If left unsupported, the most promising growths are very liable to snap off at the base in stormy weather, with the consequent loss of the flower spike. It is most disappointing after a storm to find the best spikes broken or damaged, when a little timely attention would have averted the trouble. Herbaceous Phloxes require very liberal treatment at all times to ensure the best results, and during hot and dry spells they should be well watered whenever necessary. Very few plants feel the effects of drought so quickly. Hoe the beds the day following the watering and apply a mulch if possible. Thoroughly established clumps show up well in mixed herbaceous borders, but where a special feature is made of them, separate beds or borders, where they may receive individual attention, are much the best and ensure the best results.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener at Jordanhill Training Centre, Glasgow.

Herbaceous Borders.—Many of the early-flowering herbaceous plants are now over for another season, and the removal of their spent flowers, and in many cases seed-pods, should receive attention. Pyrethrums have been particularly good this season, and where an increase of these useful flowers or any specially good variety is desired, the stems which carried the flowers may be cut down to about six inches from the base, and then jerked out one at a time from the clump. If this operation is performed properly each stem may be found to have numerous buds (dormant or otherwise) at its base, and if they are inserted not too deeply in sandy soil, these should soon root and form useful plants for setting out within a comparatively short time. Many other herbaceous plants may be increased in a similar manner, and others such as Irises and Primulas, if divided now and replanted on well-enriched sites, and, if not allowed to suffer through lack of water, should soon become established. The staking of late-flowering subjects should also receive attention, and if not already done, the growths of many kinds of Asters, Phloxes and other subjects should be thinned, leaving only sufficient stems to form good clumps; this thinning of growths is often neglected, but if performed in good time the results are highly satisfactory.

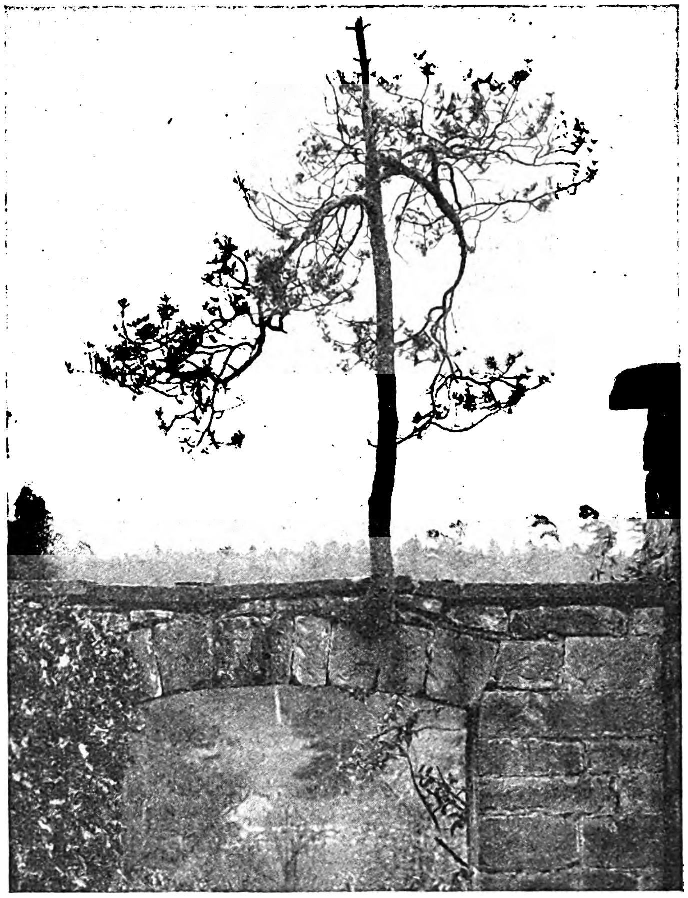


FIG. 27.—SCOTS PINE IN AN ARCH AT STANAGE PARK.
(see p. 66).

Early-flowering Chrysanthemums.—Many of the early-flowering Chrysanthemums are now setting their first buds, and every endeavour should be made to keep their growths erect by frequent attention. Where large flowers are desired, disbudding may be performed, but if naturally-grown masses of flowers are appreciated this is unnecessary. Feeding of the plants may be started so soon as the buds are formed, and if continued weekly until the time they are showing colour, should effect a marked improvement of both foliage and flowers. Applications of diluted liquid manure or soot-water alternately with a well compounded artificial manure such as Ichthemic Guano should improve these plants, and when the regular feeding ceases an application of sulphate of ammonia, applied very carefully, should bring the flowers to perfection. In wet districts, so well as in industrial areas, it is necessary to protect the blooms, and for this purpose a framework may be erected whereon sashes may be placed when the time comes, or the best of the plants may be lifted with good balls of soil and placed under these protections.

Salads.—Where the demand for salads is heavy during the autumn months, preparations should be made well in advance in order to keep up an unbroken supply. Lettuces which were sown about a month ago should now be planted out, and a further sowing made to provide useful material, if protected by frames, during the late autumn and early winter. A sowing of Endive made at the same time and thinned and transplanted when ready, should extend the season still further, and regular sowings of Mustard and Cress and Radishes should add variety to such indoor crops as Cucumbers and Tomatos.

Regal Pelargoniums.—The season of flowering of the Regal Pelargoniums is now nearing an end, and where a good batch of young plants have been grown, the plants should now be rested gradually by keeping them on the dry side for a few weeks; then they should be set out-of-doors and dried off thoroughly by laying them on their sides. Older plants may not be worth the trouble of keeping for another season, as they have a habit of going off suddenly, but if large specimens are required for furnishing vases, etc., these make splendid subjects for that purpose, and a few should be grown on for a second or third year. When the young growths have become sufficiently dried, they should be secured and inserted as cuttings to provide a successional batch for another season.

ALPINE GARDEN.

FUCHSIA PROCUMBENS.

THIS curious, prostrate-growing species from New Zealand is of doubtful hardiness, and although not always killed outright, it is invariably cut hard back by the winter frosts. Most of my plants were unfortunately destroyed by the severe weather experienced last winter, but one plant which was growing in a more sheltered position on the rock garden than the others, although badly damaged, was not killed outright. This plant has recovered amazingly and has produced numerous growths from the ground level. Needless to say, I have secured cuttings from this plant and inserted them in sand in a cold frame, to ensure against the complete loss of this quaint Fuchsia.

F. procumbens should be planted in a warm but not too sunny position where its long, slender growths, which are clothed with small, rich green, heart-shaped leaves may trail and hang over the face of a rock, and where its roots may revel in deep, loamy soil. The flowers are produced along the stems from mid-summer onwards, and although they may not be termed striking in effect, the individual blooms are singularly attractive when inspected closely. They are small and cylindrical in shape, cream-coloured and wax-like in texture, with four reflexed angular lobes at the mouth, which are of a brownish-chocolate colour, each with a green blotch. The flowers are followed by large round fruits, like deep red marbles, and when these are produced in abundance they impart to the plant a very attractive appearance. *M.*

DIANTHUS GLADYS CRANFIELD.

SINGLE Pinks of all classes, with few exceptions, are gaining popularity, and some very beautiful varieties of Dianthus plumarius so well as hybrids with other species, are well worth growing. Among the finest here is that named Gladys Cranfield, which has been flowering freely since the end of June. It is frequently grown as a border flower, but to see it at its best it should be planted almost on the level of the eye on the rock garden.

I have one or two plants in the herbaceous borders, but they do not show the charms of this variety so well as do several growing on the top of a low dry wall, flanking a flight of steps leading to the house. Here they are most delightful, with their many single flowers of a groundwork of pink, with a fine crimson zone in the centre. It is a good grower and produces plenty of foliage, which adds to the effect, while the perfume gives additional distinction to the flowers. *S. A.*

CRASSULA SARCOCAULIS.

THIS attractive little rock garden succulent often passes through the winter, but the last was, alas ! too much for it, and the severe frosts which we experienced late in the winter were responsible for its demise, at least, that was my experience. However, a few plants which I had in small pots in a cold frame which was protected with matting, came through the winter unharmed, and two of them were planted out during late spring. These have now become nice bushy plants, while the others continue to make attractive little pot plants. Those which were planted out, incidentally in the warmest position I could find for them on the rock garden, and in soil of a sandy, loamy nature, to which I added plenty of granite chips, are just commencing to open their starry, palest pink flowers, which, combined with the innumerable small red buds, make this plant a subject of distinct charm.

I do not know whether there are other members of this genus which are so hardy as this species, but if so, I should be pleased to hear of them, for the quaint attractiveness of C. sarcocaulis is such that one would wish there were more of them with which to adorn the rock garden.

This plant has always a reddish tinge about it, for the knotted growths which impart to it a gnarled and ancient appearance are brownish-red, while the small, fleshy, light rich green leaves become, during hot weather and late in the season, burnished in appearance. It is difficult to say to what height this succulent would finally attain; my plants are about nine inches high, with two or three thickened basal stems breaking into innumerable short and twisted branches, making each plant compact and bushy in appearance. Lastly, it is one of the easiest of plants to increase, for if the short growths are pulled off and inserted in pure sand, either under a bell-glass in the open, or in a cold frame, each one should produce roots quickly, and in a very short period make useful plants.

Information as to its native land and the natural conditions under which it grows is sadly lacking, and this charming subject seems to have been carefully avoided by the professed authorities on alpine plants. *M. W., Kent.*

FLOWER GARDEN.

ALSTRÖMERIA LIGTU VAR. ANGUSTIFOLIA.

AT the R.H.S. meeting of July 3, a very beautiful Alströmeria was shown by Lt.-Col. Messel, and received an Award of Merit (see p. 17). The plant had been sent home from the Argentine side of the Andes by Mr. H. Comber, and I was particularly interested in seeing it, as I brought home seeds of what I believe to be the same species from the Pacific slopes of the Andes. I was collecting in the neighbourhood of Rio Blanco, north of the Trans-Andean Railway, and found the plant enormously plentiful at from 4,000 feet to 7,000 feet altitude. At the lower level it grew from three to four feet tall, and as one ascended, so the stature of the plant diminished, until at 7,000 feet it was only six inches or nine inches high. It grew up and down the screes and stony beds in countless millions, and was a glorious sight with its huge umbels of large, Lily-like flowers of the clear, pure, soft pink of a Pink Pearl Rhododendron, with gold upon the two upper segments of the perianth.

Coming from the altitude it does, the plant should be perfectly hardy, although one can never tell until this has been proved in practice. I am very glad to know that this superb thing is successfully established in this country, for I left Rio Blanco in January which was early for collecting seeds, and the germinating power of the seeds I secured has still to be proved.

As to the name of the plant, I take it that this is on good authority, although the Alströmeria Ligtu given in Nicholson's *Dictionary of Gardening* does not agree with the plant in question. Nicholson's A. Ligtu is a stove plant from Brazil, eight inches to twelve inches high, scarlet-coloured and fragrant with the scent of Cloves. I have not had an opportunity of making any further search or enquiry about the plant, but I came to the conclusion on looking through the dried specimens of Alströmeria in the Herbarium at Santiago, Chili, that the genus is a difficult and a critical one. I hope Mr. Comber will enlighten us as to the naming of his splendid introduction. *Clarence Elliott, Stevenage.*

ANEMONE SYLVESTRIS.

THE Snowdrop Anemone is a lovely plant for massing generously and naturally in thin woodland, where it should thrive in a rather moist soil containing plenty of humus. It is rampant in habit and if grown on the rock garden should not be placed in close proximity to small and choice plants.

The form known as A. s. major is a very fine variety which invariably produces two crops of its refined creamy flowers, in May and again in autumn; they are fragrant, like miniature blooms of A. japonica, and nod gracefully upon their wiry stems. The type is of a purer white than the major form; it was introduced from the woods of Germany so long ago as 1596, and one may only marvel that such a lovely plant has not long ago become well-nigh ubiquitous. It flowers before A. s. major.

There is a double-flowered variety of the Snowdrop Windflower, but it is not so beautiful as the single-flowered forms. *R. E. A.*

TREES AND SHRUBS.

COTONEASTER ROTUNDIFOLIA.

ALTHOUGH not so showy in autumn as some other berried shrubs, this Cotoneaster is to be recommended on account of the manner in which it retains its fruits, which remain quite ornamental from October to May.

Whereas blackbirds turn their attention to Pyracantha coccinea immediately it ripens its berries, and often strip it in a few weeks, they leave the fruits of C. rotundifolia severely alone, evidently finding them distasteful or even poisonous. C. rotundifolia is of easy propagation, either by seeds in spring, or by cuttings in autumn, and it flourishes in any average garden soil. *F. W. T.*

DWARF SCOTS PINE.

IN your issue of July 7 (p. 3) appears a very interesting account of a "Miniature Scotch Fir Tree," and this account is the more interesting because it is extracted from *The Gardeners' Chronicle* of July 2, 1853. This note of a quaint little tree growing in an arch at least seventy-five years ago arrested my attention because we have a somewhat similar example at Stanage Park (Fig. 27, p. 65). It is a self-sown Scots Pine, growing in an arch, and to all appearances it has very little to live on. Nevertheless, this little tree, about six feet high, does not appear to have grown at all during my sixty years' recollection of it. My mother remembered its existence in the year 1851. *C. Coltman Rogers, Stanage Park, Bucknell.*

BRUCKENTHALIA SPICULIFOLIA.

A SMALL member of the Heath family, Bruckenthalia spiculifolia is but rarely considered even when planting a Heath garden, while it is seldom included in even good collections of rock plants of various families. It should not be condemned to neglect, although it is not one of the showy plants which invariably attract the notice of the visitor. This member of the Order Ericaceae, which is said to sheet the Bulgarian mountains with its soft green foliage and pink bells, should find a home in many gardens.

It is only about six inches high, is evergreen, and forms small upright bushes of delicate, soft green foliage, surmounted by heads of pink bells. Although a member of the Heath family, it does not need peat, and may be grown perfectly in light, sandy loam. I am not aware whether it has a dislike for lime, but it is doing very well in my garden on lime-free soil. It is thoroughly hardy. Propagation may be affected by cuttings or division of large plants. *S. Arnott.*

NEW CARNATIONS.

THE following new varieties have been registered by the British Carnation Society :—

Tokay, eugenia-red ; Old Rose, old rose colour; Red Devon, scarlet-red ; and Little Beauty, violet ground, flecked and striped with rosy-scarlet. All by Lt.-Col. E. G. Evans, Tiverton.

Lady Seaforth, white. Registered by Lady Seaforth, Haywards Heath.

Hon. Mrs. Ingham Whitaker, pink ; and Jean Whitaker. Raised by W. Ingham Whitaker, Esq., Lymington.

Allwood White Seedling, white ; Allwood Pink Seedling, pink ; Allwood Salmon Seedling, salmon-pink ; Maud Allwood, apricot ; Wivelsfield Claret Improved, clear light claret ; Harmony, heliotrope, flushed French-grey and old-rose ; and Cattleya Rose, mauve. All these were registered by Messrs. Allwood Bros.

Miss Salince Baker, red. By Sir R. Baker, Ranston.

Dorothea, blush-pink ; and Hilary, red. By Messrs. Stuart Low and Co.

Mab, cerise ; and Moggy, salmon-pink. Registered by Messrs. C. Englemann, Ltd.

HARDY FLOWER BORDER.

DELPHINIUM CASHMIRIANUM.

Delphinium cashmirianum, a beautiful dwarf species, is a first-class summer-flowering border plant; it should be placed well to the front of the border, for it attains a height of only from twelve to eighteen inches. It may also be planted on a large rock garden in an open position where its beauty may be seen and appreciated. The radical leaves, borne on long stalks, are three or four inches in diameter, palmately five- or seven-lobed, each segment being three-lobed and finely cut; they are rich olive green in colour and form a large, rounded mound. The large, purplish flowers, which have conical and inflated spurs, are produced in loose corymbs, those arising from the base of the stem being on longer stalks than those at the summit, so that the open flowers are more or less on the same level. This species is closely related to D. vestitum, from which it may be distinguished by its larger flowers and the arrangement of them, for those of D. vestitum are produced in a more or less erect raceme.

Delphinium cashmirianum, together with D. vestitum, comes from the western Himalayas, where it is quite common from Kashmir to Kumaon, on damp, stony and rocky hill-sides, at an altitude of from eleven thousand to sixteen thousand feet. It is hardy in this country and delights in an open situation and moderately rich but well-drained soil, while it is best raised from seeds, which it produces quite freely in warm seasons. *M. W.*

SUB-SHRUBBY MALLOWS.

For a long time, up to a few years ago, Lavatera Olbia was often sadly misrepresented, even the very inferior L. arborea sometimes bearing its name. But L. Olbia has come into its own, and there are now few first-class gardens which do not possess a clump of it. A better Mallow of its kind than this I do not know, for the flowers, which are yielded with such abundance from early summer until the first sharp frost, are larger than those of an average Hollyhock, and are of a peculiarly fresh, clear pink with rosy lines—a colour which always seems to go well with downy, greyish foliage, such as this plant possesses. The form known as L. O. rosea, which has flowers of rather a deeper shade and wine-red stems, is also an attractive plant. In poor soil, L. Olbia has proved a fairly long-lived subject with me, in spite of its excessive prodigality in flowering, but only during the last year or so has it produced self-sown seedlings. Along the Mediterranean coast, in the Hyères district (Olbia is the ancient name of Hyères) it grows to nearly ten feet in height, and sometimes has a trunk as thick as a man's thigh. In gardens, I find it best to cut it hard back to the base every spring.

L. maritima is also a fine sub-shrubby species from the same region, although apparently confined more strictly to limestone. It grows to about two feet, or rather more, in height, has silky, pale green leaves, and flowers of a curious shade of bluish rosy-pink with a conspicuous purple blotch at the base of each petal. This, and more especially the form L. m. grandiflora, should be a useful subject for our milder or coastal districts, or for putting out as a summer plant, but it seems to be unobtainable in the trade.

There is another species, more after the fashion of L. Olbia, but with even larger flowers, these often being as large as a tea-cup. The leaves, cordate and lobed, are also larger and greener, as are the stems, the whole plant having a more sappy appearance. I have had this Mallow for some few seasons, and am told it is L. thuringiaca, but of this I am not certain. It attains a height of five feet or more in a season after being cut back in the spring, and flowers throughout the summer. Although undoubtedly perennial, this is not quite so hardy as L. Olbia, its fleshy tops often being injured by frost, and it has a more loose habit of growth.

Lavatera phoenicea might well qualify as a shrub, for it is a stout, woody species which has attained a height of about five feet or six feet here, and it would probably go higher, but is undoubtedly tender, my plants frequently being reduced severely, if not killed, by 15° of frost. Its small, deeply-lobed leaves, and the branches are suffused with a reddish tint, and the small, cup-shaped flowers are rosy-red and two-thirds-of-an-inch across, borne in lavish profusion throughout the season. In habit it is slender and upright, and I have an idea that this shrub was once sent out under the name of Malvastrum grossulariaefolium. *North Wales.*

GAURA LINDHEIMERI.

The Gauras, as a race, may hardly be considered highly decorative subjects for the flower garden, but G. Lindheimeri is one of the exceptions, and is well worth its place in the herbaceous border or massed separately in beds.

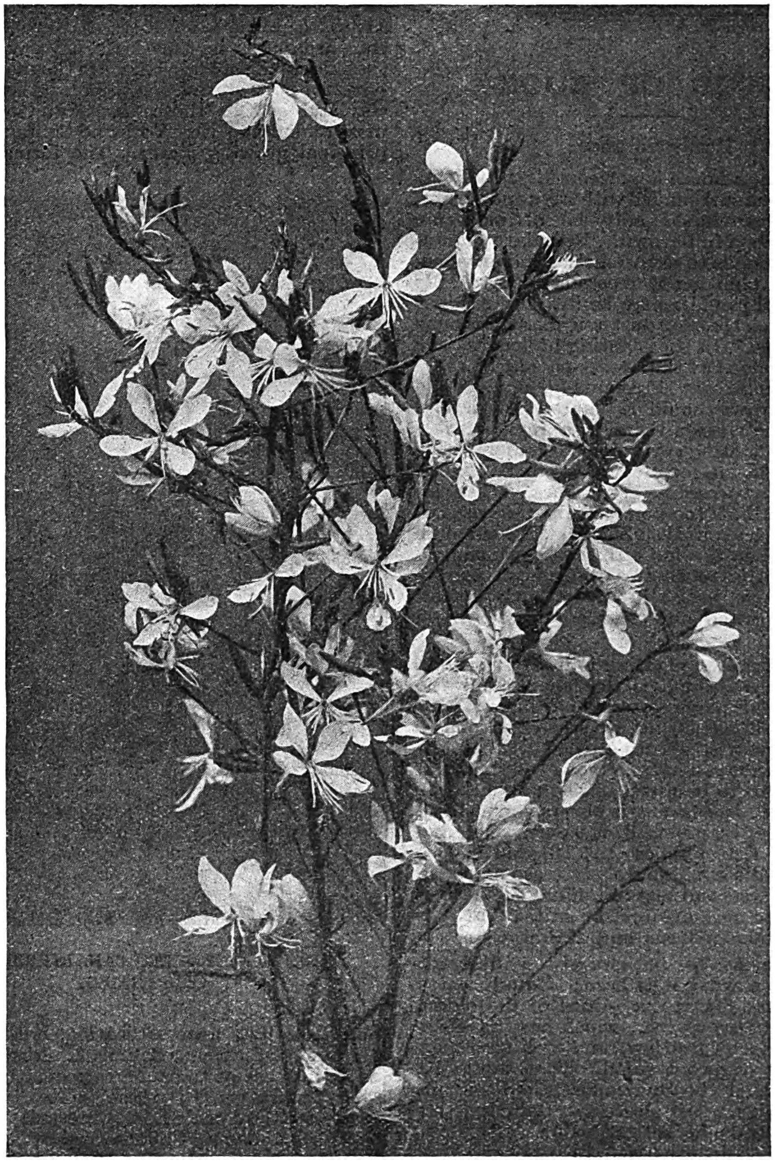


FIG. 28.—GAURA LINDHEIMERI.

Well-grown plants of it should, by the end of summer, be three feet or more in height, and throughout the summer they should produce numerous slender and graceful spikes of pink-tinted, white flowers, the calyx tubes of which are rose-coloured.

G. Lindheimeri may be raised from seeds sown in the open ground in early spring; it does not appreciate being disturbed frequently, therefore the seedlings should be transplanted to their permanent quarters so soon as large enough, and protected if necessary against late frosts. It should be grown in moderately light, but well-cultivated soil.

It belongs to the Order Onagraceae, is a native of Texas, and was introduced to this country in 1850. *F.*

PLANTS NEW OR NOTEWORTHY.

MONARDELLA MACRANTHA.

I rarely open a volume of any old horticultural or botanical journal without being confronted by the portrait of some desirable plant that has gone out of cultivation, and the picture creates the desire for an opportunity of seeing the plant in the living state.

Monardella macrantha thus came under my notice, and on enquiry I found that many years ago it was grown and offered for sale by the late Mr. T. S. Ware, and within more recent years it is mentioned in some of the earlier catalogues issued by Mr. Amos Perry. This lovely little plant is figured in the *Botanical Magazine* for 1876, t. 6,270.

When on a visit here in 1926, Mr. Allen Chickering, of San Francisco—a keen horticulturist, and one having a wide acquaintanceship with the more decorative Californian plants in their native habitats—saw the illustration of this plant, and at once named the district in which it was abundant, and promised plants and seeds. This promise was fulfilled in the autumn of 1927. The long journey by post proved disastrous to the plants, but two specimens were raised successfully from seeds, and these are now in flower. (Fig. 26, p. 63).

It may be described as a dwarf Monarda, about one foot in height, with a creeping rootstock, which provides clear proof of its perennial character. The leaves are aromatic, small—less than an inch long—and entire. The terminal head of flowers, which are of a soft, pleasing scarlet, contain twenty or more blooms, and the broad bracts of paler green set the inflorescence off to advantage. Only the strongest stems produce flowers; the weaker growths provide ample material for cuttings. This plant will no doubt revel in a warm, dry situation. The sunny banks selected for such plants as Zauschnerias, Sphaeralceas and the more choice species of Pentstemons should suit it well, as all these grow in association on the sunny Californian hillsides. *T. Hay, Hyde Park.*

NOTICES OF BOOKS.

Hardy Shrubs.*

In America, a house is not considered a home until it has been surrounded with trees and shrubs, and the trees should only be of moderate dimensions when full-grown. Boundary plantations are also made to secure shelter and privacy; while screen planting is recommended to hide undesirable objects, it may be in the next-door plot, or to catch the grey dust as it flies from busy country roads. In the planting of hedges, the author suggests that the plants should be staggered in a double row. Presumably, he means to say that the rows should be planted alternately. At present, he states, there is a reprehensible fashion of planting evergreen Conifers near houses, and this he condemns as in bad taste. Hydrangea arborescens grandiflora, otherwise named Snowhill, is too popular and too vociferous for any place outside a Zoo. He is even more clamant against the indiscriminate planting of Golden Privet in southern California, where its exotic cries are heard in every lowly street. Yellow, variegated and purple foliage are all freaks.

The best time for planting is in early spring, so soon as the ground is dry enough for the operation. This may be carried on through May or into June, if the shrubs are stored previously in cold storage. All shrubs are cut down almost level with the ground so soon as planted. Water has also to be given until the plants are growing freely, and hoeing is also recommended. Kalmias should be mulched, not cultivated, and presumably, this applies to Rhododendrons and their allies. Manure is recommended to be given the second season. Since sulphate of ammonia is an acid manure, he states that it is good for Rhododendrons and Kalmias.

Pruning seems to be entirely a different operation from what it is here. He advocates cutting out one-fifth to one-third of the oldest wood of shrubs every year, which has the effect of keeping the bushes low, and well furnished with healthy, vigorous wood. That would be all right provided the remainder is old enough to furnish plenty of blossom. Snipping off the tops is considered bad gardening. Certainly that system is often carried to excess in this country, and when it is done with the garden shears, the bushes look dumpy, unnatural and ugly. This pruning may be done in February or March. Lilacs, Hydrangeas and early-flowering shrubs are exceptions, and have to be pruned after flowering. Fine hybrid Lilacs should be grafted on the common one or on Privet. Apparently the nurserymen in America have not grasped the idea that Lilacs may be layered in quantity.

The fifth and last chapter is entitled "Catalog of Shrubs," and under that heading large numbers of genera and species are briefly discussed, including their varying degree of hardiness for the different states. In the more southern states many shrubs may be grown that are not hardy here. A few slips have been made by the reader or editor, such as Astible fcr Astilbe Salix ovicana for S. incana, and Rhodora' canadense for R. canadensis. On the whole the editing, however, is good, and there are eleven photographic illustrations scattered through the text.

The Pear and its Culture.*

THE author starts his book by stating that the Pear has had a more interesting and romantic past than any other fruit except the Grape. This is explained by stating that it has been developed by amateurs in the Old and New World, and only recently has it assumed the rôle of a commercial fruit. Bearing in mind the case of the Apple, the reader will be surprised at the number of European Pears that are grown in America. River valleys and the shorelands of large lakes are the most suitable parts for Pear cultivation, because there is more clay and silt in those parts, and moisture is most abundant. New York and California are the principal growing states. The former has the most trees in a state of bearing, but taking old and new plantations, California already has the larger number of trees, namely, nearly four-and a-half millions. In these states, the Pear Bartlett (Williams' Bon Chrêtien) represents one-third to one-half of the crop of all varieties. Indeed, this is the leading Pear for all purposes in America, notwithstanding its short duration. The variety Seckel is considered the standard in quality. Doyenné du Comice is admitted to be one of the finest Pears, and is growing in importance commercially on the Pacific coast, but the tree is tender, susceptible to fire-blight and shy-bearing, thus limiting its profitable cultivation.

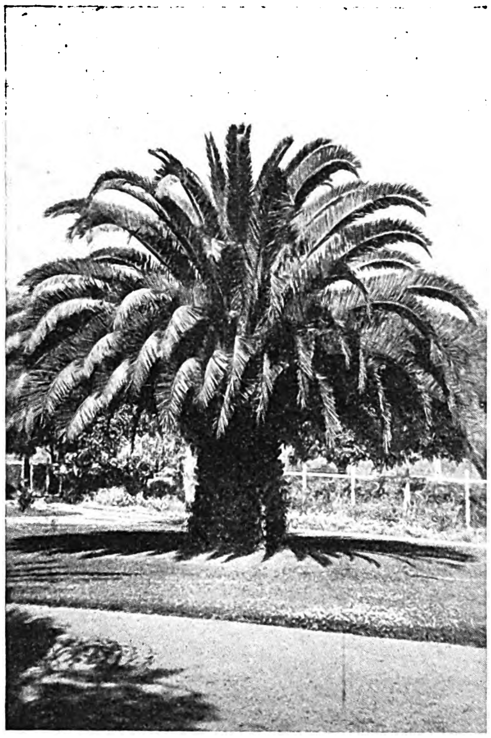


FIG. 29.—PHOENIX CANARIENSIS AT VALPARAISO.

The reader will soon perceive that the book is written from an American point of view, and for the special requirements of the Pear in that country of violent extremes in temperature, and drought in summer. The British fruit grower could, however, glean some useful hints that might prove of service even in Britain.

The trees are mostly budded or grafted on seedlings of European Pears, or in other words, they are grown as standards. The reason for this is that trained trees of all forms require more attention than may be given them to get a paying return of fruits. Various methods are adopted to keep the standards low and induce them to fruit at an early stage. This is done by bending down the leader and main branches and fixing them in that position until they assume it permanently. Thinning is another device to let in sun and air among the branches, and thereby induce fruitfulness, with little pruning. A remarkably diverse method of treatment is given the Kieffer Pear, for all the annual shoots are stubbed or shortened, and this gives the tree an obconical form. A cover crop is sown beneath the trees late in summer. This may be Buckwheat, Oats, Wheat, Millet, Rye or another cereal. This marks the end of the season's cultivation, and induces the early maturity of the trees, which is important in preventing outbreaks of Pear fire-blight, a bacterial disease that gives cultivators more trouble than fungi and insects, which may be controlled by spraying. The cover crop is ploughed down in spring and serves to supply humus to the soil and food for the trees.

The author considers that practically all Pear trees are self-sterile, but that may be because self-sterile varieties are those most cultivated. His belief is also that any two varieties will set one another, except that Seckel will not set Bartlett. He also thinks that the difference in the time of flowering is immaterial and may be disregarded.

Muskmelon Production.*

THE Muskmelon is practically akin to the green-fleshed and salmon-fleshed Melons with a strongly-netted rind, such as are grown in this country. The history and botany of the Melon is not dealt with until the tenth and last chapter of the book. The Melon was introduced to America soon after the first settlements, but did not become a commercial product until 1870, and received its chief impetus in 1887, on the introduction of Netted Gem. The popular varieties appear to have all been developed and selected in America. The principal commercial race is named Cucumis Melo reticulata.

The culture in Canada of Melons with a short growing season is the nearest approach to cultivation here in cold frames; but for all the rest of America the crops are grown in the open field, with a growing period of five months, in a temperature averaging about 80°F. by day, and 60° by night. The warmer states, including California, Colorado and Illinois, having warm climates, may produce with such freedom that it enables them to compete with market growers near New York, Chicago, and other centres with large populations. In the warm states, the plants may be reared in cold frames, over a bed of fermenting manure, or sown on hills directly in the field. So soon as the seeds are germinated or the seedlings planted, deep cultivation commences to induce the plants to root deeply, and the hand-hoe may be used nearer the plants. In the warmer states, irrigation and cultivation alternately has to be repeated at frequent intervals all the season or a great part of it. In many cases all the plants are turned round to face one way (windrows they are called) to enable cultivation to be continued, and for the greater convenience of the workers in attending to the plants, *i.e.*, pinching, spraying for insects, and finally gathering the fruits.

The Melons are planted on hills in lines four feet to six feet apart each way, for there is considerable variation in practice. Fertility of the soil is kept up in a variety of ways by broadcast manuring, by burying manure at each hill, by artificial fertilisers, or by ploughing down a previous crop of Afalfa (Lucerne) or other Leguminous crop used in a rotation. Incidentally it may be stated that a slightly heavier crop

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**Hardy Shrubs; A Simple Handbook of Practical Information*, by Frank A. Waugh. Illustrated. New York: Orange Judd Publishing Company, Inc. London: Kegan Paul, Trench, Trübner and Co., Ltd., 1928. Price, $1.25.

The Pear and its Culture. Designed for both the Amateur and the Commercial Grower, by H. B. Tukey, Acting Chief in Research (Horticulture), New York State Agricultural Experiment Station. New York: Orange Judd Publishing Company, Inc. London: Kegan Paul, Trench, Trübner and Co., Ltd., 1928. Price, $1.25.

**Muskmelon Production*, by John William Lloyd, Professor of Olericulture, University of Illinois. Illustrated. New York: Orange Judd Publishing Company, Inc. London: Kegan Paul, Trench, Trubner and Co., Ltd. 1928. Price $1.25.

is obtained by liberal fertilisation than by pinching. It is supposed that the latter practice originated with private cultivators, who read books on the subject of Melon culture from the Old Country.

Expert cultivators judge the maturity and quality of a Melon by its cracking around the stalk, by the colour, by the prominence of the netting, and by smell. Green-fleshed Melons seem to be the most popular, being the sweetest and best flavoured. The cultivator has much to contend with to ensure good quality in irrigating up to a certain time, in gathering the Melons every day, in grading, packing in crates, taking them to the packing shed within half-an-hour of cutting, and sending them off in refrigerated cars for long journeys. The book has ten full-page photographic illustrations, and is evidently up-to-date in all that pertains to the cultivation of Melons in America.

A Glossary of Botanic Terms.

THE book might be appropriately termed an Encyclopaedia of Botanic Terms, for no work in the English tongue, probably, explains the meaning of so many terms applied to botanical subjects, the scope of which is very wide, and ever widening. The science of botany is linked with zoology, biology, geology, pharmacy, chemistry, and the cultivation of plants in garden and field. In this, the fourth edition,* the glossary runs to nearly 25,000 terms that have been explained, and if the various meanings of some words were added they would number about 1,400 more. The book consists of 473 pages, two columns of small type to a page, exclusive of four Appendixes or appendices—for both spellings are used. The enlargement of the fourth edition is in the form of a supplement, which consists of fifty-nine pages of fresh matter. This gives some idea of the rate at which newly-coined words, or additional meanings to old ones, are being added to the science of botany, in which writers may choose to express themselves.

The terms used embrace all sections of the science, but a large number are due to the inventive faculty of students of ecology. For instance, the generic names of a large number of plants have had *etum* affixed to them to indicate an association of the said plants. Thus we have Alchemilletum, Agrostidetum, Artemisietum, Bambusetum, Buxetum, etc. In some cases the new term has been coined from the specific name, such as Cembretum, for an association of Pinus Cembra; and Viridetum for an association of Alnus viridis, in spite of the fact that Alnetum is used for an association of Alnus, probably the ubiquitous A. rotundifolia. Salicetum used to mean a collection of Willows, or a book on the subject (Salictum might have been added here). A third meaning has now been added, namely, an association of Salix. Several other forms of words to express similar meanings to the above are Giliare, a community of Gilia; Androsacile, a society of Androsace; Chionophytium, a snow plant association; Crenad, a spring-loving plant, etc.

Ecology or oecology is the study of plant life in relation to environment, a rather recent branch of botany, the terms and the meanings of which did not find their way into encyclopaedic dictionaries of the past century. Here we have all such terms, including ecad, ecogenesis, ecologism, ecologist and other derivative terms clearly defined. Special terms have been applied to plants in all sorts of soil, in water or out of it, the the minute histology, morphology and physiology of Phanerogams, Gymnosperms and Cryptogams, so that the students of any phase or branch of botany would find this book a valuable mine of information. The glossaries to be found in floras and various botanical books fade into insignificance when compared with this one; and those whose studies embrace any wide field in botany would find this a most useful addition to their library.

So far, the reviewer has failed to find many omissions of terms, the principal one being Calamine, applied to Viola calaminaria, the Pansy adapted for growing in a zinc soil, or soil permeated with zinc. Many of the terms are English, with special meanings, but the larger proportion are derived from Greek and Latin.

CHILI AND THE ANDES.*

VII.—SPRINGTIME IN CHILI.

IT was springtime in Chili, and gardens and the countryside were looking their loveliest. The climate was ideal, sunny and warm, with occasional showers to keep things fresh. There were the thrill and glamour of vigorous spring growth, yet one missed half the essence of an English spring through the absence of certain English spring smells, bird songs, and wild flowers such as Celandine, Dog's Mercury and Primroses; but, in gardens, Peach and Almond trees were in full blossom, with Freesias and Violets, beds of brilliant Cinerarias, Roses, Stocks and rampant hedges of Pelargoniums. The double Persian and Turban Ranunculi which are often tiresome to grow at home, seemed to flourish everywhere and anyhow. A popular and very splendid flowering tree in gardens at Valparaiso is a double Peach of a peculiar tawny-crimson. I remember Mr. T. Hay once bringing a spray of this variety to the Floral Committee of the R.H.S., but apart from that I have never seen it elsewhere; a remarkably fine thing which should be better known. Yet even finer was a weeping variety of this same tawny-crimson, double Peach, which I saw in one or two Chilian gardens. The Banksian Rose was just at its best at this time, and one remarkable specimen which I saw had climbed to the top of an ancient Lombardy Poplar, which it smothered from top to bottom—a height of sixty or seventy feet at least—with sprays and festoons of soft butter-yellow.

A striking feature in the landscape of this part of Chili is Eschscholzia, which, having started as a garden escape twenty or so years ago, has literally flung itself over hundreds of miles of country. The seed vessel of Eschscholtzia is provided with an ingenious spring mechanism, which, when ripe, flings the seeds far and wide. The result is that to-day the gold of Eschscholzia blazes upon railway banks mile after mile for hundreds of miles, and a golden splendour clothes hills and cliffs and all waste places.

A few miles out of Valparaiso, beyond Vina del Mar, is the beautiful garden of Don Augustin Edwards (Figs. 29, 30), and soon after arriving in Valparaiso we went out and looked up Mr. G. W. Robinson, an old Kewite, who is in charge there. Mr. Robinson received us most hospitably, gave us much valuable information about the local flora, and spent the afternoon showing us the garden under his charge and many interesting wild plants in the immediate neighbourhood. In a ditch grew Calceolaria sonchifolia, a lush annual four feet high with yellow flowers of no value. On a dry, sandy hillside grew an annual white-flowered Triptilion, the pink-flowered Sisyrinchium, Solanum crispum—not yet in flower—Margyricarpus setosus (the Pearl Berry), and that pretty annual Crucifer, Schizopetalon Walkeri, with its quaintly laciniated, dead-white petals and marvellous evening fragrance—a plant one often finds in seed catalogues and almost never in gardens. It was encouraging to find the Pearl Berry, for I have always found it reliably hardy in England. It showed that some plants, at any rate from sea-level in this part of Chili, should withstand our climate. Solanum crispum, too, was another encouragement. It withstood last winter on the wall of my house in Hertfordshire—and a pretty deadly winter it seems to have been—without turning a hair!

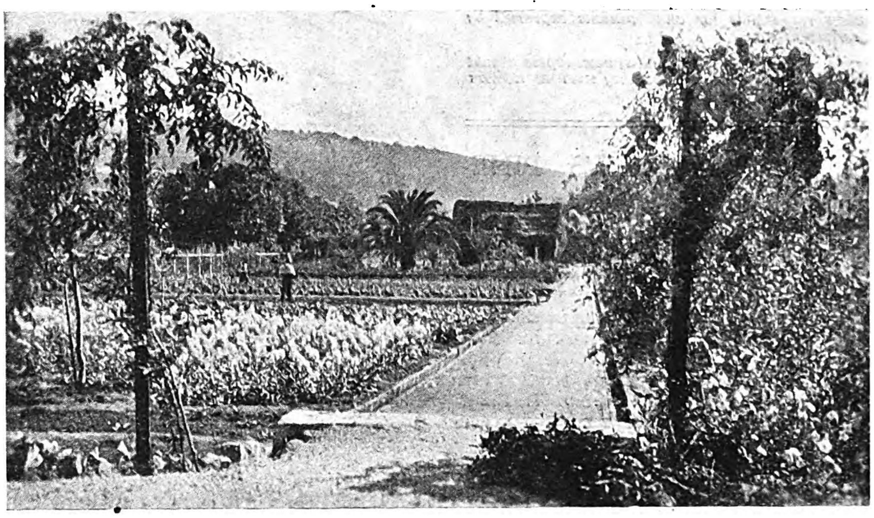

FIG. 30.—VIEW IN DON A. EDWARDS' GARDEN AT VALPARAISO.

The garden is a model of high and orderly cultivation. The vegetables and saladings suggested a French kitchen garden at its best. There were huge and gorgeous plantings of fine varieties of Cannas, and blue Hydrangeas, a pretty rock garden, half alpines and half dwarf succulents, and a wild, wet, wood-garden of Drimys Winteri, where Primula japonica and Foxgloves were naturalised among jungles of Blechnum chilensis with six feet and eight feet fronds. A pair of native spur-winged plover trotted about the lawns and among the Lettuces, looking like trim little parlourmaids in silver-grey with black aprons. They are popular pets in Chili and make most excellent gardeners. With a wing clipped they never wander far, but spend their days eating vast quantities of grubs and noxious insects, while at night they act as watch dogs and set up a fearful screaming on the approach of any stranger. They are engaging creatures with large, raspberry-coloured eyes and strange antics and rituals, bowing and dipping their bills, making little short runs, bowing again and raising their bills to Heaven.

It is probable that our own native green plover would make an equally good gardener, and last spring I asked two of Hertfordshire's ablest poachers to procure me a pair—but they failed. *Clarence Elliott.*

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* *A Glossary of Botanic Terms with their Derivation and Accent* by Benjamin Daydon Jackson, Knight of the Polar Star, Hon. Ph. D. (Upsal.), Emeritus Secretary of the Linnean Society of London. Fourth Edition Revised and Enlarged. London: Duckworth. Philadelphia: J. B. Lippincott and Company. 1928. Price, 15s. net. Postage 6d.

* Previous articles on Mr. Clarence Elliott's Expedition were published in our issues of November 12, 26, and December 10 and 24, Vol. LXXXII, and January 7 and 28, Vol. LXXXIII.

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MR. NEVILLE COOPER'S PINETUM NEAR CANTERBURY.

ON June 28 I had the pleasure of visiting this Pinetum, which appears to be little known to persons interested in the Coniferae, although reference was made to it, in its infancy twenty-one years ago, in *The Gardeners' Chronicle* of May 11, 1907, p. 305, and some of the more important trees were enumerated in the *Kew Bulletin* No. 7, 1924, p. 301. Further, Mr, Cooper contributed notes to *The Gardeners' Chronicle* on some of the trees, on April 12, 1924, p. 205. A connection between this Pinetum and *The Gardeners' Chronicle* lies in the fact that the late Dr. Masters was a friend of Mr. Cooper and a frequent visitor to the place during its early years.

Mr. Cooper's trees are to be found in two places, some of them at Little Hall, St. Stephens, about one-and-a-half mile out of Canterbury, and others, the larger number, at Vernon Holme, Harbledown, some little distance further afield, between three and four miles inland from Herne Bay. In both places Conifers are thriving remarkably well, and they are particularly bright in colour. A few of the older trees were planted by Mr. Cooper's father, the late Mr. Sidney Cooper, R.A., but the collection has really been built up by the present owner during the last twenty-two years. The principal plantings took place in 1906 and in 1911, but additions have been made constantly, and Mr. Cooper is at present considering the possibility of planting several more acres with trees.

In the early days of the Pinetum, Mr. Cooper spread his net very wide, collecting trees from most of the well-known home and continental nurseries. He is particularly interested in coloured-foliage varieties, and has paid special attention to these plants, with the result that there are many excellent examples of golden and glaucous-leaved forms of Cupressus Lawsoniana, Thuya plicata, T. occidentalis, Picea pungens, P. orientalis, Cedrus atlantica, Abies Pinsapo, A. Nordmanniana and others. Perhaps the most conspicuous coloured-leaved tree at the time of my visit was Picea orientalis var. aurea, each young shoot and leaf being golden in colour.

Mr. Cooper has been fortunate in his selection of a site for the larger portion of his collection at Vernon Holme, which is situated some 250 feet higher than Canterbury. It occupies the position of an old coppice with Oak standards, and is well sheltered. The soil is deep, of good quality and naturally moist; in fact, in the notoriously dry year of 1911, Mr. Cooper had a delivery of a large number of choice plants very late in spring, and although they could not be given special attention after planting, the natural moisture of the soil was such as to enable a good percentage to survive the drought. Moreover, the locality appears to suffer less from spring frosts than certain parts of Kent that are further inland. Largely on this account certain species that thrive luxuriantly at Vernon Holme are decidedly spring-tender in many places. Cases in point are Abies bracteata, a fine tree over twenty feet high that has never been injured by frost, and several fine examples of Abies Pindrow and A. Webbiana.

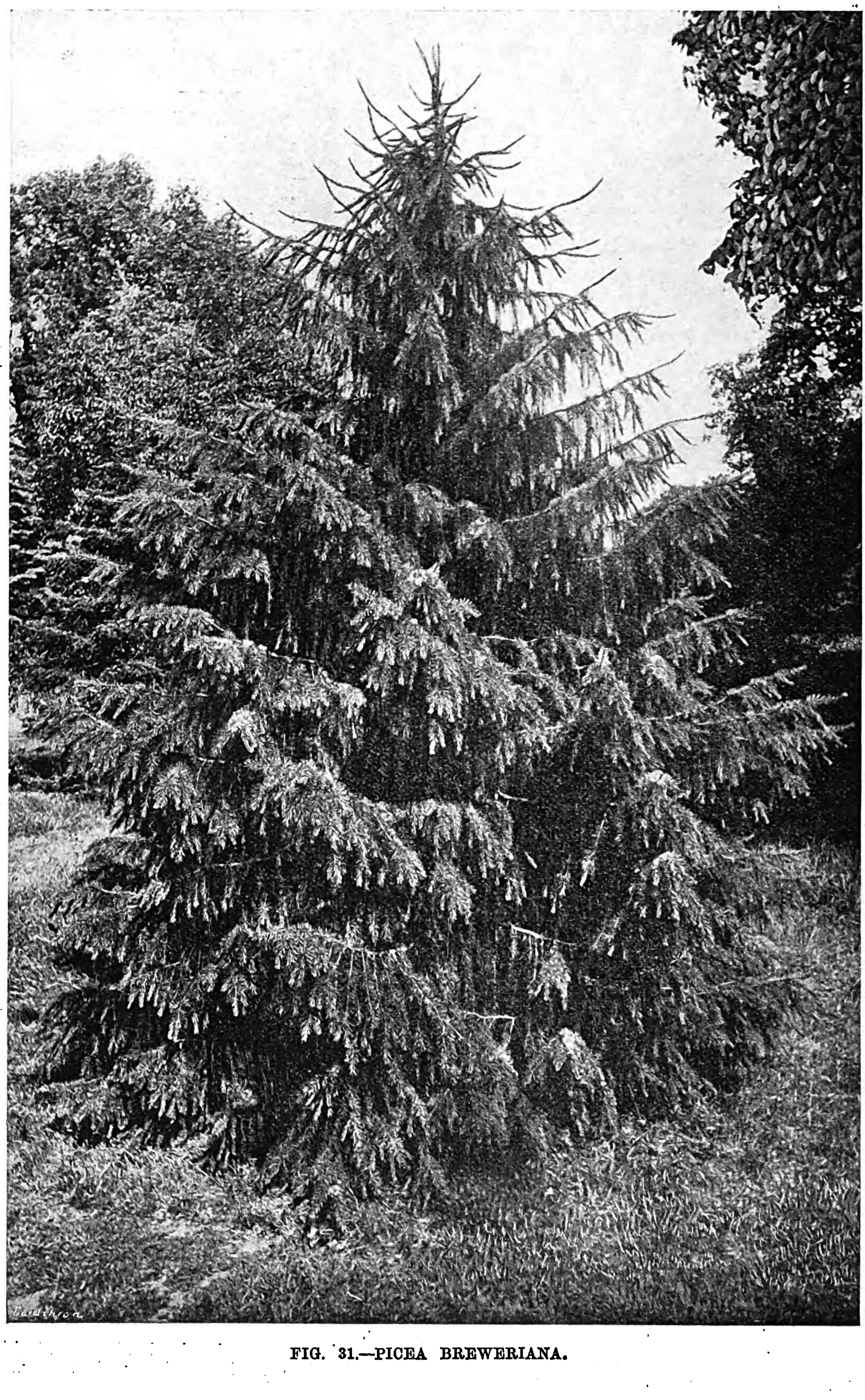

FIG. 31.—PICEA BREWERIANA.

Although it is impossible to direct attention to a tithe of the fine young trees in this collection, the following are of special merit:—

Picea Breweriana, a specimen planted in 1910, now a fine shapely plant sixteen feet high, probably one of the finest, if not the best, in the country. This is one of the rarest of the Spruces, and it was originally introduced to this country in 1897. In a state of Nature, it is confined to a few localities in the Siskiyou Mountains of north-west California and south-west Oregon. By the kindness of Mr. Cooper, a photograph of his plant is included with this article (Fig. 31).

The genus Abies is well represented. A. cephalonica is very vigorous; A. sachalinensis, often seen as a stunted tree, is here a shapely specimen twenty-five feet to thirty feet high; A. Veitchii is represented by several trees in perfect health; A. homolepis is a fine tree; A. firma is twenty-five feet high; A. Lowiana and A. concolor are handsome specimens, and a very striking plant is seen in the silvery-leaved A. concolor var. argentea; A. numidica is eighteen feet high; A. Pinsapo is represented by a number of fine specimens, including glaucous and golden-leaved varieties; while there is a good example of the rare A. Nordmanniana var. aurea, and a vigorous specimen of A. lasiocarpa var. arizonica, which is beginning to develop the characteristic corky bark.

In addition to the tree of Brewer's Spruce already mentioned, there are noteworthy examples of other species. Picea Omorika is represented by a fine example twenty-five feet high, and there is a good tree of the rare pendulous form of this species. There are several fine specimens of the true P. Engelmannii, and P. pungens in both green and glaucous forms, is seen as well grown and finely coloured specimens. The golden form of P. orientalis has already been mentioned, and by the kindness of Mr. Cooper I am able to introduce a portrait of one of these trees with this article (Fig. 32). Picea alba var. aurea is another conspicuous tree.

Among other fine trees are Thuya plicata var. aurea, T. japonica, T. occidentalis varieties, many varieties of Cupressus Lawsoniana, various species of Tsuga, including the rather tender T. Brunoniana and a good example of T. Pattoniana var. glauca, and many other species of several genera.

I cannot close without mentioning a particularly fine form of Pseudotsuga Douglasii growing in the Pinetum. It is very vigorous and produces leaves up to one-and-three-quarters inch in length; so conspicuous is this tree that it stands out prominently in the collection and compels attention. Mr. Cooper has also a number of well-grown trees of the Stairii variety of Douglas Fir, which is conspicuous by the cream- or pale yellow of the young leaves. *W. Dallimore.*

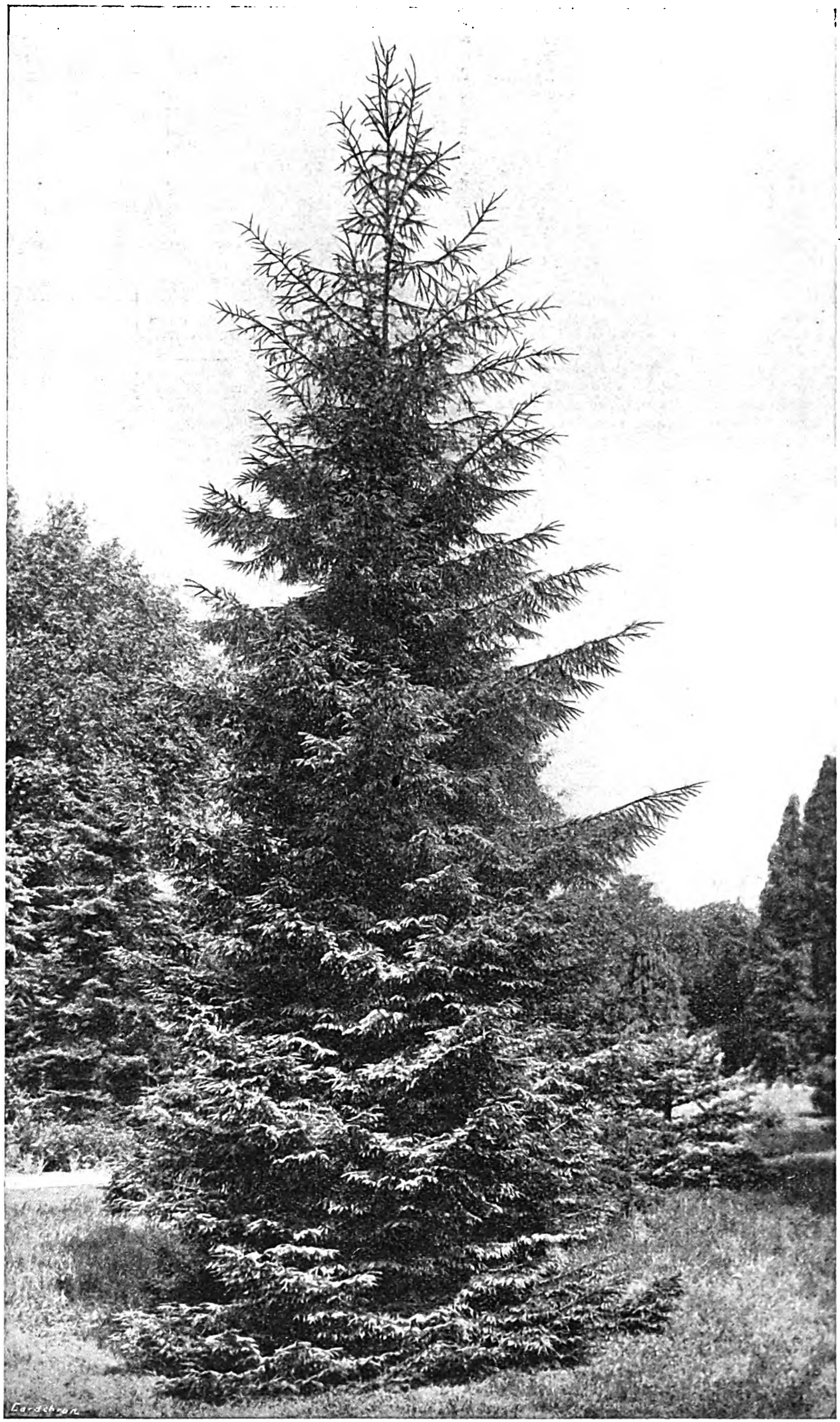

FIG. 32.—PICEA ORIENTALIS VAR. AUREA.

NOTES FROM A WELSH GARDEN.

Leptospermums have again proved their great merit and reliability as flowering shrubs, most kinds blooming with their accustomed prolificacy in spite of such a severe winter and an unusually sunless spring. If its flowers are on the small side compared with some, L. laevigatus makes a very attractive bush when its slender, fine-leaved, whippy branches are wreathed with its white, purple-eyed blossoms. L. stellatum, which flowers a little later, is a distinct species, its deep green, leathery leaves being considerably broader than those of the better-known kinds, while the white flowers have a conspicuous, bright green ovary. Perhaps the most charming effect amongst these Leptospermums this season was produced by a combination of the scarlet of Tropaeolum speciosum and the white blooms of L. scoparium. Self-sown plants of the former had climbed up into the latter, and as their stems did not die back they flowered in June just when their very congenial support was at its best.

Another very striking colour combination was afforded by a mass of Thymus Serpyllum coccineus and Genista dalmatica growing side by side on a hot, dry ledge of poor soil. Those who like their colour bold and strong should find the rich magenta-crimson and rich golden-yellow of these two plants a combination of singular brightness, and that just at a season when the rock garden is beginning to look dull.

Among the older hybrid Dianthuses, D. Wolley Dod always attracts attention with its very large, deeply-fringed and fragrant, deep-rose blossoms, and if it is not exactly easy to keep it still has a better constitution than some. D. Napoleon III, for example, a glorious old Pink, may do well enough in some northern gardens, but here it is one of those plants which demand a great deal of care for a small return. D. Mozart, having single blooms, is freer and more permanent and an excellent old rock Pink it is, its Clove-scented flowers being a deep and velvety blood-crimson. D. E. H. Jenkins, if not so venerable as the foregoing, reminds one of the splendour of D. Caesar's Mantle, which now seems to be extinct. I often wonder whether the late Mr. E. H. Jenkins used the latter in producing the plant that bears his name, and which is so constant in character that one may pick out its seedlings anywhere.

July brings the Hypericums in full force, and if they are all more or less of one colour their diversity seems endless. Few genera of the season display a greater number of widely-differing species and varieties than one may find in even a modest collection, with that tiny gem, H. crenulatum, at one end of the scale, and H. patulum towering to six to seven feet at the other. H. reptans, among the prostrate kinds, is one that might be seen oftener in rock gardens, for there is nothing finer than a slab of rock, or slope of gravelly soil, a square yard or more in extent, covered by its close mat of bright green leaves, crimson-flecked buds and big golden blossoms which lie with the lower rim of their gleaming corollas nestling in the foliage. Although this is one of the few species so distinct that there need be no mistake as to its identity, others are too often seen masquerading under its name. H. olympicum citrinum, as grown here, is so unlike the type plant usually sent out as H. olympicum that it might well pass as a species. Perfectly erect, the stout stems, which are woody at the base, rise to nearly eighteen inches in height. The large, oval, pointed leaves are a cool emerald and the growths terminate in a cluster of blossoms of a soft primrose-yellow. These are rather more than three inches across, the beautiful petals drooping with a lop-eared effect.

There is nothing prettier near the water at this season than the Ivy-leaved Campanula (C. hederacea) and the Bog Pimpernel (Anagallis tenella). Grown together, the pale opal-blue of the one blends with the delicate silver-pink of the other with delightful harmony. Also near the water is Caltha rotundifolia, an American species. Flowering at this season, the blooms are a good firm white, and about one inch across. A more valuable bog plant, inasmuch as it flowers from soon after midsummer to late autumn, is another American species Sedum pulchellum. This excellent subject is not nearly so well-known as it deserves to be, for it is easily grown under any fairly moist conditions. Its big, claw-shaped flower-heads of a vivid carmine-rose, together with the glaucous, crimson-tipped leaves, are singularly attractive throughout a comparatively dull period, and the plant is quite hardy. Sisyrinchium bermudianum and others, in various shades of blue from violet to pale slate, are moist-ground plants which are delightful enough in themselves these July days, but their value is greatly enhanced by the presence among them of a few good tufts of S. californicum, with flowers of a rich yellow shade.

Rising to rather more than four feet near the water, Iris Delavayi has been useful in bridging the gap between the earlier and later Irises. One of its companions is the so-called white form of our common, native Water Flag known as I. Pseudacorus Bastardi. The pale ivory blossoms of this Iris, if somewhat ineffective in themselves, are not passed unnoticed when backed by the deep violet of Iris Delavayi. I. monspur, a tall and vigorous Monnieri × spuria hybrid, has also proved a good mid-season bloomer, its stately stems bearing so many as four or five blossoms at once, and these in a particularly good shade of a medium blue. Although reputedly a lover of dry places, I. tectorum has never bloomed better than it has done during this exceptionally wet season, the last flowers extending into early July and even setting seeds, which this species has rarely done here. Also in a well-drained border is I. hexagona, with the loveliest of lavender-blue flowers and a frugal way of never giving one quite so many of them as one would like.

Helichrysum bracteatum, since it is woolly and comes from Tasmania, I did not expect to find it come safely through last winter, but it did not appear to suffer any discomfort and above its dark green, downy foliage on stems nine inches in height, are borne chaffy ' everlastings " of large size and aflame with burnished bronze and gold. Potentilla Warrensii makes a pleasing companion for this southern Composite. It seems to be a species of recent introduction, and has an upright habit of about twelve inches, bright green leaves and golden-yellow flowers about one-and-a-half inch across.

In an open place in the woodland, its enormous trusses of blossom tumbling in a creamy-white cascade over a bank, Rosa moschata exceeds even the wild Honeysuckle in the sweetness of its fragrance. Although it has not been planted many years, this bush is now over fifteen feet across, and so potent is its delicious perfume that on a still evening the latter pervades an acre of ground. Rhododendron occidentale is winding up the season of its genus with its dainty white clusters in the half-shade of water-side Alders. Throughout the present month, groups of the late-flowering form of Cytisus scoparius have made a great show, their sweeping branches drooping with the weight of their large, rich yellow blossoms.

With the exception of my own named form of Mimulus luteus, which lives in shallow water, M. Bartonianus is the only one of the race which escaped the rigours of last winter. It is a matter of no little consolation to feel that a plant of such superlative merit as the latter is so hardy. My plants were in very cold, wet ground, and I have been told that it even survived in a Sussex clay. Mr. Smith, of Newry, sent me the other day an interesting " break " from M. Bartonianus, this being very like the latter save in the flowers, which are almost scarlet with a yellow throat. This has been called " Sunset," and if it is as hardy as its parent, and it appears to be, it will be a welcome addition to a family of which the choicer members are not noted for their permanence. *A. T. Johnson, Ro Wen, Conway, North Wales.*

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

AFTER midsummer, white predominates in the flowers of shrubs—Philadelphus, Olearia, Deutzia, Spiraea, Styrax, many Cistuses and Veronicas all commemorate Henri IV of France by displaying the *panache blanc*. We are grateful therefore when Tropaeolum speciosum winds its carmine wreaths among them. When it meets its compatriot, Desfontainea spinosa, the effect of its blossom among the scarlet and yellow tubes of that shrub is most brilliant. The beauty of the flowers of this Tropaeolum so lavishly produced and followed by sky-blue berries, ensures its cordial welcome wherever it appears. Were it not for these, it would be execrated as an ineradicable weed in such places as are to its liking. Usually it grows best in the cooler atmosphere north of the Border, but I saw a good display of it lately on clay soil and in full sunshine in Colonel Clarke's fine garden at Borde Hill in Sussex.

Zygadenus elegans, a North American member of the Lily family, cannot take rank as a showy plant, but justifies its specific name by grace of form and carriage. From a tuft of long, narrow, grey-green leaves rises a slender, but tough stem to a height of two feet or more, branching in pyramidal form to carry numerous white flowers with a yellow-green patch upon each segment of the corolla. In the late stormy month of June, growing on a wind-swept terrace, it suffered no ill from gales that played sad havoc among Delphiniums.

Under the name of Rodgersia rubra, I received some years ago from the Glasnevin Botanic Gardens, a plant which, as it is not noted in the Kew *Hand List*, may be no more than a variety of R. aesculifolia. Its leaves, however, which are suffused with a ruddy tint, are much smaller and it does not spread so greedily as that species ; in fact, I wish it would assert territorial rights more boldly, for it carries panicles of pretty pink flowers.

From the same source came cuttings of the barren variety of Solanum crispum, a plant of which, now ten feet high, began to flower in May and should continue to do so freely until stopped by autumnal frosts. It stands fully exposed to wind and is covered with flowers, although the fertile plants of this species have done with blossom and are forming fruits.

The only Rhododendrons flowering here in July are the tall American R. maximum, the Swamp Honeysuckle (R. viscosum) and R. pholidotum from Yunnan, with pretty, rose-coloured flowers. Bushes of the summer-flowering R. discolor, nine feet high, have not given us a single truss since they were planted several years ago. Nor do they atone for this, as many of the large-leaved species do, by the beauty of their young growths. R. eximium excels in that respect. Although it flowers in April, there is no movement in the growth buds until the very end of June ; but having once started, they put forth leaves covered with dense, tawny, felt that are quite as ornamental as the flowers. Although this fine species was introduced from the Himalaya eighty years ago and is quite as hardy as R. Falconeri, to which it is nearly related, it has become very scarce and difficult to obtain.

Every diligent amateur gardener must have realised that gloves are an encumbrance for any operation except pruning, and the extraction of the coarser weeds. One sallies forth with hands duly protected, but off go the gloves at the first piece of work, and one brings home an array of fingers that sets every ordinary soap at defiance. Blessings on the friend who, a couple of years ago, made known to me a wonderful purifier in " Sphagnol " soap ; " since when," to quote a familiar advertisement, " I have used no other." I believe it contains an extract from peat ; it is black, and exhales a perfume not of Araby.

Another notable addition to one's comfort has appeared in the Rolcut secateur, a thoroughly satisfactory form of an instrument hitherto leaving much to be desired. It cuts direct instead of obliquely, it never pinches one's fingers and, being plated, does not rust. *Herbert Maxwell, Monreith.*

NOTES FROM KEW.

JULY-FLOWERING shrubs, although few in number compared with those of April and May, are this year making an attractive display in the pleasure grounds. This is largely the outcome of free growth, due to liberal supplies of rain, and comparatively cool weather, during May and June.

The sudden spell of hot weather has brought out to the full the value of the Rock Roses, or Cistuses, for sunny banks and hot, dry borders. Some five or six in number may be classed as hardy shrubs for general cultivation in pleasure grounds and garden borders ; the remainder are on the borderland of hardiness and should be given selected sheltered positions.

First on the list I would place Cistus cyprius, with large, white, crimson-blotched flowers, borne several on a stalk. It is a vigorous evergreen shrub, six feet to nine feet or more in height, of spreading habit, and is thought to be a hybrid between C. ladaniferus and C. laurifolius. The last-named parent is of rather stiff, upright habit, a useful evergreen shrub, seven feet to eight feet or more in height, with quantities of large white blossoms, produced freely from June to August. In open sunny positions and well-drained soils, Cistus laurifolius makes an attractive informal hedge. Less in stature is C. Loretii, which makes a very attractive evergreen bush three to four feet high, and more in diameter. The flowers, which are borne in clusters, are white with a showy chocolate-crimson blotch. It is worthy of note that the flowers of this Rock Rose, and of C. cyprius, remain open in the afternoon, a valuable characteristic, as the blooms of the majority of Rock Roses fall soon after midday. C. corbariensis, with smaller leaves and white blossoms, one inch to one-and-a-half inch across, is a dense, bushy evergreen, thirty inches to three feet or more in height ; a very showy and useful shrub for the front of sunny shrubbery borders.

The Mount Etna Broom, Genista aetnensis, is making a brilliant display in the hot sunshine, with the thermometer over 80°F. at midday. A tall shrub of slender habit, twelve feet to twenty feet tall, the weeping Sedge-like branchlets are very freely studded with small, yellow, Pea-like blossoms. It seeds freely, providing a ready method of propagation. Self-sown seedlings are not unusual in shrubbery borders.

Another indispensable Broom for summer-flowering is Spartium junceum, the Spanish Broom. It is a splendid town shrub. I have seen it flowering freely in several London-square gardens, and in the parks of two or three northern towns. The rich, golden-yellow blossoms are a good size, and are produced freely. The Spanish Broom is readily raised from seeds, and the plants grow and flower freely in comparatively poor soils. A little pruning is desirable in February each year, especially when the plants are young, otherwise they grow tall and leggy, when pruning is useless, as young shoots do not break freely from old, woody stems. Several plants of the double Spanish Broom flowering, near the Rose Dell, are showy and interesting because of their history. It was introduced by Peter Collinson from Nuremberg in 1746. Increase is by grafting on the single-flowered type, or on small plants of Laburnum.

Another shrub delighting in the sunshine is Plagianthus Lyallii and the variety glabrata. Whether cultivated in sunny positions on a lawn, in shrubbery borders, or against a sheltered wall, it is very attractive and a desirable July-flowering shrub. In New Zealand it attains the dimensions of a small tree, but at Kew the bushes, covered with white blossoms, are some ten feet high.

More than twenty species and varieties of Spiraeas are flowering in the botanical collection near the Pagoda. A selection of six or eight of the most showy and distinct should be sufficient for most gardens. S. stellipila belongs to the Sorbaria section and is a showy plant three feet to four feet high with erect, feathery racemes of white blossoms. It is a Japanese plant, sometimes classed as a sub-species or variety of S. sorbifolia. S. Menziesii var. triumphans is the most showy of the tall-growing kinds with coloured flowers. The panicles of purplish-rose blooms are very attractive, and attain a height of four feet to six feet or more. S. Foxii is a hybrid between S. japonica and S. corymbosa. The plants are three feet in height, with large, flattish inflorescences of pink-tinted, white blossoms. S. difformis is another hybrid of dwarf, compact habit (S. corymbosa × S. alba typica), forming neat, two feet high bushes covered with white blossoms. The dwarf varieties of S. japonica, vars. Bumalda and Anthony Waterer, have attractive carmine-red flowers, the latter several shades the richer in colour. S. Margaritae is one of the very showy S. japonica hybrids, with large, flat corymbs of bright pink blossoms borne freely on bushy plants three feet in height. S. discolor, or as often named in some gardens and nurseries, S. ariaefolia, is a very handsome, tall plant for shrubbery borders, or massed in the pleasure grounds. Growing twelve feet or more in height, the plume-like panicles of creamy-white blossoms are very effective during June and July.

Deutzia scabra and its varieties are useful in late June and early July. They are, in fact, the most valuable and reliable border shrubs of the Deutzia family in most gardens, because the growths, being made later than in most species, escape the spring frosts. Growing up to nine feet or ten feet high, the white flowers of the type D. scabra are freely produced in panicles. The varieties magnifica and staphyleoides are improvements on the type, and the rose-tinted variety, pleno roseo, is distinct and showy.

The Mock Oranges, or Philadelphuses, are well-known summer-flowering shrubs. Virginale is still of outstanding merit among the double-flowered sorts, and among the large-flowered singles, Voie Lactée is one of the best. P. insignis, growing ten feet to twelve in height, is one of the latest-flowering of the tall-growing section, so useful in wide shrubbery borders.

Few of the Cotoneasters are striking in flower, but the comparatively new Chinese species, C. turbinata, is an exception, for although small individually, the white blossoms are showy in the mass, and the bushes are evergreen.

As so many of the shrubby New Zealand Veronicas were severely damaged last winter, one hesitates to recommend them for general planting. Notable exceptions of undoubted hardiness are V. Traversii and V. salicifolia. *A. Osborn.*

THE GENUS PRIMULA.

(*Continued from p.* 48.)

CARNIOLICA (Jacq.). Carniolican P.
(Auricula-Brevibracteatae.)

A smooth, glossy, non-mealy perennial plant with oblong or oval leaves, two to six inches long, broad at the tip, margined with an uneven, sparsely-toothed, cartilaginous membrane; they taper gradually to a short or rather long stalk. Flower stem three to nine inches tall, rather flexuous, bearing a loose head or umbel of three to six rose-pink or rose-lilac blossoms from three-quarters-of-an-inch to over one inch across, with a conspicuous mealy eye; they are very fragrant and are divided into five broadly heart-shaped, notched lobes; tube funnel-shaped, nearly half-an-inch long. Flowers in June and July.

This beautiful plant is confined to a small district in the Julian Alps north of Trieste, where it grows in wet moss on the face and ledges of rocks, usually in dense shade.

Culture: Grow it in good fibrous loam in a damp shady spot, well-drained in winter.

CARNOSULA (Balf. f.). Fleshy-leaved P.
(Farinosae.)

A small, smooth, tufted species with fleshy, very variable foliage. Leaves one inch to two inches long, spathulate, with oval, rounded or diamond-shaped blades, tapering to a narrowly winged stalk; margins entire, slightly scalloped, or minutely toothed. Flower stem about four inches tall, downy, coated with white meal among the blossoms, which are borne in an umbel of three to five, on short, mealy stalks; they are fragrant and of a deep purple-lilac tint, with a yellow tube twice as long as the calyx. Corolla about five-eighths-of-an-inch long, with broadly wedge-shaped lobes, again divided into two small lobes. Flowers in June. This species is referred to P. zambolensis, Petitm., by Messrs. W. Wright-Smith and G. Forrest.

Grows in damp, rocky places on the mountains of north-western Yunnan, western China.

Culture: Peat, loam and limestone chippings, in a damp, open spot is indicated; or it may be tried in a damp cleft in a limestone rock packed with peat.

CAVALERIEI (Petitm.). Cavaleriei's P.
(Malacoides.)

A dwarf plant covered with fine rust-coloured hairs. Leaves two-and-a-half- to three-and-a-half inches long, thin, kidney-shaped, heart-shaped at the base, tapering to a winged, wedge-shaped stalk; five to six inches long, covered with rust-coloured hairs; margins of blade wavy, cut into toothed lobes. Flower stem four to seven inches tall, bearing two superposed umbels of two to four blue blossoms, about half-an-inch across, with broadly heart-shaped, notched lobes; tube twice as long as the calyx. Flowers in December.

This species appears to inhabit situations in the province of Kouy Tcheow, China, similar to those favoured by P. Allionii in the Maritime Alps of Italy, and would probably succeed under the same conditions in cultivation.

CAVEANA (W. W. Sm.). Cave's P.
(Obtusifolia).

A desirable Himalayan perennial species of almost evergreen habit. It produces a rosette of obovate or nearly circular, blunt, thin, green leaves, about one-and-a-half inch long, tapering to a distinctly winged stalk from one-and-a-half inch to two-and-a-half inches long, sheathing the rootstock at the base; margins toothed; upper surface minutely downy, underside covered with white meal. Flower stem two to three inches tall, bearing an umbel of two to four pale purple blossoms on slender stalks about half-an-inch long. Corolla nearly three-quarters-of-an-inch across, divided into five broadly heart-shaped, entire or irregularly toothed lobes.

This species is found on humus-covered rocks and boulders in the Upper Llonakh Valley, Sikkim, at 15,000 feet above sea-level.

Culture: Loam, leaf-soil and limestone chippings, with protection from damp in winter, should suit this species.

CAWDORIANA (Ward). Lord Cawdor's P.
(Soldanelloideae.)

A delightful little species, with a tuft of oval, pointed leaves one-and-three-quarters inch long and three-quarters-of-an-inch wide on short stalks; margins furnished with sharp broad teeth which are fringed with fine hairs, both surfaces of the leaf blade are downy. Flower stem six inches tall, downy below, mealy upwards among the blossoms, which are produced in a one-sided umbel and number from five to seven. Corolla one-and-a-quarter inch long, tubular, bluish-purple in colour and expanded at the mouth into five bifid, tooth-like lobes. Flowers in June and July.

P. Cawdoriana grows on the slopes of mountains at Temo La and Nyima La, amongst dwarf Rhododendrons, in south-eastern Tibet, at 12,000 feet to 14,000 feet above sea-level.

Culture: Good fibrous loam, leaf-soil and grit, in a damp, half-shady spot in the rock garden, with protection from damp in winter, is indicated.

CELSIAEFORMIS (Balf. f.). Celsia-like P.
(Malvacea.)

A handsome, large-leaved, deciduous perennial species, with a rather small, weak rootstock. Leaves few, with hairy or downy, oblong, or oblong-elliptic blades about nine inches long and four inches across, with blunt tips and broad, coarse teeth on their sinuously waved margins; they are borne on slender, more or less downy stalks about six inches long. Flower stem stout, downy, twelve to sixteen inches tall, bearing an irregular raceme of short-stalked, violet-coloured blossoms about one-and-a-quarter inch across, with oval, deeply and narrowly cleft, overlapping ciliolate lobes; tubes long and cylindrical.

Grows on the rocks at Ta-tchai at 18,000 feet above sea-level, in western China.

Culture: As for P. blattariformis, but probably requires greenhouse protection in winter.

CEPHALANTHA (Balf. f.). Onion-flowered P.
(Muscarioides.)

This pretty plant produces a rosette of downy leaves three to four inches long, with narrowly oblong, blunt blades and margins cut into irregular, coarse teeth or small lobes, tapering below into a short-winged, downy stalk. Flower stem eight to ten inches tall, more or less smooth, bearing a many-flowered head or short spike of narrowly tubular, purple or blue-violet blossoms about three-eighths-of-an-inch long, with concave, oblong, nearly square or nearly triangular, erect, frequently notched lobes; tube a quarter-of-an-inch long, covered with yellow meal. Flowers in July.

This species is found in pastures on the plateau of Je-mo-tchouan, in Yunnan, at 9,600 feet above sea-level.

Culture: As for P. atricapilla, with protection from damp in winter.

CERNUA (Franch). Drooping P.
(Muscarioides.)

A beautiful species closely allied to P. pinnatifida; it is a perennial and produces a rosette of broadly oval, indistinctly-stalked leaves, one inch to three inches long, with slightly scalloped margins. The flower stem reaches a height of nine to fifteen inches, and bears a head of deep purplish-blue, fragrant blossoms on very short stalks. Corolla cup-shaped, nearly half-an-inch across, and three-quarters-of-an-inch long, shortly divided into five oval lobes. Flowers in July.

The plant is usually found in somewhat shady spots, such as the margins of woods and on the shady banks of streams, in Yunnan and Szechuan, western China, reaching an elevation of 12,000 feet above sea-level.

Culture: Good, sandy loam and leaf-soil in equal proportions. Plant it in a damp, half-shady spot in the rock garden and protect it from damp in winter.

CHARTACEA (Franch). Papery-leaved P.
(Petiolares-Chartacea.)

A little-known species resembling P. heucherifolia. Leaves medium-sized, oval or rounded, somewhat heart-shaped at the base, smooth, paper-like, glaucous, obscurely and bluntly toothed; stalks downy, long and slender. Flower stems erect, longer than the leaves, bearing a few rather small, rose-lilac flowers. Corolla salver-shaped, divided into five bifid lobes. Grows in Bamboo thickets and in somewhat damp, shady spots on the mountains of Szechuan, western China.

Culture: Leaf-soil, loam and sand, in a damp, shady spot, is indicated; probably not hardy. *A. W. Darnell.*

(*To be continued*).

ROYAL HORTICULTURAL SOCIETY'S EXAMINATION.

ONE-HUNDRED-AND-THIRTY-FIVE candidates entered for the Senior Examination this year, and of these seven were placed in Class 1, thirty-six in Class 2, forty-four in Class 3, and forty candidates failed. Eight candidates did not present themselves for examination.

Silver-gilt medals will be awarded to Miss Mary Alice Brook, Mr. Wilfred C. Ibbett, and Mr. Karl Armytage Therkildsen, as being equal firsts.

The answers as a whole, were fairly good, but some candidates who evidently had a good knowledge of their subject failed to express themselves clearly, while others showed lack of practical experience. Students should learn the need of conveying their thoughts with clarity and brevity, as marks are deducted when the meaning is obscure as well as for incorrect answers. Many of the diagrams were very crude and inaccurate.

Many candidates misread Question 4, which quite clearly was concerned with types of natural vegetative multiplication; replies dealing with grafting, budding and similar artificial operations could not be accepted.

Twenty-eight candidates were examined in the Junior section, and of these seven were placed in Class 1, five in Class 2, eight in Class 3, and eight candidates failed.

A Silver-gilt Medal will be awarded to Mr. John P. Hudson, of the Midland Agricultural College, Sutton Bonington, as being first.

A few of the candidates were either ignorant of the scope of the examination, or had had no means of adequate preparation for it. On the other hand, a proportion of the answers gave evidence of careful preparation and a very fair elementary knowledge of the subject.

Answers to the question on plant nutrition were the least satisfactory, and very few candidates described with any approach to accuracy the means by which food materials are absorbed from the soil. More attention should be paid to the use of clear line-drawings for illustrating the form and arrangement of the parts of plant-structures.

SENIORS.

Class 1.—(1) Mr. Wilfred C. Ibbett, The University, Reading; Miss Mary A. Brock, 40, Steeles Road, South Hampstead; and Mr. Karl A. Therkildsen, R.H.S. Gardens, Wisley. (4) Miss Margaret Jaques, East Barnet Road, New Barnet. (5) Mr. R. A. Engeldow, 46, Camp Lane, St. Albans; and Miss Jeanne Y. Wilson, 13, Rutford Road, Streatham. (7) Miss P. H. Palmer, Studley College, Warwickshire.

Class 2.—(1) Miss Lorna C. Style, Studley College. (2) Mr. Frederick J. Reed, Archgrove Villas, Long Ashton; and Mr. Raymond J. Gutsell, 6, Church Road, Leatherhead. (4) Miss Valerie Barbey, School of Gardening, Clapham, Worthing. (5) Mr. Stanley G. Smith, R.H.S. Gardens, Wisley; and Mr. Frederick W. Staddon, Elbridge Experimental Station, St. Mellion. (7) Miss Audrey M. Mead, School of Gardening, Clapham; and Mr. Geoffrey Rhodes, The Heights, Thurstonlands, near Huddersfield. 7) Miss Janet N. Fawcett, Studley College; Miss Marjorie Stearns, Studley College; and Mr. R. A. Macdonald, R.H.S. Gardens, Wisley. (12) Mr. Leonard F. Clift, Graystoke, Woodstock Road, St. Albans. (13) Mr. Herbert Skirton, Pondsmead Gardens, Oakhill, Bath; Mr. Bertram K. Randall, Institute of Agriculture, Oaklands, St. Albans; and Miss Marion Greaves, Studley College. (16) Mr. P. K. Bear, Mr. E. K. Lawrence and Mr. M. J. Peters, all from the R.H.S. Gardens, Wisley. (19) Mr. James Francis Thomas, 8, Wellington Road, Stockwell; Miss Helen B. Davidson and Miss G. H. Millar, from Studley College, Warwickshire. (22) Mr. Arthur J. Wooldridge, Brambles, Shinfield; and Miss Maud M. A. Hall, Fore Street, Edmonton. (24) Mr. Kenneth McCready, 16, Forest Road, Kew Gardens, Richmond; Mr. George Charles Searle, 5, Fenswood, Long Ashton, Bristol; Miss D. M. Sanders, Duffryn Newydd, Llanishen, Cardiff; Mr. George Owen, 58, Darlington Road, Ferryhill, Co. Durham; and Mr. William Alfred Dove, R.H.S. Gardens, Wisley. (29) Mr. Henry M. Tydeman, Stone House, East Malling; Mr. Reba S. Lewis, Victoria Road, Wargrave; and Mr. Robert Williams, R.H.S. Gardens, Wisley. (32) Mr. Eric Clifford Wray, 48, Netherton Road, Worksop; and Miss Doris Burstow, Studley College. (34) Mr. Frederick H. Wright, 212, Shinfield Road, Reading; Miss E. B. H. McQuiston, Aldersey Horticultural College, near Chester; and Mr. Robert Wadsworth, TheHeys, Thongsbridge, near Huddersfield.

Class 3.—(1) Miss Mary Bromley, School of Gardening, Clapham; and Miss Elena Bailey, Studley College. (3) Mr. Harry Hall, 76, Pelham Road, Wimbledon; and Mr. William Ian Pieris, 26, King Street, St. James's, S.W.1. (5) Mr. George A. Davis, 4, Holly Road, Hampton Hill, Middlesex; Mr. Leslie P. Lee, 16, Forest Road, Kew Gardens, Richmond; and Miss Marion C. Johnston, Studley College. (8) Mr. Alfred H. Martin, St. Cross, Third Avenue, Denville, Havant; and Mr. John L. Beddall, R.H.S. Gardens, Wisley. (10) Mr. Cecil B. R. Garner, 11, Richmond Villas, Water Eaton Road, Bletchley, Bucks.; Mr. Arnold C. Francis, 11, Malden Hill, New Malden; Miss Frances Clowes, The Garden House, Middle Hill Park, Broadway; and Mr. James Ross Reid, R.H.S. Gardens, Wisley. (14) Mr. T. Lomas, 79, Gladstone Road,, Wimbledon; Miss Dorothy Knight, Avonwood French Gardens, Corston, Bristol; and Miss Joan R. Harding, St. Margaret's School, Lockleys, Welwyn. (17) Miss Phoebe Starr, Avonwood French Gardens, Corston, near Bristol; Mr. Sidney G. J. Grice, 4, New Cottages, Watford Road, St. Albans; and Miss Joyce Dennys, Agricultural College, Sutton Bonington. (18) Mr. Albert Atkins, 2a, Park View Drive, Twyford, Berks.; Mr. John Wright, Manor Farm, Keyworth, Notts.; Mr. Daniel Winchester, 14, Holding, Slough Road, Denham, Uxbridge; and Mr. G. R. Knight, R.H.S. Gardens, Wisley. (24) Mr. Harry Ebsworth, Dudbrook Gardens, near Brentwood; Miss W. M. Milne, Innisfree, The Holmwood, Dorking; Mr. Jack Hardy, Horticultural Station, Houghall, Durham; and Mr. G. R. Wallis, 49, Filton Avenue, Horfield, Bristol. (28) Mr. Percy Cross, 4, The Rush, Merton Park, S.W.; Mr. John Lee, 4, Whatley Avenue, Merton Park; Mr. Arthur J. Aplin, Blyth Hall Gardens, Blyth, near Rotherham; Miss E. J. Cooksey, Studley College; and Miss Barbara H. Wood, Aldersey Horticultural College, near Chester. (33) Mr. John E. Wilding, 55, Gladstone Road, Wimbledon; Mr. William Williams, Medburn Cottage, Elstree, Herts.; and Mr. A. J. Brown, Coronation Cottage, Twogates, Tamworth. (36) Mr. Robert J. English, 55, Gladstone Road, S.W.19; Mr. Frederick W. Loads, Hutton Henry, Castle Eden, Durham; and Mr. M. Lee, R.H.S. Gardens, Wisley. (39) Mr. Alexander R. Longmuir, 23, Balgraybank Street, Springburn, Glasgow; Miss Ibra E. Garrett, Helmingham Rectory, Stowmarket.; Mr. G. E. Wolstenholme, R.H.S. Gardens, Wisley; and Mr. G. Wheeler, c/o Parks Superintendent, Heaton Park, Manchester. (43) Mr. Ernest G. Dawe, Church Street, Great Glenn, Leicester; and Miss Naomi C. Favell, 65, West Cromwell Road, S.W.5.

JUNIORS.

Class 1.—(1) Mr. John P. Hudson, Midland Agricultural College, Sutton Bonington, Loughborough. (2) Miss Marion Lewis, Walmoor College, Chester. (3) Miss Joyce Buckley, Holmwood Park, near Wimborne. (4) Mr. R. Young, c/o Alexandra Park, Manchester. (5) Mr. George T. Goodship, Helford House, Drayton Road, Boreham Wood. (6) Mr. R. E. Hardwick, R.H.S. Gardens, Wisley, Ripley, Surrey. (7) Mr. H. Bone, Institute of Agriculture, Oaklands, St. Albans.

Class 2.—(1) Mr. Ralph Evan Dean, R.H.S. Gardens, Wisley. (2) Miss Doris T. Parkin, The Fernery, Crosby, Ravensworth, Penrith. (3) Mr. Harold A. Thompson, St. John's School, Tiffield, Towcester. (4) Miss Eleanor V. Graves, Walmoor College, Chester, and Mr. William E. Prewer, 222, Rosefield Cottages, Birkby Hall Road, Huddersfield.

Class 3.—(1) Mr. Albert James Taft, St. John's School, Tiffield, Towcester; and Mr. E. B. Horton, R.H.S. Gardens, Wisley. (3) Mr. George A. Bishop, St. John's School, Tiffield, Towcester. (4) Mr. Sydney G. Hurst, St. John's School, Tiffield, Towcester; and Mr. Frederick H. Bellamy, Elsham, Brigg, Lincolnshire. (6) Mr. George Tolcher, St. John's School, Tiffield, Towcester. (7) Mr. Stanley Lockwood, 1, Tenay Bridge, Huddersfield. (8) Mr. George Hewison, St. John's School, Tiffield, Towcester.

TEACHERS' EXAMINATION IN SCHOOL AND COTTAGE GARDENING.

PRELIMINARY EXAMINATION.

Of the 306 candidates who entered, 119 were placed in the First Class, seventy-three in the Second Class, forty-seven in the Third Class, and thirty candidates failed. Thirty-seven candidates were absent from the examination.

A Silver-gilt Medal will be awarded to Miss Margaret Rosa Cockerton, of 103, Upper Brockley Road, London, S.E., as being first.

The examiners report that the standard of the answers given was, on the whole, above the average. The answers to Question 3, dealing with the best arrangement and method of cultivation of a school garden for the instruction of the pupils in utility gardening and practical nature study, were fairly good, the principles underlying the rotation of crops being well stated. The chief defect in the answers was that candidates did not appear to realise the many possibilities of the school garden for demonstrating the teaching of practical nature study.

Many candidates seemed by their answers to Question 5 to have no idea of the nature of fertilisation, or of grafting, and would be dangerous disseminators of error, but the answers to Question 7, dealing with rambler Roses, were very good. Question 12, dealing with culinary Herbs, proved more difficult, many candidates apparently knew only four of the common herbs, and it was noticeable how few were acquainted with Chives.

The quality of the answers to Question 8, dealing with the treatment of a garden with a clay loam soil, was above the average, and there was a general appreciation of the difficulty of working heavy soil.

ADVANCED EXAMINATION.

Two candidates entered for this examination, and both passed, namely, Mr. Matthew Smith, Carm Marth, The Cleeve, Seend, near Melksham, Wiltshire; and Mr. Arthur Whetton, 23, Market Square, Bicester, Oxon.

The examiners report that both candidates attained a creditable standard in the examination.

GREENWICH PARK.

GREENWICH Park is well worth a visit at this season of the year, for the handsome display of the bedding schemes and their originality are not unworthy to follow the fine display of British-grown Tulips earlier in the season. A brief description of this Royal Park, so ably superintended by Mr. Hepburn, and of some of the splendidly-grown plants to be seen at the present time, may induce more to share the pleasures of those who know the park well.

Walking from the main entrance, past various trees and shrubs, one is first confronted by a long border, bright with a splendid mixture of Canterbury Bells of delicate shades of lavender, blue, rose and white, over a pink groundwork of the dwarf Silene pendula compacta. Further along the border grow specimens of the delicate pink Spiraea Queen Alexandra, which blends beautifully with the white, early-flowering

Gladiolus The Bride. Schizanthuses, Hydrangeas and Cinerarias also grace this border in bold groups, and the whole is backed with a large shrubbery where the purple-leaved Corylus, and the white flowers of Philadelphus, are conspicuous. On the other side of the path many of the beds are now attractive with a gay display of flowers, and it is obvious that a bed of many-coloured Calceolarias, edged with Calocephalus (Leucophyta) Brownii, is much appreciated. In another bed a good contrast in leaf colours is formed by the dark-red foliage of the fibrous-rooted Begonia Corbelle de Feu, the green and yellow of Abutilon Savitzii, and the edging of Chlorophytum elatum variegatum. A dwarfer variety of Begonia semperflorens is also included to break the regularity of height. The warm rose-pink blooms of Rose Madame Abel Chatenay are delicately contrasted with the lavender groundwork of Viola Maggie Mott further on, while in yet another bed the blush-pink of Rose Ophelia is pleasantly associated with the same popular Viola.

One of the most striking beds in this part of the park is one of a rich yellow Spanish Iris carpeted with the mauve Aubrietia Dr. Mules, and broadly-edged with pale lavender Aubrietia. This pleasing contrast of bright yellow over mauve compels attention even from a considerable distance, and it is interesting to note that earlier in the season this same groundwork of Aubrietia, then as bright as now, blended with the double pink blooms of Tulip Tea Rose. There are other beds by the side of the long walk equally as attractive, but in particular mention should be made of a large bed of Stocks aptly named Parma Violet.

At the far end of the long border are to be seen winter-flowering Pansies, yellow, mauve, purple and white, in full flower, and planted among them are mixed Spanish Irises.

In another part of the park a long border of the newer varieties of Sweet Peas, grown in clumps, are in flower, and giving a bright display. Some interesting bedding schemes fill the large beds in the wide stretch of grass, and among these perhaps the most attractive is one filled with a mixture of Iris Imperator and Sunbeam Poppies. The bright blue of the Iris and the orange, yellow and white of these large-flowered Iceland Poppies is very effective, and a similar colour effect and one which was quite as attractive, was seen last year in the same bed. The central mass was of the Gentian-blue flowers of Anchusa Pride of Dover, which was edged with the golden yellow Geum Lady Stratheden. Both these flowers now occupy a prominent place in a side border. The deep red spikes and massive flowers of the popular Antirrhinum Eclipse stand out boldly in a large round bed, and a dwarf, yellow Snapdragon which is used as a groundwork to this bed, brightens the whole display. One other bed may be mentioned in passing. It consists of well-grown pink and white Cup-and-saucer varieties of Canterbury Bells, with Verbena venosa planted between them. *A. Donald Blaxill.*

FRUIT GARDEN.

STRAWBERRIES.

It would be safe to state that no fruit has caused the gardener so much heartburning as the Strawberry, and no fruit has caused the employer more disappointments, hence often the failure of the Strawberry crop results in strained relations between employer and gardener. To be as impartial as possible in the matter, let us consider some of the causes for failure. Alluring exhibits of fruits at shows prove that Strawberries may be grown well, and prove a tempting bait to the would-be cultivator, but we should bear in mind that these fruits are produced on, perhaps, the best Strawberry land in the country, and by some of the most skilled men. Moreover, they are grown on selected plants, and their cultivation is perfect.

So long as there are Strawberry plants in the garden, an employer cannot see the necessity for buying fresh stock, and when he does buy them he is not sure of getting plants of the quality that the exhibition fruits were grown from. The demand for many of the newer varieties is so great that all buyers do not get first-class runners, or receive them in good time for planting, and late planting is useless for securing a crop the following year. Rather than rely on a bed of a new variety, it is better to order a dozen or so of it for trial and a larger quantity of a standard variety known to do well in the neighbourhood. It is better still to buy or beg runners from a neighbouring garden of plants that are known to be healthy and of good cropping qualities, whatever the variety; to obtain them during August, and to plant them in soil that has been well prepared previously. It is waste of ground to give them two feet apart each way for the first year, and also waste of netting to cover them. One foot each way the first year, and when they have fruited removing every other one, or even transplanting them two feet apart for the second year is by far the better method.

Every encouragement should be given to the young plants to form good crowns before winter, and so soon as the flowers show in the spring a dusting of a fertiliser, hoed in around each plant, should prove very beneficial. Placing the straw around them early is a mistake, for in wet seasons it encourages disease. Keep the soil hoed and exposed to the sun so long as possible; strawing and netting may be done at the same time, just before the fruits begin to colour, and only sufficient straw should be used to keep the fruits off the ground, for the sun should be allowed to reach the soil.

When the plants are fruiting, the healthiest and most fruitful plants should be marked, and from these the runners may be taken; poor plants should be removed entirely. So soon as the fruits have all been gathered clean the plants, pot all the runners required, and lightly earth up the old plants, after removing those not required. Earthing around them causes the new crowns to root at once into the soil, instead of being exposed to the air as is often the case.

On light soils Strawberries may often be made to do well on a north wall border, where they escape the burning rays of the summer sun, and partial shade from the east often saves a large number of flowers from spring frosts.

If the above rules were carried out faithfully we should hear less about the failure of Strawberries, and real disease would be recognised more easily. Cultivation plays a large part in the prevention of disease, and prompt and drastic remedies on its appearance should save gardeners and employers from much disappointment. *R. Gardner, Cobham, Surrey.*

HOME CORRESPONDENCE.

Variation.—I read the article on Variation in your issue of July 7, p. 1, with considerable interest, but not with entire agreement. In the experimental results described, it is claimed that sterile plant hybrids, which remain sterile under ordinary conditions, have been rendered fertile by the simple process of continually cutting them back. I see no reason, however, to readjust my opinions as to the origin of variation or to come back to the now obsolete hypothesis of Lamarck, that acquired characters are inherited. The case cited, moreover, is no example of the inheritance of acquired characters even in a modified form, but only an example of the response of an individual to conditions of environment. These conditions, *i.e.*, cutting back, make it physically possible for the hybrid plant to produce gametes, which of necessity must be of characters destined by the gametic constitution of the parent plant (here hybrid). The resulting seedlings will owe their "existence" to the acquirement on the part of the parent plant of a capacity to set seeds, but this acquired capacity was not inherited in any way and their "characters and kinds" they owe to the race from which they spring. It is always difficult and sometimes impossible to discriminate between acquired characters and those which are gametic and inherited. Each individual of a race may in turn be influenced by the same conditions, making certain characters which they all exhibit apparently inherited. For example, Geranium perenne may be found in large numbers in certain mountain fields in Cumberland, each separate plant no larger than an Aubrietia, and one is apt to conclude, as I did, that here was a dwarf race of rare beauty. Transfer a few plants to a garden in the south, and in the very next season they assume normal proportions, and the resulting seedlings which arise are of similar robust growth, thus proving beyond all doubt that each plant is influenced in the matter of stature, individually, by the surrounding conditions. If the resulting seedlings of the hitherto sterile hybrid were fertile in their turn the theory of "the inheritance of acquired characters" might have a case, for it might be argued that the offsprings had inherited this capacity from a parent which had acquired it, but even here the evidence would be weak when one remembers that there would necessarily be the segregation of a large number of small individual characters in the hybrid parent which might easily influence its offspring's sterility or fertility. I consider that the case of Meconopsis Baileyi is open to criticism for I am informed by a grower of this plant since it was introduced that there are two distinct races of quite different character, and who knows what casual crossing may have done in the matter of flower colour, caused by the growing of these two races in close proximity? I believe that no race is absolutely true to every character it exhibits, and that sexual reproduction naturally gives the tendency to vary, sometimes more than at others, when it becomes visible to the casual observer. *A. Donald Blaxill, N.D.H.*

R.H.S. Fruit Show.—I have received the schedule for the Annual Fruit Show, to be held in the New Hall, by the Royal Horticultural Society, on October 9, and I much regret to find the show is again limited to five hours only, in so far as the general public is concerned. It took me just double that time to stage my numerous exhibits last year, and I venture to state it will be some time before such a wonderful display, especially of Apples, will again be open to view. With numerous competitors, and fine specimens of cooking and dessert fruits of grand colour, quality and even of size and shape, such splendid fruits deserve to be exposed to view for at least a second day, and at a reduced entrance fee, so that the public may see that the British Isles can grow the very best Apples in the world. I feel the R.H.S. could do more to bring our fruits before the public in that way; the foreigner does all he can to capture our markets, and we sit still and do nothing, or, at least, very little. I often wonder if, after taking all the trouble (to me it is a labour of love) to grow, select, pack (which must be well done), followed by a long rail journey (which is expensive), and then stage the fruits at a show which is open only to the public for half the time it takes to set them up, if the game is worth the candle. What do your readers think? I do hope many will express their views on this matter. A great many of your readers were born and trained in horticultural matters, and know ten times as much as I can ever hope to know. I was an agriculturist and only began to grow fruits about twenty-five years ago, and then had to teach myself by reading, experimenting and seeking knowledge from others, who I thought understood the job. *J. A. Stidston, Teignmouth, Devon.*

The Scent of Musk.—It would be interesting to know if it has definitely been established that Musk, through a stage in the evolution of the flower, has lost its scent. All flowers that possess colour and scent have those properties to aid in attracting certain insects for fertilisation. Is it accurate to assume that since the Musk has arrived at that stage when it no longer requires the services of a certain insect, it reserves the energy formerly spent in attracting, and in this way may we account for total loss of odour? It would be interesting to know, if such is the case, what has become of the visiting insect. *D. B. M.*

SOCIETIES.

BRITISH CARNATION.

July 19 and 20.—The thirty-fifth floral meeting of the above Society was held in conjunction with the National Carnation and Picotee Society, at the Royal Horticultural Society's Hall, Westminster, on these dates. The combining of the shows of these two Societies resulted in the hall being well filled with exhibits, all of which were of high quality, while the competition for the *Daily Mail* Gold Challenge Cup for the best scented Carnation added to the general interest of the show; this cup was won for the third time by Messrs. A. F. Dutton, Ltd., with the variety Mrs. A. J. Cobb.

Competitive Classes.

The competition for the George Monro Silver-gilt Challenge Cup resulted in Messrs. C. Engelmann, Ltd., winning this coveted trophy, with lovely blooms of Lady Hindlip, Hebe, Spectrum, Coral Glow, Sunny, Blanche and Topsy. Messrs. C. Engelmann, Ltd., were extremely successful exhibitors, for besides winning the above cup they secured the J. S. Brunton Challenge Cup for three vases of twelve blooms of British novelties distributed since January 1, 1926, with choice examples of Circe Improved, Hebe and Nero; the Challenge Cup presented by the American Carnation Society for one vase of twenty-five blooms of Spectrum, with beautifully-shaped specimens; the first prize for one vase of not less than one hundred blooms of one variety, with magnificent examples of Laddie; and for twenty-five blooms of a British-raised Carnation not yet in commerce, with June, a vivid rose-pink variety.

They were also successful in the class for three vases of Carnations, three distinct colours, gaining the first prize for blooms of White Pearl, Laddie and Master Michael Stoop; for one vase of twelve blooms of a deep pink variety, again showing Master Michael Stoop; for one vase of a selected variety, with twelve blooms of Katja; and for one vase of twelve blooms of Fancy Carnations, showing Lady Hindlip.

Messrs. Allwood Brothers gained the premier award for one vase of fifty blooms, in four varieties, with choice specimens of Topsy, Maine Sunshine, White Pearl and Laddie; and the George Monro Silver Challenge Cup for one vase of twenty-five blooms of a crimson Carnation, scent to be taken into consideration; while other premier awards which they received were for twelve blooms of a white Carnation, showing good flowers of White Pearl; for one vase of medium pink Carnations, one variety, with Mary Allwood; and for apricot and yellow-shaded Carnations, in which class they showed exceptional blooms of Coral Glow and Maine Sunshine.

For one vase of a light pink Carnation Mr. C. Wall was awarded the first prize for fine blooms of Laddie; and he was also successful in the class for one vase of a crimson variety, with Topsy.

Lady Brodie Henderson, of Epping House, Hertfordshire, was placed first in the class for one vase of a red Carnation, the flowers of the variety Lord Lambourne which she exhibited being of exceptional quality. Mr. C. Wall was first in the class for one vase of specified Carnations, showing Sheila Greer.

In Section B, open to amateurs or their gardeners, Lady Brodie Henderson was a prominent prize winner. She showed the best blooms of White Pearl, Sir Philip Sassoon, Eileen Low and Arnos Grove, in the class for Messrs. Stuart Low and Co.'s novelties, and was placed first for one variety of a red Carnation, with good blooms of Lord Lambourne. Other premier awards which she secured were for one vase of crimson Carnations, with Topsy; and one vase of specified varieties, with Saffron; and in the next class with Jean Henderson.

E. Martin Smith, Esq., won the Mrs. Frederick Norman Silver Challenge Cup for one vase of seedling Carnations, raised and grown by the exhibitor; and also secured first prizes for medium pink Carnations, with Betty Low, and for one vase of twenty-four blooms, not fewer than four varieties, distributed by Messrs. Allwood Brothers.

The premier award for a decorative vase of Carnations, not more than twenty-five blooms, was won by R. Chelwynd Stapylton, Esq., who also showed the best vase of white Carnations exhibiting well-shaped blooms of White Pearl; and the best vase of medium pink Carnations. E. C. Bradley, Esq., secured a first prize for medium pink Carnations, specified varieties; and Lady Melchett, Melchet Court, Romsey, was placed first for one vase of five blooms of a specified variety, with good specimens of Mary Pearson.

In the classes for members unable to attend the show to stage their flowers, Mr. E. Walker, Radcliffe-on-Trent, Nottingham, secured all the premier awards.

Mr. W. Holden, The Gardens, New Lodge Clinic, Windsor Forest, was awarded the Lord Howard de Walden Challenge Vase for the best twelve plants of perpetual-flowering Carnations.

Section C was for amateurs not employing a full-time gardener. Mr. W. E. Tucker, Freshwater, Isle of Wight, was the most successful exhibitor, securing, in all, seven premier awards; two first prizes went to Mr. J. Wearing, Woking, and one to Mrs. A. Swann.

The exhibits in the section for table decorations and decorative vases and baskets were exceptionally good. Messrs. Allwood Brothers arranged an attractive table decoration, using the lovely Dianthus Allwoodii Sylvia; and Mr. A. Swann secured the other premier awards in this section.

Messrs. Robert Green (1911), Ltd., secured the Covent Garden Challenge Trophy for the best display of vases, bowls, baskets, etc., with dainty arrangements of Carnations of various shades, and they were also first for the dinner table decoration in this section, *i.e.*, for florists.

There were also several choice exhibits in the section, open to all members, for Pinks, Malmaisons, Sweet Williams, etc., the first prize winners being R. C. Stapylton, Esq., Mr. R. Morton and Mr. E. Martin Smith.

Groups.

A spectacular bank of Carnations was set up by Messrs. C. Engelmann, Ltd. There was a central mass of Blanche, with Brilliant at the summit and Red Laddie and Laddie in the foreground, while the background of the group was composed of Coral Glow, Janet, Nero and the brilliant Rouge. There were also wonderful vases of Master Michael Stoop, Improved Ward, Circe Improved, Topsy, Mab, Dainty and White Pearl.

One end of the hall was filled with a magnificent display by Messrs. Allwood Brothers, which included masses of perpetual-flowering sorts, together with Dianthus Allwoodii varieties, D. Allwoodii alpinus sorts, such as Wendy, Oberon, Puck, Titania, Tinkabell and Ariel, set naturally among rocks, and hardy border Carnations, among which the best were Glamour, rich yellow; Grenadier, scarlet; E. Shiffner, apricot; Elaine, Skirmisher, Effie Dean, and Lord Steyne, to mention but a few. Among the Dianthus Allwoodii varieties we noticed Maud, Freda, Ann, Alfred and the lovely Sylvia; while the best among the perpetual-flowering sorts were Topsy, George Allwood, Wivelsfield Fancy, Maine Sunshine, Wivelsfield White, Red Laddie, Harmony, Mary Allwood and Velvet.

Mr. Charles Wall staged a small group of baskets of Glorious, a flaming, rich rose-pink variety; Topsy, Saffron, Laddie, Beauty of Bath, apricot; and Dixie, pink and cream. Messrs. A. F. Dutton, Ltd., showed the well-known Carnation Mrs. A. J. Cobb.

Mr. James Douglas exhibited hardy border Carnations of exceptional quality, including such lovely varieties as White Coral, Crystal Clove, Princess Mary, Kelso, Mrs. Seymour, Bookham Scarlet and Royal Clove. Messrs. Keith, Luxford and Co. included White Wonder, Coquette, Enchantress Supreme, May Day and Aviator in their choice collection; while the best of Mr. C. H. Herbert's very choice border Pinks were Queen Mary, Othello, Model and Princess Elizabeth.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held on Friday, June 15, 1928, the members of Committee present were:—Messrs. J. B. Adamson (in the chair), A Burns, B. Collins, A. Coningsby, D. A. Cowan, J. Evans, A. Keeling, G. V. Llewelyn, D. McLeod, W. J Morgan and H. Arthur (Secretary). Mr. J. Thrower was invited to sit with the Committee.

Awards of Merit.

Miltonia Hyeana var. The Warren; M. Cecelia var. alba and M. Gattonense var. Gloria. From The Hon. G. E. Vestey.

Odontoglossum crispum var. Carmen and *Dendrobium Gibsonii.* From Captain W. Horridge.

Miltonia Hyeana var. King Ethelbald. From Mrs. Bruce and Miss Wrigley.

Awards of Appreciation.

Miltonia King Edred (vexillaria × Bleuana rosea), and M. Hyeana var. King Edwy. From Mrs. Bruce and Miss Wrigley.

Odontoglossum crispum var. Madame Butterfly, from Captain W. Horridge; and Miltonia vexillaria Lyoth var. superba, from The Hon. G. E. Vestey.

Groups.

J. B. Adamson, Esq., Blackpool (gr. Mr. J. Howes), arranged a group to which a Silver-gilt Medal was awarded; this contained Odontoglossums in great variety, including O. Amabile, O. G. D. Nicholas, O. harvengtense and O. Plumptonense alba magnifica; Odontioda Brewii Leeana and O. Bradshawiae var. Phoenix, Miltonia Lena, M. Isabella, M Lyoth and many others.

The Hon. G. E. Vestey, Birkdale (gr. Mr. B. Collins), was also awarded a Silver-gilt Medal for a group containing Miltonias in great variety; Odontoglossum Rosina, Vestey's var., O. niveum var. majus, O. Lutetia and O. Conqueror; with Laelio-Cattleya Iolanthe and Brasso-Cattleya Maronii.

Messrs. A. J. Keeling and Sons, Bradford, exhibited a group to which a Silver Medal was awarded; Miltonia Constance, M. Gloriosa, M. Lena, M. Sanderae and M. Hyeana were conspicuous. Captain W. Horridge, Bury (gr. Mr. A. Coningsby), showed Odontoglossum crispum xanthotes var. Madame Butterfly, O. Carmen, O. Jasper and Dendrobium Gibsonii. Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), showed Miltonia Hyeana var. King Edred, M. H. King Edwy and M. H. King Ethelbald. G. V. Llewelyn, Esq., Southport, exhibited Cypripedium Curtisii var. Sanderae and C. Gowerianum.

Annual General Meeting.

Mr. J. B. Adamson presided. The Report and Balance Sheet of the session were adopted, and the Executive Committee and Awards Committee were re-appointed *en bloc.*

The prizes were presented to the successful exhibitors as follow:—Messrs. Charlesworth's, Trophy and Messrs. Cowan and Co.'s Trophy, to J. B. Adamson, Esq. (gardener's prize to Mr. J. Howes); Messrs. Cypher's, Mr. Evans', Mr. Gratrix's, Mr. Horridge's, Messrs. McBean's and Messrs. Sanders' trophies, to J. B. Adamson, Esq. (gardener's prize to Mr. J. Howes); Messrs. Armstrong and Brown's trophy to Mrs. Bruce and Miss Wrigley (gardener's prize to Mr. A. Burns); the Society's trophy to The Hon. G. E. Vestey, and the Society's Gold Medal to G. V. Llewelyn, Esq.; Royal Botanic Society of Manchester and Northern Counties Silver-gilt Medal to Mr. J. Howes, and their Silver Medal to Mr. A. Burns; Mrs. Smith's prizes to gardeners:—First, Mr. J. Howes; second, Mr. A. Burns; third, Mr. B. Collins.

It was decided to continue the competitions as formerly.

The Committee decided to give all the support possible to the Peel Park Flower Show, Salford, Manchester, on Saturday, August 4, and Monday, August 6 (Bank Holiday); and to the Southport Flower Show, on Wednesday, Thursday and Friday, August 22, 23 and 24.

SALISBURY AND DISTRICT GARDENERS.'

THIS Society held its annual excursion on Monday, July 16. A party of over fifty, accompanied by their Chairman, Mr. C. G. Wyatt, and the Secretary, Mr. W. F. Gullick, availed themselves of the opportunity of viewing some of Wiltshire's finest gardens. Leaving Salisbury at 9 a.m., an enjoyable char-a-banc trip was made, via Warminster and Melksham, to Lackham, the seat of Captain H. P. Holt, M.P., which was reached about 11 a.m. In the absence of Captain Holt, Mr. Bannerman, the gardener, welcomed the Society. A tour of inspection of the beautiful gardens and grounds was thoroughly enjoyed. The natural beauties which have been carefully preserved by Mr. Bannerman during his twenty-five years service, appealed to all. Indoor fruits, especially Peaches, are finely grown here.

Lunch having been served at the Red Lion Hotel, in the quaint and picturesque village of Lacock, the interesting Abbey of Lacock was visited.

Grittleton, the seat of Lt.-Col. Sir Audley Neeld, C.B., M.V.O., was reached soon after 3 p.m. Sir Audley gave the visitors a hearty welcome, and expressed his pleasure at having members of the Salisbury Gardeners' Society to view his grounds. Mr. Pitts, the gardener, then conducted the visitors through probably some of the best-kept gardens in this district. Everything was in the best possible condition. Fruit, kitchen, rock and flower gardens were all visited in turn, and Mr. Pitts had little difficulty in convincing the visitors that good culture produced high quality. Numerous seedling Cypripediums and Laelias were to be seen in the picture of health. In a long, wide stretch of some of the best Delphiniums, the variety Mrs. Paul Nelke was particularly fine. Tall, well-formed spikes of Mrs. Shirley and Earl Haig were much admired.

At the George Hotel, Chippenham, where tea was taken, Mr. Councillor Small, a great worker in connection with Chippenham's Horticultural Society, welcomed the visitors on behalf of his Society and the Chippenham Council. The thanks of the Society to Captain H. P. Holt, and Lt.-Col. Sir Audley Neeld, and their gardeners, Mr. Bannerman and Mr. Pitts, were voiced by Mr. C. G. Wyatt and Mr. Baglin, following which a hearty vote of thanks to Mr. W. F. Gullick was enthusiastically carried for arranging such a delightful trip. The homeward journey was made via Devizes and Upavon, a halt being made at The Elms, Netheravon. Here the party received generous hospitality from Captain and Mrs. Hussey amidst their charming Rose and Old English herb gardens.

GUILDFORD AND DISTRICT GARDENERS'.

IN perfect summer weather, about ninety members derived great enjoyment from a recent visit to the gardens of Louis Baron, Esq., at Holmbury House. The mansion is situated on the brow of Holmbury Hill, facing south, and from the terrace an entrancing view is obtained over the vast Weald of Surrey and Sussex, bounded by Blackdown far away to the west, and the distant range of the South downs running eastwards.

Mr. Baron received his guests and spent some time in friendly chat with several of the party. He drew attention to two famous lines of Cupressus, the pathway between which is still known as The Gladstone Walk. The great Liberal statesman, during one of his Premierships, spent a summer or two at this place.

Mr. Wareham, the gardener, conducted the company around the gardens and through the houses, where many things called for admiration, both ornamental and utilitarian; it was in the latter section that a fine bed of spring-sown Onions came in for special observation. In this year, so disastrous to Onions in many quarters, the crop was healthy and vigorous, showing very little trace of the dreaded fly. Extensive improvements are about to be put in hand. A sixty-foot house for Carnations alone is to be erected, and a large lake will be formed in the low-lying ground in view of the house. After an hour or so spent in rambling around, the entire party gathered on the lawn, when Alderman W. T. Patrick, the President, thanked Mr. Baron for permitting the visit, and Mr. Baron expressed his pleasure in receiving the company. Tea was partaken in a hall in the village, and here it was discovered that the President's thanks did not go far enough, as the refreshments were generously provided by Mr. Baron. Mr. Wareham accompanied the party to tea, and finished up by becoming a member of the Association.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE monthly meeting of this Society was held in the R.H.S. Hall, on Monday, July 9, Mr. T. R. Butler presiding. Eight new members were elected. Three members withdrew the sum of £28 18s. 4d. from their deposit accounts.

The death certificates of four deceased members were produced, the combined ages amounting to 319 years; the sum of £231 16s. was passed for payment to their nominees.

The sick pay for the month on the Ordinary side was £90 2s. 9d., and on the State section £78 14s. 0d.; Maternity claims totalled £2 10s. The sum of £46 9s. 2d. was granted to ten members on the State Section towards their dental and optical treatment, and the cases of several other members were considered.

CARDIFF AND DISTRICT GARDENERS'.

MEMBERS of the above Association recently visited the beautiful old gardens at Llandough Castle, near Cowbridge, by the kind permission of Sir Sydney Byass. The party was conducted through all the departments by Mr. Gennan, the gardener, and many features of interest were seen.

There were well laid-out Rose, herbaceous and alpine gardens, and the kitchen garden was well cropped with vegetables and fruits, while Sweet Peas were also an attractive feature.

The greenhouses, which were well filled with Figs, Grapes, Peaches and other fruits and various flowering plants, all demonstrated the skill of Mr. Gennan and his staff.

After crossing the well-kept lawns in front of the house, the party proceeded to the beautiful woodland, containing some wonderful specimen of Conifers and other trees. The long, winding walks were lined with Rhododendrons and numerous other flowering shrubs, whilst some of the Maples were very fine. In the dingle were various miniature lakes which contained choice Water Lilies, and had on their margins numerous bog plants.

The visit was greatly enjoyed, and a vote of thanks was extended to Sir Sydney and Lady Byass and also to Mr. Gennan.

The next meeting is fixed for July 28, when a visit will be paid to The Crest, St. Fagans, by kind permission of Sir D. R. and Lady Llewellyn.

AN extraordinary general meeting of the above association was held at The Queens Hotel, Cardiff, to consider the appointment of a Secretary to fill the vacancy caused by the resignation of Mr. E. F. Coward, who has been appointed Superintendent of the Fulham Borough Council Cemetery, at North Sheen, near Richmond. Mr. Coward had occupied the post of Secretary for the past two sessions, and his resignation was accepted with deep regret; at the same time, it was the unanimous wish of all the members that Mr. Coward would win success in his new position, which he took up on Monday, July 16.

An old and enthusiastic member of the Association, Mr. H. Wilkins, The Hardy Plant Nurseries, Llanishen, was appointed to fill the vacancy.

NATIONAL ROSE.

JULY 24.—The special show of New Roses, which was held by the National Rose Society at the Horticultural Hall, Westminster, on this date, brought together over forty new seedlings. A larger number had been entered for competition, but the very hot weather caused several withdrawals. The Council awarded two Gold Medals and six Certificates of Merit to Novelties. Early in the day the Roses were very beautiful, but the great heat and dryness of the hall caused some of the blooms to droop early in the afternoon, and in many other instances it was literally a case of the Rose bud of the morning becoming a fully blown flower at noon. The wall spaces of the hall were filled with admirable trade groups of excellent Roses, which were a splendid feature of a better show than might have been expected, in view of the recent drought. As usual, the arrangements worked smoothly, and it was found possible to open the doors before the advertised time.

GOLD MEDALS.

McGredy's Ivory.—The name of this H.T. variety does not appear to be very appropriate, for the blooms shown were of pale lemon colour with a creamy-yellow centre. It is a shapely, fully double flower, rather more than medium in size and made up of broad, recurving petals of good substance. The blooms have a light, pleasant fragrance. The plants indicated a vigorous habit, with very good foliage which is tinted with purple in the young state. Shown by Messrs. S. MCGREDY AND SON.

Lord Rossmore.—This is a large and handsome exhibition variety. The very substantial blooms are somewhat rounded in form, and the broad petals recurve attractively. The colour is creamy-white, and the centre petals are tipped with deep pink. Shown by Dr. J. CAMPBELL HALL.

CERTIFICATES OF MERIT.

Baby Betty.—A dwarf Polyantha Pompon variety of very variable appearance. The buds are of orange colour, flushed with cardinal; they open to golden fawn, and when mature change to a dull white, heavily flushed with pink. The mature flower is loosely made and semi-double.

Britannia.—A dwarf, bushy Polyantha Pompon which produces a large truss of single flowers of deep rose-pink colour with a small white zone. This and the above were shown by the BURBAGE NURSERIES CO.

George Haworth.—A very bright H.T. variety of value for the garden and as a cut flower. The flowers are of good form until they become fully mature, when they expand widely, showing a small cluster of golden stamens. The colour is rich scarlet, heavily flushed with rose, and the flowers are very fragrant.

Dr. Hawksworth.—This is another very fragrant H.T. variety of garden and general decorative value. The fully double flowers are of scarlet-crimson colour shaded with velvety-maroon. Both varieties were shown by Messrs. BEES, LTD.

Mrs. Sam McGredy.—A medium-sized H.T. variety of good form. The outer petals, which recurve attractively, are of golden-fawn colour, very lightly flushed with deep peach-pink at the tips. The centre of the flower is a glowing, deep peach-pink colour. Shown by Messrs. S. MCGREDY AND SON.

Violet Simpson.—A very beautiful H.T. Rose of uncommon colouring and delicate fragrance. It is of medium size and the broad, recurving petals recurve gracefully. The colour is a rich golden-yellow, heavily flushed with shades of deep rose-pink except at the base of the petals, which is deep golden-yellow. Shown by Mr. JOHN SIMPSON, Abercorn, Hopetown, South Queensferry.

OTHER NEW SEEDLINGS.

James Ferris, which received a Certificate of Merit in 1926, was shown in very good condition by Dr. J. CAMPBELL HALL. It is a very desirable H.T. variety of exhibition type, sweetly-scented. and of pale lemon colour with a deeper centre, Mrs. S. Paton and James Gibson, both shown by Messrs. S. McGredy and Son, are of more than average merit. Both varieties are fully double and of decided garden value. The former is a glowing rose-scarlet, and the latter is a rich velvety crimson, with a suggestion of magenta at the tips of the mature petals. Caledonia, shown by Messrs. Dobbie and Co., had travelled badly and so was not seen at its best. The white flowers, which are carried erect on stiff stalks, are of pretty shape. Duchess of Atholl, also shown by Messrs. Dobbie and Co., has already received a Certificate of Merit and, although it is an attractive Rose of decided garden value, is scarcely of Gold Medal standard. Little Dorrit is a delightful Polyantha variety of the Coral Cluster type, and light pink colouring. It was shown by Messrs. A. Reeve and Co.

Nurserymen's Classes.

The many groups of representative Roses, arranged on a table space measuring ten feet by four feet, were of varied character and of such even quality generally as to have evidently caused the judges considerable difficulty in making their awards. This class occupied the whole of the tabling at one side of the hall, and formed a very attractive feature of the show. The first prize was awarded to the Stanway Rose Gardens, Ltd., for one of the most lightly arranged groups in the competition. In the background there were good pillars of Mermaid, Dorothy Perkins and K. of K., while in the centre there were effective baskets of Golden Salmon and Orange King. Other varieties included Mrs. Henry Morse, Dainty Bess and Gwyneth Jones. The front of this group was very gracefully arranged.

In their second prize group, Messrs. Alex. Dickson and Sons had a very lavish display of good blooms. The principal features were pillars of Golden Emblem, Betty Uprichard and Swansdown, and baskets of Lady Inchiquin, Madame Butterfly and May Wettern, with large stands of Edith Nellie Parker and Dorothy Perkins. The third prize was awarded to Mr. J. H. Pemberton, who displayed good vases of Souvenir de Claudius Pernet, Madame Butterfly, Mrs. Henry Morse, Vanity, Prosperity and other decorative varieties. Mr. Elisha J. Hicks was placed fourth, with an admirable group in which he displayed excellent vases and stands of Los Angeles, Mrs. Henry Morse, Souvenir de Claudius Pernet and Angéle Pernet. Attractive collections were also staged by Mr. George Prince, Messrs. B. R. Cant and Sons, Messrs. D. Prior and Son and Dowty's Rosery.

There were only two exhibits in the class for a smaller representative group of Roses, and here Messrs. R. Harkness and Co. were easily first. They had an excellent arch of Allan Chandler and good stands of Mrs. Henry Morse and Mabel Morse. Messrs. A. Warner and Son, who were second, included vases of Lady Roundway, Los Angeles and Mabel Morse.

The exhibits of three baskets of Decorative Roses were of good quality. Messrs. Thomas Smith and Sons were first with Lady Inchiquin, Ivy May and Shot Silk, while Messrs. Wheatcroft Bros. were second, with Independence Day, Lady Inchiquin and Colonel Oswald Fitzgerald.

Although there were only two exhibits of twenty-four distinct exhibition Roses, they were of very good quality. In their first prize collection, Messrs. F. Cant and Co. included, in George Dickson, the Silver-gilt Medal bloom of the Section. Their other blooms of extra merit were Earl of Warwick, Deborah, a new white H.T., Avoca, Captain Kilbee Stuart, Dean Hole, Mildred Grant and Jonkheer J. L. Mock. Messrs. T. Smith and Sons, who were a good second, included Mabel Morse, Chas. E. Shea, Dame Edith Helen, Mayford, Mrs. Henry Bowles and George Dickson, of very good quality.

Amateurs' Classes.

The three classes in the Amateurs' Section were well filled with commendable exhibits. Of the four collections of twelve distinct exhibition varieties, the best was staged by J. N. Hart, Esq., Potter's Bar, who showed, in a magnificent specimen of white Maman Cochet, the Silver-gilt Medal bloom of the Section. He also had Mrs. Foley Hobbs, Mrs. F. Dennison, Maman Cochet, Mrs. Elisha Hicks and Mrs. C. Lamplough of great merit. Mr. W. E. Moore, Ickenham, was second, and his best blooms were very good examples of George Dickson, Mrs. John Laing, Mrs. Elisha Hicks and Mrs. George Norwood.

Five amateurs set up exhibits of six distinct exhibition varieties, but these were not of such very high quality as those of the former class. The first prize was won by T. S. Malcolm, Esq., Hamsey Green, Surrey, whose best blooms were of Bessie Chaplin, George Dickson, Lady Inchiquin and Mrs. C. Lamplough. L. P. Roberts, Esq., Dorking, had good blooms of Mabel Morse and Mrs. Henry Morse in his second prize exhibit.

The best basket of Roses was a beautiful one of Mrs. Henry Morse, shown by J. N. Hart, Esq., while W. E. Moore, Esq., was second with mixed varieties.

The Decorative Classes were all well contested, and the exhibitors displayed commendable artistic taste. In the Nurserymen's Classes, Mrs. Tisdall was first with both the Dinner Table decoration and the bowl of cut Roses, using in both instances the variety Roselandia. Mrs. A. F. Chaplin, who also employed Roselandia, was second in the Dinner Table class, and Mrs. A. R. Bide was placed third, with a very effective table of Else Poulsen and Rosa rubrifolia foliage. Mrs. L. R. May was second with a bowl of Madame Butterfly.

In the amateurs' section, Mrs. Courtney Page was first with an attractive dinner table of Emma Wright; Mrs. E. J. Cooper, Warlingham, was second with Sylvia; and Mrs. A. D. Ruff was third, with Shot Silk. The best bowl of Roses was arranged by Mrs. Charlton, and Mrs. A. R. Ruff was second; both ladies used mixed varieties with sprays of Rose foliage.

NATIONAL CARNATION AND PICOTEE.

Southern Section.

July 19 and 20.—The two Carnation Societies joined forces and held a combined show at the Horticultural Hall, Westminster, on these dates. While the British Carnation Society filled rather more than half of the hall entirely with Carnations, the older Society could not fill the remainder, and some of the tabling was occupied with miscellaneous exhibits. The border Carnations and Picotees were of very good quality, although the exhibitors were few in number.

Open Classes.

In the open classes, which each required seven blooms of one variety of specified colour, Messrs. Lowe and Gibson were awarded five first prizes, were placed equal first in another class, and were second in three classes. Their first prize Carnations were Joan Wardale, dark red; Mary Murray, yellow; Steerforth, Clove-scented, and Viceroy, yellow-ground Fancy. They were first with Eclipse, a light-edge Picotee. Mr. H. Woolman won first prizes with a magnificent vase of Bookham Scarlet; with Bookham Rose; with Sam Griffiths, Fancy, and with Ravenswood; and was placed equal first with Messrs. Lowe and Gibson in the class for white ground Fancies, where the latter showed Mrs. E. Charrington. Mr. H. Woolman was second in three classes. Mr. A. Reynolds won first prizes with Snowflake, white Carnation, and with Effie Deans, buff self Carnation; while Messrs. F. Woolman and Sons were first with Majestic Seedling in the class for selfs.

Amateurs' Classes.

The first two classes in the Second Division were open to all, but there was no exhibit of Bizarres or Flakes. Mr. John Fairlie, Acton, was first with three exceedingly good vases of white ground Picotees; the varieties were Silas Osbaldistone, Patrick and Fair Maiden. Mrs. Olaf Hambro, Forest Row, was second. In the remaining classes, the competition was much better than in the open division. In the classes which required three varieties each, Mr. James Fairlie won first prizes with the following:—Lieut. Shackleton, Viceroy and Edenside, yellow or buff ground Fancies; John Stobart, Ravenswood and Mrs. E. Charrington, white ground Fancies; Togo, Santa Claus and Margaret Lennox, yellow ground Picotees; and Miss Elizabeth Shiffner, Lewes, was first with Mrs. A. Brotherstone, Salmon Clove and Doris Trayler, Clove-scented Carnations.

The following classes required one variety of specified colours, and first prizes were won by Miss Elizabeth Shiffner, with Mary Murray, yellow; Loyalty, Salmon buff; Bookham Scarlet; Joan Wardale, red; and Ebor, light chocolate Fancy, marked with scarlet and crimson. Mr. James Fairlie was first with Snowflake, white; Yvonne Thoms, self; and Clement, yellow ground Fancy. Mrs. Olaf Hambro was first with John Stobart, white ground Fancy; and Professor Burstall, Birmingham, was first with Cockatoo, rose self.

In the Third Division, Mr. W. H. Brookes won first prizes with good blooms of self, yellow ground, white-ground, and any other Fancy Carnations, and with Clove-scented varieties. Mr. M. R. Ridgeon, Cambridge, was the most successful exhibitor of one vase of selfs, white ground Fancies and yellow ground Fancies. Mr. J. T. Standfast, Goodmayes, was the most successful exhibitor in the Fourth Division.

There were several good vases of new seedling Carnations from the open border. Mr. H. J. Damerum, Hayling Island, Hants., won the first prize. His premier award was for a magnificent scarlet seedling, and he won third prize with a shapely, light-edged, white ground Picotee. Mr. C. B. R. Garner, Bletchley, was second, with a vase of mixed seedling Carnations.

The first prize in the class for Affiliated Societies was awarded to the Liverpool Victoria Horticultural Society, for twelve good blooms, in four vases, of border Carnations.

ELSTREE AND DISTRICT HORTICULTURAL.

The annual exhibition of this Society was held in the grounds of Aldenham House, Elstree, Hertfordshire, on Saturday, July 21, through the kindness of The Hon. Vicary Gibbs, and was favoured with beautiful weather. It was a record show in every respect, entries were numerous, and it was the most satisfactory "gate" yet recorded. The Secretary, Mr. W. J. Pritchard, was responsible for the organisation of everything in connection with this well-known show, and his arrangements left nothing to be desired.

The Champion Class for a collection of cut Roses, artistically arranged for general effect on a space twelve feet by four feet, on this occasion found only one exhibitor, namely, Messrs. R. Harkness and Co., Hitchin, whose Roses were in the pink of condition, and were arranged with great taste and skill. Especially noteworthy were Ophelia, Edith Cavell, Madame Butterfly, K. of K., Covent Garden, Clara Goodacre, Los Angeles, Lord Charlemont, Doris Trayler, Muriel Morse, Mrs. Henry Morse, Mrs. Henry Bowles, Dame Edith Helen, Mrs. Herbert Stevens and Kirsten Poulsen. Other Rose classes of importance were those for six vases of Roses, garden or decorative, six varieties. There was only one competitor, J. N. Hart, Esq. (gr. Mr. A. J. Smith), Lochinver, Potters Bar, who was awarded first prize and a Silver Medal for grand blooms of Lord Charlemont, White Ensign, Hortulanus Buddé, Dainty Bess, Else Poulsen and Mrs. H. Stevens. The same grower was first in the class for three vases of Roses, distinct, showing Mrs. E. Lamplough, Mrs. A. C. Barraclough, and Mrs. Henry Morse. H. F. Spicer, Esq., was second, showing blooms of good colour, and the third prize was awarded to Mrs. Duveen (gr. Mr. J. Howard), Limpsfield. For one vase of cut Roses, Mr. Hart was again a good first of four competitors; second, Mrs. H. C. Dunhill (gr. Mr. B. Howard), Harpenden.

There were five competitors in the class for one bowl of Roses, a glorious display by Mr. Hart easily winning first prize; second, C. H. Rigg, Esq. (gr. Mr. Cook), Tetley Lodge; third, Mr. Howard.

The five competitors in the class for twelve Roses, distinct, made a splendid display. The first prize and Silver Cup were secured by H. F.

Spicer, Esq., who showed grand blooms of Coronation, Mrs. C. G. Marriott, J. G. Glassford, Mrs. A. C. Barraclough, Mrs. Charles Lamplough, Oliver Mee, Mrs. H. Morse, Captain Kilbee Stuart, Fontanelle, Souvenir de George Pernet, Mdlle. Louise and George Dickson; second, Mr. Hart; third, Mr. Rigg.

Sweet Peas were represented in ideal form. The chief class was for twelve distinct varieties, and the first prize and a Silver Challenge Cup was won by Mrs. Duveen, with excellent examples of Purple Monarch, Gold Crest, Youth, Charming, Pinkie, Powerscroft, Model, Grenadier, The Prince, Royal Sovereign, Mrs. H. Wright and Wizard; second Mrs. Samuel Wallbock (gr. Mr. W. H. Holloway), The Croft, Stanmore. For six vases of Sweet Peas, the first prize and the Silver Challenge Cup were won by Mrs. Duveen, who staged beautiful examples of Purple Monarch, Powerscroft, Gold Crest, Model, Mrs. A. Searles and Sybil Henshaw; second, H. Pitt, Esq. (gr. Mr. W. Barkway), Boxmoor; third, W. Martineau, Esq. (gr. Mr. C. Bull), Boxmoor. Mrs. Duveen, W. Martineau, Esq., and E. Greenwood, Esq. (gr. Mr. Squires), Frith Knowl, Elstree, won other prizes for Sweet Peas.

Hardy flowers were shown in interesting fashion, but not so freely as usual.

Fruits and vegetables were also staged by numerous growers.

Table decorations were arranged in a tent by themselves, and some of them were very pretty and interesting. There were two classes, and six competitors in each class. The winner in one class was Mrs. S. Wallbock, The Croft, Stanmore, who set up a pretty arrangement of flesh-pink Sweet Peas and Gypsophila; second prize was awarded to Mrs. J. S. Pearce, Mill Hill, for beautiful sprays of Hiawatha Rose; and third prize to Mrs. E. Carpenter, King's Langley, who showed Madame Butterfly and Ophelia Roses. The other class was interesting; Mrs. A. Attenborough, High Cross, Aldenham, was placed first, and used pale yellow Scabious, pink Sweet Peas and Veronica, and other flowers of similar colour, making a unique display; Miss R. S. Stevens, Radlet, was placed second with Geum and Gypsophila; and the third prize was awarded to Miss F. E. Tutte, Bushey, for blue Cornflowers and yellow Heleniums.

Non-competitive displays are always a feature at this show. Mr. E. Beckett put up one of his large and comprehensive displays of vegetables, comprising more than two hundred dishes, and including almost every kind of vegetable in many varieties, in sound condition and superbly staged. This exhibit was awarded a Large Gold Medal and a Silver Cup for the most meritorious exhibit in the show, and it also gained the special thanks of the judges. It was a source of interest to the thousands of visitors during the whole time the show was open to inspection.

A Gold Medal was awarded to Messrs. William Cutbush and Sons, Ltd., Barnet, for Polyantha Roses and hardy flowers set up attractively; a Silver-gilt Medal to Messrs. James Carter and Co., Raynes Park, for Liliums, Dahlia Coltness Gem, etc.; and Silver Medals to Messrs. Cuthbert and Son, Southgate, for Hydrangeas, Bamboos and Ferns; to Mr. W. A. Collier, Redbourne, for hardy plants; to Messrs W. Keep and Co., Enfield, for hardy plants; and to Messrs. Stuart Low and Co., Enfield, for Carnations.

LIVERPOOL HORTICULTURAL.

As this is the Jubilee year of the above Association, the summer show, held on July 18 and 19, appropriately resulted in the finest display of Roses, Sweet Peas and Carnations ever organised by the Association.

The competition in the open classes was very keen, the first prize and Challenge Cup for twelve blooms being awarded to Miss Rollo, who was also placed first for three vases of Rose blooms. Mr. R. Battersby secured the premier award for twelve H.T. Roses, and Mr. E. B. Orme for three vases of Cluster Roses.

The first prize winners in the Sweet Pea section were Miss K. Allington Hughes for twelve distinct varieties; Mr. A. G. Joynson, and Mrs. Weaver; while Mrs. H. Pilkington showed the best twelve vases of hardy herbaceous flowers.

Mr. W. B. Feeny was placed first for six vases of Carnations, and also for one bowl of Carnations; Mr. W. Dodd exhibited the best twelve cut blooms of double Begonias; Mr. W. B. Feeny staged the prize-winning six pots of Gloxinias. Lord Leverhulme secured the premier award in the class for collections of fruits, and Mr. C. S. Mac Iver exhibited the finest collection of vegetables.

Gold Medals were awarded to Messrs. Bees, Ltd., for a collection of herbaceous flowers; Messrs. Dobbie, Ltd., for a collection of Roses; and to Mr. R. Manson, also for Roses.

FALKIRK ROSE.

The annual show of Roses, Sweet Peas, Carnations, Pansies and Violas, promoted by the Falkirk Rose Society, was held in the Town Hall on Saturday, July 21, under very favourable conditions. As a consequence of the backward season the entries were fewer than formerly, especially in the Sweet Pea and Carnation sections, but the quality of the Roses in the nurserymen's open classes was remarkably good, while competition was exceptionally keen in the Pansy and Viola classes.

An unexpected result obtained in the class for collections of cut Roses, arranged on a space six feet by three feet, Messrs. D. and W. Croall and Messrs. Thomas Smith and Sons being placed first, equal. The exhibit of the first-named firm contained excellent examples of Angele Pernet, Lady Roundway, Mabel Morse, Shot Silk and Ivy May; while massed columns of Madame Butterfly, Shot Silk, Ruth, Ivy May and Mabel Morse were outstanding features of Messrs. T. Smith and Sons' group. The latter firm also won the first prize for six baskets of Roses, and for twelve blooms of Dr. I. Petyt.

Messrs. D and W. Croall, Dundee, excelled in the open classes for twenty-four and twelve blooms, with some of the finest blooms in the show, notably of Mrs. Beattie, a new yellow variety of fine form; Colleen, Prince of Wales, Ruth and Torson d'Or, Holt Hurst and Julie Countess of Dartray. Messrs. Smith and Sons were second with notable examples of Patience, a new pink of the same type as Mrs. Henry Bowles; Margaret McGredy, Mrs. Barraclough, which was shown as the finest bloom in the show, and Dr. Edwin Deacon. In the class for twelve white or cream Roses, the Dundee firm excelled with Mrs. Charles Lamplough, the blooms of which were clean and of uniform, large size.

The most successful competitor in the amateur classes were: Mr. J. Milligan, County Down, Ireland; Mr. Alex. Millar, Kilsyth; Mr. James Boyd, Falkirk; Mr. D. Montgomery, Bainsford; Mr. James Paterson, Abercorn; and Mr. Charles Gillan, Drumore.

A feature in the Sweet Pea section was the success of Mr. J. A. Grigor, Banff, in the open classes. He was placed first in the classes for eighteen, twelve and six vases, his outstanding varieties being Dignity (awarded the special prize for the best bloom in the show), Chieftain, Pinkie, Olympia, Mrs. A. Searles, Delightful, Avalanche, Royal Pink, Royal Mauve, Mammoth and Venus. In the Pansy and Viola section, Mr. Andrew Frater, Kirkliston, secured all the honours in the open classes.

The non-competitive exhibits consisted of a varied collection of Roses from Messrs. Dobbie and Co., who featured Mrs. John Bell, Caledonia and Duchess of Atholl; and a group of the new white Rose Margaret Ann Baxter, by Messrs. Smith and Sons.

WATFORD AND HOME COUNTIES HORTICULTURAL.

This Society was certainly ambitious in arranging a show of such dimensions as that held on July 24 and 25, at Cassiobury Park, Watford, and those responsible for its management, especially Mr. F. W. Miles, the Hon. Show Secretary, are to be congratulated upon the success which attended their efforts. Altogether there were two-hundred-and-twenty-four classes, and the majority of them were well contested, while there was also a special Sweet Pea section organised by *The Star*, which, although hardly up to expectations, yet added somewhat to the general interest of the show. The trade were well represented by several leading nurseries, and in addition to the horticultural section, there was an open Dog Show, held under the auspices of the Hertfordshire Canine Society, and several other competitions and exhibitions.

Roses were a prominent feature of the show, and those staged by Messrs. F. A. Wheeler and Son, which were awarded the first prize in the trade class, were of really good quality, the blooms of Independence Day, Betty Uprichard, Mabel Morse, Lord Charlemont and Los Angeles being especially noticeable. Messrs. J. W. Forsyth were awarded the Society's Silver Cup for the best competitive trade group, for an attractive arrangement of miscellaneous plants, including numerous Lupins, Phloxes, Antirrhinums, Gladioli, and well-grown specimens of Lilium auratum.

In Division B, open classes, trade excluded, there were several noteworthy exhibits. Mr. J. P. Morgan, Watford, was a prominent prize winner, and his exhibit of flowering pot plants was very creditable, as also was the group of pot fruit trees with which he won the Pierpont Morgan Challenge Cup, and which included well-fruited specimens of Peach, Nectarine, Apple and Plum trees; Gooseberry bushes and Grape vines.

In the classes for Roses, the competition was fairly keen, and especially so in the one for decorative baskets, Mrs. E. Carpenter, King's Langley, being the successful exhibitor, while Mr. W. H. Beckett, Bletchley, secured the other first awards. The exhibits in the class for groups of flowering and foliage plants were exceptionally well arranged, the prize-winning group being that set up by Miss Walliss, Watford, in the form of a circular mound of well-grown Codiaeums and other foliage plants, Carnations, Hydrangeas, Campanulas, etc.

The *Observer* Challenge Cup for the best twelve vases of Sweet Peas was won by Mrs. S. Wallbock, whose notable varieties were Magnet, Bluebird and Mrs. A. Searles; and Mr. W. Martineau, Boxmoor, was first in the class for six vases, Grenadier, Royal Mauve and Mabel being his best examples. The Mental Hospital, St. Albans, was placed first in the well contested class for hardy herbaceous cut flowers; while the numerous table decorations must have been extremely difficult to judge, for they were all tasteful and decorative in their arrangement; Mrs. E. Carpenter received the premier award.

There were numerous classes for various vegetables, and the quality of the exhibits staged was in most instances high; while the exhibits of fruits grown in the open and under glass were also very good, Major E. G. Monro being the chief prize winner in these classes.

In Division C, open to amateurs employing not more than two gardeners, the competition for the Scrivener Challenge Cup, for the best group of flowering or foliage plants, resulted in the staging of several fine groups, the award being made to R. Ashby, Esq., Watford, for a choice collection of Begonias, Fuchsias, Hydrangeas, etc. There were numerous good exhibits in the classes for Sweet Peas, herbaceous plants, Roses and Antirrhinums in this division, while in most cases the fruits and vegetables staged were also of first-class quality.

The same high standard of quality was portrayed throughout the various classes in Division D, for amateurs and gardeners, Mr. J. P. Morgan being the most prominent exhibitor; while in the sections for allotment holders and cottagers, the entries in the majority of the classes were numerous, the exhibits were of good quality, and in most cases well staged, and the judging of them could have been no light task. In the ladies' section, the table decorations were very interesting and attractive, the first prize being awarded to Mrs. Stretch, Watford, for an extremely effective arrangement of Scabiosa caucasica, pale lavender Sweet Sultans, Gypsophila paniculata and Thalictrum dipterocarpum.

In *The Star* Sweet Pea section, Messrs. E. W. King and Co. were the only entrants in the competition for the Silver Cup, and they were awarded the trophy for a very creditable exhibit, consisting of masses of Gladys, Daventry and Pimpernel; and large baskets of such choice sorts as Mrs. A. Searles, Huntsman, Jack Hobbs, Victis, an exceptionally good white, International, Magnet and Pinkie. In the amateurs' classes, although the exhibits were limited in number, there were some very choice blooms displayed. The prize winners in the various classes were Mr. E. Starling, Writtle Park Gardens, Watford, who showed magnificent examples of Mrs. A. Searles, Souvenir, Pimpernel, Pinkie, Vectis, Gladys, The Sultan, Magnet, Jack Hobbs and Youth; Mr. D. S. A. McDougall, who showed fine blooms of Hebe; Mr. F. W. Claydon, Mr. J. L. Hooper, and Mr. F. H. Hannah, who secured three premier awards.

Messrs. C. Engelmann, Ltd., staged an attractive group of perpetual-flowering Carnations, consisting of large sprays of Coral Glow, Dorcas; Blanche, Nero, Rouge and exceptionally well-shaped blooms of Laddie, Red Laddie, Brilliant and Topsy, while the charming display of hardy border Carnations staged by Messrs. Low and Gibson, Ltd., contained notable flowers of Kelso, Joan Wardale, Sheila Gibson, Loyalty and Solfaterre.

Messrs. W. Cutbush and Sons, Ltd., showed good examples of topiary, Roses such as the dwarf Polyanthas Golden Salmon, Kirsbergen, Locarno and Frank Leddy, and also herbaceous plants, notably Heleniums in variety and Phloxes. Messrs. George Prince staged Roses of good quality, among which we noted Lord Charlemont, Mabel Morse, Mrs. H. Morse, Roselandia, Los Angeles, and the lovely Dainty Bess; while Mr. Cox, of the Watford Burial Board, was responsible for a fine arrangement of flowering and foliage plants, such as Fuchsias, Abutilon megapotamicum variegatum, richly coloured Coleuses and Pelargoniums.

Messrs. S. J. Goodliffe showed herbaceous plants in variety, as also did Messrs. W. A. Collier, who exhibited Phloxes, Heleniums, Chrysanthemum maximum, Gaillardias and Sidalceas.

Messrs. Cuthbert and Son, Ltd., arranged a fine bank of Hydrangeas Blue Prince, True Blue, Vice-President Truffaut and Madame E. Chautard, all in shades of blue; and the rich pink Parsival; also Astilbes, Bamboos and Maidenhair Ferns.

Messrs. H. Simmonds and Sons showed herbaceous plants, and in the open, Lane's Nurseries, Ltd., arranged a small rock garden.

Undoubtedly the finest exhibit in the show was that of Sweet Peas set up by Messrs. Sutton and Sons, which consisted of large sprays in the background of beautiful sorts such as Hero, Pinkie, Happiness, Royal Scot, Magnet and Prince of Orange, and in front of these, large bouquets of What Joy, Matchless, Venus and others.

An attractive formal garden was constructed by the Lye Green Nurseries, with paths of red tiles and boundary walls of greystone. The beds were filled with Astilbes, Heleniums, Lythrums and Campanula lactiflora.

A Gold Medal was awarded to Messrs. Sutton and Sons for Sweet Peas; Bronze Medals to the Watford Burial Board, for a group of miscellaneous plants; and Messrs. E. A. Collier, for herbaceous plants; and Silver-gilt Medals to Messrs. Lowe and Gibson and Messrs. C. Engelmann, for Carnations; to Messrs. Cutbush and Son, for topiary, etc.; to Messrs. G. Prince for Roses; and to Messrs. A. Scrivener and Son, for a floral arrangement.

DERBYSHIRE HORTICULTURAL.

Seventy members of this Association visited the Midland Agricultural College, Sutton Bonington, on Saturday, July 21, when Dr. F. Milburn received and divided the party into groups, Mr. A. Roebuck, N.D.A., Advisory Entomologist, and other Masters, conducting tours through the herbaceous borders, shrubberies, vegetable garden and orchard. The poultry department, laid out on ten acres of land, is claimed to be the most up-to-date in Britain, having about two thousand birds. The dairy department for production of Grade "A" milk and cheese, the laboratories, lecture rooms and students' hostels were visited.

The immediate precincts of the college accommodate a large fruit orchard on commercial lines, now in full bearing, while vegetables in variety are grown under trial conditions and compared with statistics of manuring, and weather conditions recorded by an adjacent meteorological station.

Tea was provided in the College, after which Dr. F. Milburn, Principal, in an address of welcome, outlined the functions of the institution and exhibited a large Silver Cup won by a student, Mr. A. Hudson, of Chapel-en-le-Frith, Derbyshire, who obtained highest points in the Royal Horticultural Society's examinations this year. Mr. W. H. Tuck voiced the appreciation of the visitors.

Obituary.

O. W. D'Alcorn.—The death has occurred at Peterborough Hospital, after a brief illness, of Mr. Oscar William D'Alcorn, founder of the firm of Messrs. D'Alcorn and Son, seed Potato specialists and bulb growers, of Normandy, Spalding. Deceased was sixty-seven years of age, and had had a very varied career. Early in life he was employed in a London hotel and, on coming to Spalding some forty years ago, entered the baking business, which he eventually forsook for bulb-growing. He established a successful business, in which he remained active up to the time of his death. During the Potato boom of 1904, when deals in small parcels of new varieties of seed Potatos took place locally at sensational figures, so much as £1,000 per stone being realised, Mr. D'Alcorn pioneered The Duchess of Cornwall variety, and named his residence, Cornwall House, after this Potato. He was a Past President of the Spalding and District Bulb Growers' Association, and at local shows was very successful with his exhibits of forced flowers, winning many prizes.

George D. Massie.—Deep regret is felt by the members of the Aberdeen Branch of the Royal Scottish Arboricultural Society at the loss of a zealous and trusted official in the person of George D. Massie, advocate. Only fifty-two years of age, he was widely known and highly esteemed among a large circle of friends in the north of Scotland. A keen student and well versed in forestry matters, Mr. Massie had been for a number of years Secretary and Treasurer of the Aberdeen Branch, where his fine organising abilities in conducting the various excursions made by the Branch, year in and year out, found full scope and were warmly appreciated by the members. His genial and kindly personality added not a little to the success and enjoyment of these outings, while his strict and careful attention to details left little chance for any untoward happenings. The funeral, which was largely attended, took place on Friday, the 20th inst., and included among the mourners were Mr. Robert Galloway, S.S.C., Edinburgh, the Secretary at headquarters and representing the Council of the Royal Scottish Arboricultural Society; Mr. H. D. M'Combie, convener of the County of Aberdeen, representing public bodies, and Provost Donald Munro, Banchory, representing the Timber Merchants' Association. Beautiful floral tributes were sent by these bodies and many others from the family and friends.

Dr. Julio Henriques.—We regret to learn from the Continental press of the death of Dr. Julio Henriques, Professor, for thirty years Director of the Botanic Museum, and previously Director of the Botanic Garden at the University of Coimbra, Portugal. He had reached the advanced age of ninety years, and had made many friends in consequence of his lovable disposition. He was the founder of the *Boletim da Sociedad Broteriana*, a publication which contributed greatly to a knowledge of the Portuguese flora, and served as the basis of the excellent flora of that country compiled by M. Antonio Xavier Pereira Coutinho.

W. Taylor.—Over a very long period of years Mr. W. Taylor was a frequent contributor to these pages, especially on the subject of Grape cultivation, an art in which he was exceptionally clever. He was in his eighty-ninth year, and he died, by drowning, under circumstances that made it clear he had taken his own life. As a lad he was employed at Shrubland Park, Suffolk, then a famous show place, and here he became foreman at the early age of seventeen years. Eager to advance in his profession, he obtained employment in the Royal Horticultural Society's Gardens at Chiswick in the days, long past, when the Society also had gardens at South Kensington. Later he became foreman at Knowlsey, and while there he learned shorthand. Six years later he went to the Garston Vineyards, and shortly afterwards to Longleat, where he superintended the erection of new vineries, and subsequently grew Grapes with a success that made his name famous throughout the United Kingdom. His record of experiments and successes appeared in book form in 1882 under the title of *Vines at Longleat*. In 1888, he joined the late Alderman Chaffin in a Grape-growing venture, at Bath, that was very successful, and their Grapes won hundreds of prizes. Later, he became engaged in Grape culture with the late Mr. W. Marsh, and this prosperous venture only concluded with the death of Mr. Marsh. Mr. Taylor was a keen horticulturist, and had a scientific turn of mind. He was greatly in demand as a lecturer in the Bath district, and had a ready reply for every question asked him. Latterly, he had been unwell and, probably, his independent spirit would not allow the possibility of illness which would render him dependent upon the services of others, even of those who were near and dear to him. Alas! that so long and successful a life should have so tragic an ending.

R. W. Thompson.—We regret to learn of the untimely death of Mr. R. W. Thompson, Superintendent of the Parks under the Willesden Urban District Council. The funeral took place at Stoke-on-Trent, on Thursday last.

ANSWERS TO CORRESPONDENTS.

Apple Sawfly.—*A. J.* Winter spraying does nothing to prevent sawfly, as the insect is then in the pupa state under the ground. Until recently, it was thought that no spraying was of any use against this pest; but it is found now, at East Malling, that a very useful measure of control is obtained by spraying with arsenate of lead immediately after the fall of the blooms. The best time is when about three-quarters of the petals have fallen. For a very short time then the grub is feeding on the reproductive organs within the calyx of the bloom. If you have not too many trees, picking off the bored fruits and burning them before they have time to fall to the ground, is very useful, as it prevents the grubs from entering the soil to pupate.

Rhododendron Dying.—*L. S.* There was nothing present on the Rhododendron shoot to account for the death of the branch, but the general appearance suggested that the branch had been killed by fungus lower down. It would be advisable to remove all affected branches well below the point at which the trouble seems to begin.

Tomatos Yellow.—*G. S. L.* Your Tomatos are not diseased, but are suffering from lack of potash in the soil. This condition may be remedied by a light application of nitrate of potash, watered in.

Communications Received.—R. R. G.—C. O.—A. M.—W. H. St. Q.—F. E. C.—E. E. T.—A. T. J.—C. E.—W. D.—F. W.—W. H. J.—R. E.—G. D.—J. R. F.—

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Supplement Plate.
Rose Golden Salmon.

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 62.8°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, August 1, 10 a.m. Bar. 30. Temp. 62°. Weather, Raining.

Potash and Frost Resistance.

Attention has already been drawn in these pages (Vol. LXXXII, Sept. 3, p. 181) to the interesting discovery made by Mr. Wallace, of the Long Ashton Research Station, that winter killing of vegetables growing in certain soils in the neighbourhood of Bristol may be prevented by the application of potash fertilisers to the soil. Further striking experiments which demonstrate conclusively that potash salts applied to the soil confer on plants an increased measure of resistance to frost have been made in Holland by Mr. G. G. Bolhuis.[*] Mr. Bolhuis's experiments were carried out with Potatos in pots, grown in soil well supplied with nitrogen and phosphoric acid, but entirely deficient in potash. One series of pots received no potash fertiliser; to another, potash salts were applied at the rate of three hundredweights to the acre, and a third series received a much heavier dressing of about nine hundredweights to the acre. In May, when the plants had made sufficient growth, their powers of frost resistance were tested by exposing them to low temperatures. All the plants were found to resist exposure for six hours to a temperature of 0·5° C. At a temperature of —1° C. a plant which had been grown in potash-free soil showed some damage. At —2° C. some non-potash plants were entirely frozen, while the plants heavily manured with potash were not, and similarly at —2·5° C. the young plants growing in soil devoid of potash were killed, whereas those in soil rich in potash survived. The next step was to ascertain to what the high resistance to frost evinced by the plants manured with potash is to be attributed. To do this, investigation was made into the effect which sap expressed from the plants has on lowering the freezing point; for just as a salt solution has a lower freezing point than pure water, so if a sap is rich in salts it will not freeze so readily as will a more dilute solution. Here again the experiment was decisive, the larger the amount of potash fertiliser applied to the soil the lower was the temperature at which the plants' juices froze. Finally, the percentage of potash in the sap was determined, and, as might be expected from the results of the previous experiment, it was found that the amount of potash contained in the plant cells varied with manurial treatment. In the case of Potatos grown in potash-free soil only meagre amounts of that substance—such as were obtainable from the tuber—were present in the sap. With a moderate potash dressing the percentage of potash in the cell sap was nearly doubled, and in the case of plants which received the heavy potash dressing it was increased yet further. Naturally, there is a limit to the amount of potash which the plant can absorb, and therefore it is useless to apply excessive amounts of potash; in fact, it may be stated that the fertiliser usually applied by good Potato growers, viz.:—three hundredweights per acre of superphosphates; two hundredweights per acre of sulphate of ammonia; and two hundredweights per acre of sulphate of potash, will supply sufficient potash for the plant's growth. Another mixture in favour is: Five hundredweights per acre of superphosphates; three hundredweights per acre of sulphate of ammonia; and three hundredweights per acre of sulphate of potash. This mixture is in accordance with recent researches which show that, if the quantities of sulphate of ammonia or sulphate or muriate of potash are increased proportionately, further increased yields are obtained.

Our Coloured Plate.—The coloured supplement plate that accompanies the present issue represents the brilliant dwarf Polyantha Rose named Golden Salmon. This richly-coloured variety was distributed by Ooshoek, and was exhibited on the Continent and in England in 1927. Latterly it has been shown at all the principal British exhibitions and has invariably attracted attention by its brightness and freedom of flowering, especially as it provides a colour —golden salmon—not previously found in the dwarf Polyantha section. The flowers depicted in our coloured plate were grown by Mr. J. H. Pemberton, and exhibited at the Royal Horticultural Society's Hall.

Fruit Crop Reports—We hope to publish our report on the hardy fruit crops in the issue of August 11; readers desiring extra copies should inform newsagents of their requirements so soon as possible. Copies may also be obtained 7d., post free, from The Publisher, The Gardeners' Chronicle, Ltd., 5, Tavistock Street, Covent Garden, London, W.C.2.

A New Thames Embankment.—Under the new scheme for the reconstruction of Waterloo Bridge, the building of a new Charing Cross Bridge, and the removal of Charing Cross Station to the south side of the River Thames, provision is made for an embankment, with gardens, along the south bank of the river. If this scheme materialises it will add greatly to the beauty and amenities of one of the best-known parts of London. The total cost of this immense scheme is estimated at £13,000,000.

National Chrysanthemum Society.—This Society's schedule of classes and prizes for the exhibition to be held in the Royal Horticultural Society's Hall, Westminster, on November 1 and 2 next, does not differ greatly from its immediate predecessors. There are, however, a few new features, and one of special interest is that in the two sections for amateurs only, all the flowers must be shown in vases; moreover, a Silver Medal is offered for the best exhibit in each section, instead of the best exhibit in the combined sections, as heretofore. The Hon. Sir John Ward, President, offers a fifteen-guinea Cup as part of the first prize for twenty-four Japanese blooms, and Captain A. H. B. Wright, of Marlow, has presented a Silver Challenge Cup, value twelve guineas, for the best specimen Chrysanthemum "one plant only, any size of pot or tub allowed." A distinct innovation, and a very sensible one, is the inclusion of the Committee's Report and the Balance Sheet for the past year.

Honours for Belgian Horticulturists.—On the occasion of the recent conclusion and signature of the Franco-Belgian economic treaty, the French Government conferred the distinction of the Legion of Honor on a number of prominent Belgian horticulturists. Among others, M. Baels, the Minister of Agriculture, was promoted to the rank of Grand Officer; M. Henry, Director-General at the Ministry, was created Commander; and M. van der Vaeren and M. Van Orshoven, were created Officers.

Royal English Arboricultural Society.—Arrangements are being made in the north of Scotland for the reception of the members of this Society, which will hold its autumn meeting at Inverness this year. The party, expected to number about two hundred members, will meet at Inverness on Monday, August 27, and will be received by Colonel G. F. T. Leather, the President. On August 28, the party will visit bonnie Strathspey, to inspect the woodlands, owned by the Countess of Seafield; on August 29 the Forest of Darnaway, owned by the Earl of Moray, will be inspected; on August 30, a visit will be paid to the forest of Novar; and on Friday, August 31, the members will be the guests of Lord Lovat and will inspect the woods of Beaufort. On the Saturday, the party are expected to visit the famous Culbin Sands.

Brussels Chrysanthemum Show.—The Société Belge des Chrysanthémistes will hold its first Chrysanthemum show in Brussels on October 20, 21 and 22 next, in the Marble Hall of the new Palais des Beaux Arts. It is hoped that British amateur and professional Chrysanthemum growers will exhibit on this occasion. Schedules of the show may be obtained from M. Gentil, Foreign Secretary, Curator, State Botanic Garden, Brussels.

Legacies to Gardeners.—The late Mr. Harry Chandos Elletson, of Parrox Hall, Preesall, Poulton-le-Fylde, who died on April 25, left £150 to his gardener, Mr. John Blackburn.—The late Mrs. Margaret Williamson Allan, of Rosemont, Aigburth, Liverpool, who died on March 23, left £800 to her gardener, Mr. William Whittle—The late Mr. William Fleming Inglis, Hollyoak, Eastbury Avenue, Northwood, Middlesex, who died on June 12, left £50 to his gardener, Mr. Francis Phillips.

International Rose Trials at Bagatelle.—The usual annual trials of new Roses have been held at Bagatelle Gardens, Bois de Boulogne, Paris, the judges assembling under the presidency of M. Chérioux, the President of the Fine Arts Committee of the Paris Municipal Council. Mr. A. Dickson, of the well-known Hawlmark Nurseries, Newtownards and Belfast, was the British representative on the jury. The Gold Medal was awarded to Messrs. A. Dickson and Sons, for Lady Margaret Stewart, a Hybrid Tea that is yellow on opening, veined and shaded with orange-scarlet, the reverse of the petals being strongly marked with carmine. When the flower is fully expanded, the colours run together, forming a beautiful orange-cadmium tint; the blooms are large, full and cup-shaped; the foliage is broad and glossy. The First Class Certificate was awarded to Mr. Frederick Evans, 87, Shaftesbury Road, Reading, for Abol, another Hybrid Tea, with ovoid bud, white with a pink centre; the flower is large, not very full, and when expanded is white, lightly touched with pink. The blooms are very fragrant and carried on long stems. A Certificate was granted to M. C. Mallerin, of Grenoble, for Madame Van de Voorde, yet another Hybrid Tea derived from Madame Meha Sabattier × K. of K. The bloom is full, with wide petals, a little curled. A Pernetiana variety, Souvenir de Jules Gaujard, also received a Certificate; this was raised by M. Jean Gaujard, Vénissieux-les-Lyon; the bud is coppery-red, the expanded flower deep pink, and the foliage very fine. A Special Certificate was awarded to the decorative variety Glenn Dale (R. Wichuraiana × Isabella Sprunt) sent by the American Rose Society; it is a climbing Rose, very floriferous, with rather large, semi-double, blooms, borne in clusters. The colour is at first citron-yellow, passing to pure white when the flower is completely open.

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[*] *Die Ernahrung der Pflanzen*, 1928. Landbouwkundig Tijdschrift., Wageningen, Holland.

British Lilies in Hyde Park.—Five hundred Lilies (L. longiflorum Harrisii), the gift of the Bermuda Department of Agriculture to the London Parks, are now in full beauty. The Lilies are to be found in Hyde Park, near the small enclosure surrounding the fountain and bird bath, close to a bed of pink Statice.

Chiswick House for the Public.—We learn that negotiations are in progress to raise a sufficient sum of money to purchase Chiswick House, together with its beautiful grounds—covering an area of sixty-six acres—for the public. For this purpose the Middlesex County Council has promised seventy-five per cent. of the total purchase price, and the Brentford and Chiswick Urban District Council have promised the sum of £5,000, while the Metropolitan Public Gardens Association has secured £2,500 from the trustees of one of its late supporters, Mr. Poulter, and £1,000 from the National Playing Fields Association (Greater London). Some £20,000 has still to be found, and an appeal for contributions towards this amount is being made by the Metropolitan Public Gardens Association. If the money for the purchase of Chiswick House and grounds is forthcoming, the Brentford and Chiswick Urban District Council will undertake the management and upkeep of the estate as a public open space. Chiswick House was built by Richard Boyle, third Earl of Burlington, some two hundred years ago, and among the many famous men who in the past have stayed there as guests are Pope, Johnson, Fox, Canning, Sir Walter Scott and Garibaldi. The grounds contain many fine trees, including some old and picturesque Cedars.

Strasbourg Exhibition.—The Fair and Horticultural Exhibition at Strasbourg will take place from September 8 to 23, this year, but the horticultural part of the show will close on the 16th, nine days being thought sufficient for perishable exhibits to be on view. As is usual in Continental shows, the dates chosen comprise the maximum number of Sundays, these being always the most popular days for visiting exhibitions of all kinds.

British Gladiolus Society.—From present indications it would appear that the International Exhibition of the British Gladiolus Society, to be held at the R.H.S. Hall, on Friday, August 10, will excel all previous efforts and, subject to good weather conditions meantime, it should prove to be the largest fixture of its kind the world has yet seen. All spaces for trade groups are booked; in fact, reductions varying from one-third to one-half have been made in order to house the exhibits, which will vary in size from two hundred to five hundred superficial feet. Numerous entries for the competitive classes are coming in, and for the Society's Championship Trophies for new varieties no fewer than five countries will be represented.

Retirement of Mr. Walter Irving.—Mr. Walter Irving, Assistant Curator in charge of the Herbaceous Department, Royal Botanic Gardens, Kew, retired on reaching the age limit, on August 2, after thirty-eight years' service. He is to be succeeded by Mr. Alexander Edwards, whose appointment has just been confirmed by the Ministry of Agriculture and Fisheries. A portrait and appreciation of Mr. Irving appeared in *The Gardeners' Chronicle* of June 16, 1923.

Mr. Alexander Edwards.—The successor to Mr. Walter Irving, as Assistant Curator in charge of the alpine and herbaceous departments at the Royal Gardens, Kew, is Mr. A. Edwards, who, on leaving Keswick High School, commenced work under his father, Mr. A. W. B. Edwards, Chief Forest Officer to the Manchester Corporation Water Works Department, at Thirlmere. While thus employed, he was engaged in the planting of thousands of timber trees in the extensive afforestation scheme in the Thirlmere catchment area. On leaving Thirlmere, Mr. A. Edwards entered service with Messrs. T. R. Hayes and Son, of Keswick and Ambleside, with whom he remained for three years, assisting in the construction of rock and water gardens in various parts of the country and in the cultivation and propagation of alpine and herbaceous plants. He left Keswick to become a student gardener in the Edinburgh Botanic Gardens, where he took the usual courses of study and remained for two-and-a-half years before entering the Parks Department at Manchester under Mr. W. Pettigrew. Here he rose from journeyman to the position of foreman of Alexandra Park and Platt Fields, where he had abundant scope for his knowledge and skill in the construction and planting of rock gardens and herbaceous borders, and the creation of a botanical collection, in addition to the care of bowling greens, tennis courts and shrub borders. From this it will be gathered that Mr. Edwards, although still a young man, has had a wide experience that should fit him for the important position he has now taken up at Kew.

MR. A. EDWARDS.

Wash Reclamation.—We understand that the Welland Drainage Commissioners are initiating a drainage scheme which will include an attempt to reclaim a large tract of land from the Wash. It is proposed to continue the banks of the River Welland, by means of training walls, from the mouth of the Welland at the base of the estuary, across the Wash to the mouth of the River Witham. This will result in a deep channel, three-and-a-half miles long, which should greatly improve the Welland outfall and prevent shallow sea water from spreading over the surrounding area. The scheme is being encouraged by the Ministry of Agriculture and is expected to be State-aided.

Paris Autumn Show.—The autumn exhibition of the French National Horticultural Society will take place at Cours-la-Reine, Paris, from October 26 to November 4, and will comprise Chrysanthemums, various flowering plants, Orchids, examples of the florists' art, fruits and fruiting trees, ornamental shrubs, etc.

New Stadium at Nurnberg.—At the beginning of June, the new Nürnberg Stadium, which occupies the position of the former Zeppelin ground at this beautiful German town, was opened to the public, thus completing a long and arduous piece of work on the part of the Director, Herr Hensel. The Zeppelin ground was originally a piece of waste ground which was intended, even before the war, to be turned, with the neighbouring woodland, into a pleasure park, but the war held up the work and it was utilised as allotments. In 1922, however, the prevalence of serious unemployment necessitated the provision of relief work, new plans were made by the local Parks Department and the ground was laid out in three parts, woodland, playing fields and permanent allotments. The site contains about 180 hectares, and the scheme includes a large lake, which is used for rowing and other aquatic sports.

Honour for French Horticulturist.—We are glad to learn that M. Alfred Nomblot, Deputy for the Seine, President of the Chamber of Agriculture for the same district, Professor at the National Horticultural College of Versailles, and seedsman at Bourg-la-Reine, has been elected a titular member of the Academy of Agriculture in the Special Culture section, in place of M. A. Truelle, deceased. M. Nomblot has already, for some time, been correspondent of the Academy, and we congratulate him on his election to the higher distinction.

Roadside Planting.—Sir William Lawrence writes:—"The leading article in the issue of *The Gardeners' Chronicle* of July 21 on 'Trees for Parks, Streets and Roads,' was most opportune, for on Wednesday, July 25, the Roads Beautifying Association was launched under the auspices of the Ministry of Transport, in the presence of representatives of the County Councils, of the Royal Horticultural Society, Kew, the R.A.C., and A.A. and other bodies and individuals. The Association is to be advisory, and its activities will take two main lines, namely Propaganda and Technical Advice. For the former a number of people whose names are well-known in public life have promised to be responsible, amongst them Lord Ashfield, Lord Montagu of Beaulieu and Mr. Gordon Selfridge. For technical advice a very influential committee of prominent arboriculturists has been elected, amongst whom, to mention the names of Mr. W. J. Bean, Mr. Gerald Loder, Mr. F. S. Balfour, Mr. Hillier and Mr. Oldham, will suffice to show that the country may have the fullest confidence in their competence. The movement was largely due to the activity of Dr. Wilfrid Fox and Mrs. Wilfrid Ashley, and as the Association has the backing of the Government and of the Local Authorities, it is certain to go forward. Consequently there should very soon be a strong demand for young trees for planting. The object of this note is to suggest to growers that they should look round and see how they are going to meet the demand when it comes. For example, at the inaugural conference of the Association it was suggested that Quercus coccinea was a magnificent plant for road planting. I am disposed to think that on hot, light soils this Oak will do very well, but I doubt whether at the present moment a thousand of these Oaks or other Oaks which colour in the autumn, such as Q. palustris or Q. rubra, could be obtained easily in this country. In any case they would be expensive, as I see eight to ten feet standards are quoted round about 10s. each. Again, many of the trees recommended by Mr. Dallimore are not grown largely in England; for example, the two Limes, Tilia euchlora and T. petiolaris (often catalogued as alba pendula), and I doubt whether there is any stock of importance of Robinia. ('Acacias' were very largely planted in this country from 1840 to 1850, but since then they have gone almost entirely out of fashion; the common Acacia with the white flowers can be relied upon to look after itself so far as growing is concerned, but requires much attention if it is to become a shapely tree. Personally, I prefer those with pink flowers.) This, however, is a digression, and I should like to put forward suggestions as to how the supply of trees for road-planting should be secured. At first sight it would seem best for the local authorities to have their own nurseries; but whereas this might work well in the case of the larger authorities, I think it would prove unsatisfactory and expensive in the case of the smaller counties, who would not be able to run to the expense of a trained forester. To me it appears that the best plan would be to get out a list of trees which ought to be obtainable in large numbers and without difficulty, excluding unusual trees, such as Magnolia grandiflora or the Judas Tree, which someone happens to have seen in this country or on the continent growing very well under particularly favourable circumstances. The nurserymen who were prepared to speculate on the prospect of the demand for trees for roadside planting would then raise stocks of some or all of the trees on the list; these stocks would be obtained partly by sowing seeds and transplanting in due course, and partly by purchasing stocks on the continent and growing them on into shapely young trees. The authorities, in my opinion, would be well advised to make contracts with nurserymen not only for the supplying of the trees themselves, but for their planting, replacement where necessary, and care over a period of, say, three years. A very important matter which should receive careful consideration is the question of staking and the protection of the young trees against animals, including children."

Exhibition at Le Mans, France.—From June 8 to June 17 the State Railways of France organised a horticultural exhibition at Le Mans, with the collaboration of other railways covering the district. The exhibition was a great success; Messrs. Vilmorin-Andrieux and Co., of Paris, sent a superb exhibit of annuals, almost equal to those shown in Paris at the end of May. Other well-known nurserymen also collaborated to make a very pleasing and educative exhibition.

Mr. J. Hutchinson's Tour in Africa.—The Director of the Royal Botanic Gardens, Kew, has arranged for Mr. J. Hutchinson, Assistant at the Herbarium, Royal Botanic Gardens, and formerly Assistant for Tropical Africa, to carry out a botanical tour in South Africa in concurrence with the Botanical Authorities in the Union of South Africa. Mr. Hutchinson left Kew on July 27, and is sailing to Cape Town by the s.s. Saxon. Shortly after his arrival at Cape Town he will proceed to Namaqualand with Mr. Pillans, who has kindly invited him to join him on a collecting expedition in that region. Later, he intends to make a tour through the Central Coast Region and pay visits to the Knysna forests, Transkei, East Griqualand and Natal, and the regions which are especially rich in Succulents. In the Transvaal and Swaziland, Mr. Hutchinson will be assisted as to his tour by Dr. Pole Evans, and he also hopes to visit British Bechuanaland and the Fauresmith Botanical Reserve. The Karroo flora will be studied and the autumn flora of Table Mountain before he leaves for home in April. Mr. Hutchinson will be visiting the various botanical institutions and gardens in the Union during his stay in South Africa. This tour, which should result in the introduction of many new and interesting plants and valuable specimens for the Herbarium, has been rendered possible through the grant of the Empire Marketing Board to Kew. The portion of the grant assigned for collectors has enabled Kew to revert to the old practice which was of so much value in the days of Sir Joseph Banks and Sir William Hooker, of sending botanical collectors to study and bring home to the Royal Botanic Gardens plants of economic and botanical interest. The recent mission of Mr. Howes, Assistant in the Museums, to Siam, Malay and Burma in quest of Bananas likely to be immune to Panama disease, which was carried out under this grant, has yielded valuable results.

Appointments for the Ensuing Week.—Sunday, August 5: Wakefield and North of England Tulip Society meets. Monday, August 6: Bredon and Tewkesbury Horticultural Society's exhibition; Pershore Horticultural Society's exhibition: Chippenham Horticultural Society's exhibition; Wadhurst Flower Show; Ticehurst Flower Show; Lee, Blackheath and Lewisham Horticultural Society's exhibition; Manchester and District Pansy and Viola Society meets. Tuesday, August 7: Abbey Park Flower Show (two days); Royal Caledonian Horticultural Society meets. Wednesday, August 8, Sheffield Chrysanthemum Society meets; Royal Horticultural Society of Ireland's exhibition in conjunction with Royal Dublin Society's exhibition (three days): Northampton Horticultural Society's exhibition (two days); Taunton Deane Horticultual Society's exhibition (two days); Royal Welsh Agricultural Society's exhibition at Wrexham (three days); King's Walden Horticultural Society's exhibition. Thursday, August 9: Bakewell Flower Show. Friday, August 10: British Gladiolus Society's exhibition; Royal Horticultural Society of Ireland meets; Harrogate Agricultural Society's show (two days). Saturday, August 11: Auchencrow (Berwickshire), Girvan and District show.

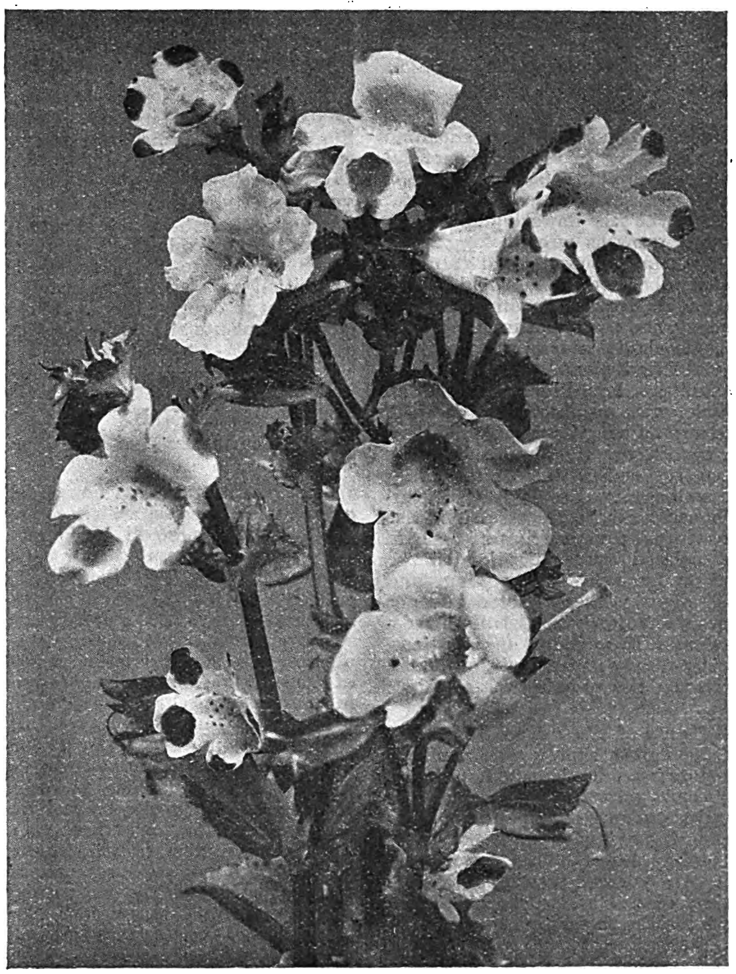

FIG. 33.—MIMULUS HYBRIDS.
(see p. 88).

"Gardeners' Chronicle" Seventy-five Years Ago.—*Horticultural Society's Garden, Turnham Green.*—Among new annuals which have bloomed since our last report, may be mentioned the white variety of Nolana grandiflora, which forms a good contrast with the blue variety; the New Holland Podolepis chrysantha, a good, showy, yellow composite; Schizanthus violaceus, a distinct-looking species, with a colour that has hitherto been much wanted; Schistanthe pedunculata, with brick-red, Alonsoa-like flowers; a species of Gilia, with lead-coloured blossoms, that are larger and finer than those of capitata; Collinsia bartsiaefolia, a species with the appearance of C. bicolor, but much more dwarf; Cenia pruinosa and one or two other kinds. Concerning the Cenias turbinata and t. formosa named last month, we have to state that they may with justice be called perpetual-flowering; for no sooner is one crop of blossoms off, than another equally plentiful makes its appearance. Indeed, few of the new annuals are so well worth attention as these Cape Cenias, whose flowers, with the exception of being without the ray, somewhat resemble Camomile blooms. The most brilliant thing, by far, however, is the crimson Linum, which is flowering rather more freely than before, but still it is thin and delicate. *Gard. Chron., July* 30, 1853.

Publications Received.—*The Forest Industry of Finland*, by W. E. Hiley; The Clarendon Press, Oxford.—*Growth and Yield of Conifers in Great Britain*; His Majesty's Stationery Office, Adastral House, Kingsway, W.C.2.—*Factors in the Inception and Development of Fusarium Rot in Stored Potatos*, by Freeman Weiss; United States Department of Agriculture, Washington, D.C.—*The Iris Society's Bulletin* (No. 6), edited by Geo. Dillistone.—*Journal of Genetics*, edited by R. C. Punnett, Cambridge University Press, Fetter Lane, E.C.4; price 15s. net.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

Calanthes.—Plants of the deciduous section of Calanthes are now growing vigorously, but those that are not well established in the soil need to be watered sparingly, to prevent the leaves becoming spotted, while well-rooted specimens require a liberal supply of water at the roots. If roots are showing on the surface the plants should benefit by a top-dressing of good, turfy loam, or they may be watered occasionally with weak liquid-manure, increasing its strength as the bulbs develop. The plants should be arranged so that they receive plenty of light and a free circulation of air.

Mexican Laelias.—The brilliant sunshine experienced during July has been beneficial to these sun-loving Orchids, such as Laelia anceps and its numerous varieties; L. albida, L. autumnalis, and the free-flowering L. Gouldiana. The young growths are making good progress and beginning to swell, and the new roots should have obtained a firm hold of the compost. The plants require an ample supply of moisture both at the roots and in the atmosphere. Very little shade is required by these Laelias, and established plants that have been well inured to sunlight should now thrive in all the light available, with an abundance of fresh air both day and night during favourable weather. Under these conditions the house requires damping frequently, and if the surroundings and plants are well syringed early in the afternoon, and the house closed to secure a rapid rise in the temperature, the ventilators should be opened an inch or two, according to the outside conditions, later in the evening, and remain open all night. These Orchids do not grow and flower satisfactorily in a stuffy atmosphere, which should be avoided at all times, for they delight in plenty of fresh air, sun heat, and moisture during the growing season.

Coelogynes.—Plants of Coelogyne Mooreana, which flowered during the winter and have been growing in the intermediate house should now be completing their growth. So soon as the bulbs are formed the plants may be removed to the cool house and given only sufficient water to keep the bulbs plump. The flowers are produced with the young growths and open quite well during winter under the conditions maintained in the Odontoglossum house.

THE KITCHEN GARDEN.

By Allan Falconer, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Spinach.—A good batch of the Prickly Spinach may be sown now for autumn and winter use. Sow the seeds in a well-drained piece of ground which has been made fairly firm, and keep the surface soil stirred after the seedlings appear; thin the plants to six inches apart in the rows so soon as ready.

Carrots.—During August, sowings of short-rooted varieties should be made in frames, to supply young, succulent roots during the winter, when they are much appreciated for their delicacy. The Carrot crop is soon injured by autumn frosts, therefore those grown in frames from late sowings should be protected so soon as frosts occur.

Endive.—Sowings should be made to supply plants to prick out, and eventually to lift with good balls of soil attached, for placing in cold frames, where they may be protected easily in cold weather.

Lettuce.—Frequent small sowings of Lettuce should be made during August and September, according to the district, as where large supplies are required it may be advisable to transfer some of the later plants to cold frames, where protection may be given during severe weather. Towards the end of September and during October, sow seeds in cold frames.

Turnips.—In some districts good breadths of Turnips may still be sown. Land from which Potatos have been removed should prove suitable for this crop, and the best of those which mature may be taken up and stored, leaving the rest to produce greens in the spring.

Dwarf Beans.—A batch raised from seeds sown in frames now should prove useful in the late autumn, and if given protection against inclement weather, should produce a good crop to follow those grown outside. If pits are available, with hot-water pipes, these late-sown plants may produce pods for a considerable time after the outdoor crop is killed by frost.

Peas for Exhibition.—During hot and dry weather plentiful supples of clear water and liquid manure are necessary to these, and occasionally an approved fertiliser may be applied. The rows should be mulched and the tall-growing varieties should have the points of their growths pinched out, also all side-shoots. All deformed and unshapely pods should be removed, and only those which are likely to swell and produce exhibition pods should be retained, care being taken not to damage them. If birds are troublesome the plants should be protected.

PLANTS UNDER GLASS.

By J. Coutts, Assistant Curator, Royal Gardens, Kew.

Aeschynanthus.—This genus includes a number of beautiful species, which are very attractive when grown in small baskets in the stove, their more or less pendant habit rendering them well-suited for this method of cultivation, although they may also be grown successfully in pots. They are epiphytic, and therefore require ample drainage and an open compost of good fibrous peat and loam, with the addition of charcoal and sand to keep it open and porous; in such compost they may be potted moderately firmly. If plants were rooted during the spring they should now be ready for placing in pots or baskets; they may be grown on singly, or several plants may be placed in a receptacle to make fine flowering specimens next year. During the summer, when growth is active, they should be syringed regularly and given ample supplies of water at the roots; during the winter they should be kept drier at the roots, but they should never be allowed to suffer from lack of moisture. Although the spring is the most suitable time for propagation, they may, however, be increased easily at any time during the summer by means of cuttings, which root readily in a case with bottom-heat, or dibbled into fibre in an open bed in a close and warm propagating pit. Some of the best species are A. fulgens, A. javanica, A. Lobbiana, A. longiflora, A. speciosa and A. zebrina.

Fuchsias.—Where it is desired to propagate a stock of Fuchsias during September, the required number of stock plants should now be shortened back and placed in a house which may be kept fairly close and warm, to encourage the plants to make fresh growth to furnish a supply of cuttings. If these are rooted during September, specimens six to eight feet in height may be produced for flowering next summer; and if such specimens are required, the young plants should be grown on steadily during the winter, without stopping the leading shoots, but keeping them tied up to stakes. Next year they should be potted on as they require it, stopping the laterals at every joint until about six weeks before they are required to flower; for making specimens like this strong varieties are essential. If they are required in bush form the leading shoot should be stopped when they are young. Fuchsias, especially strong-growing varieties, are fine subjects for planting out in the conservatory, to furnish rafters and pillars, and grown in this way they flower with wonderful freedom over a long period. They are also excellent for furnishing large hanging baskets, and for this purpose the varieties that are naturally of a somewhat drooping habit are most suitable; Mrs. Roberts and Mrs. Rundell are good examples of this type. The golden-leaved variety, Wave of Life, is also very fine, as it is of a slender, drooping habit, and unlike most Fuchsias, old plants retain their foliage throughout the winter. Fuchsias also have the additional merit of flowering freely under somewhat shaded conditions. They are very subject to attacks of mealy bug and white fly, and means should be taken to deal with both these pests.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Early Vineries.—So soon as the early vines have been cleared of their fruits, they should be syringed liberally so late in the afternoon as possible, and where red spider has appeared owing to the dry atmospheric conditions generally maintained when the ripe fruits are allowed to hang on the vines for any length of time a spray recommended for red spider should be used occasionally. Inside borders which have been allowed to become dry should be moistened thoroughly. It sometimes happens that the surface soil becomes hard, and where this is the case it should be lightly forked to ensure even distribution of the water. If the vines are young and vigorous and have not been overcropped, clear water should suffice, but on the other hand, where older vines have been cropped heavily, more generous treatment should be resorted to, otherwise they may tend to ripen their growths prematurely. Frequent applications of diluted liquid manure during the next few weeks should prove beneficial to old vines, and air should be afforded liberally both day and night.

Successional Vines.—Houses containing ripe Grapes should be kept cool and airy, and should the weather prove very hot it may be necessary to shade them lightly, otherwise black Grapes may tend to lose colour. At this season of the year it is not wise to keep the house and borders too dry; the borders should be damped liberally and the walls syringed during the early afternoon. Of course, a change to damp or wet weather calls for drier conditions again, otherwise such varieties as Madresfield Court may crack their berries. However, much depends on the treatment given, with regard to moisture, to the borders during the earlier stages of growth.

Peach Houses.—During their growing season it is difficult to overwater Peach trees growing in well-drained borders especially after the very hot spell experienced during July. The borders should be watered liberally each week, and the house damped twice each day. Light and airy conditions and judicious thinning of the fruits are three essentials in obtaining fruits of good colour and flavour. Where trees are grown under glass without the aid of fire heat, it is essential that the top ventilators should not be closed at night. Late varieties that have passed their stoning period should be assisted by the application of a suitable fertiliser.

HARDY FRUIT GARDEN.

By T. E. Tomalin, Gardener to the Earl of Bessborough Stansted Park, Emsworth, Sussex.

Peaches and Nectarines.—The fruits on mid-season and late varieties should by now have passed through the stoning stage and be swelling rapidly. It is important that the trees do not suffer from lack of water during the finishing period, or the fruits may be undersized and poor in flavour. During dry weather trees growing in well-drained borders require a good soaking twice a week. Regular spraying with clear water in the evenings during hot weather is very beneficial to the trees, but this practice should be discontinued when the fruits begin to ripen, until after the crop is cleared. The fruits should now be exposed to the sun wherever necessary, by tying back any overhanging foliage, and where any fruit is in danger of being injured by too close proximity to wires or branches, it should be propped out of harm's way by inserting a clean wooden label behind it. Where birds are known to attack these fruits the trees should be netted securely before the fruits commence to colour.

Early Cooking Apples.—Culinary Apples are in constant demand now, and while the main supply will be provided by the early varieties, such as Early Victoria, Lord Suffield and Lord Grosvenor, it is often advisable to relieve some of the mid-season varieties, such as Grenadier, Stone's (Loddington), and Rev. W. Wilks, of some of their less shapely fruits for this purpose. This final thinning may be especially helpful in the case of the younger trees, and often results in the production of much finer specimens.

Autumn-fruiting Raspberries.—The fruiting canes of autumn Raspberries are now growing rapidly, and these should be secured to the supports as they increase in height. The growths should never be allowed to become overcrowded, or the best results cannot be expected. During dry weather adequate supplies of water, and the constant use of the hoe between the rows, are necessary to maintain active growth and to ensure a full crop later on.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to the Duke of Devonshire, Chatsworth, Bakewell, Derbyshire.

Climbing Roses.—As these pass out of bloom in positions where they are somewhat restricted, the old wood should be cut clean away, thus allowing room for the best and healthiest of the young shoots already growing strongly from the base, to be trained up into their permanent positions. There are usually more shoots than are required and crowding defeats the end in view, therefore all the weak shoots should be removed. For garden decoration at this season, climbing Roses are unequalled, and there is now such a wealth of charming varieties to select from, and to suit all tastes, that there is no excuse for lack of colour in a garden. These Roses rarely appear out of place but are perhaps seen at their best when allowed to ramble unrestrained over an old tree stump, or over a dry bank, or the face of a rock. Many charming effects may be obtained by planting them in sunny spots in the shrubberies or in the wild garden among Rhododendrons and other sombre evergreens. Here they seem particularly at home, and give a splendid variety of colour after the Rhododendrons and other shrubs have passed out of bloom.

Clipping Garden Hedges.—Many of the shrubs used as hedge plants, either as shelter screens, or more especially as an ornament to the garden, should be kept closely clipped. When hedges are composed of quick-growing shrubs, such as Privet or the Myrobalan Plum, they require clipping several times in a season to keep them in good condition. It is a mistake to allow them to produce long growths and then to cut them closely, as this tends to make the hedge bare and unsightly for some time. Box edging should also be lightly clipped to maintain a neat and tidy appearance; if left to grow freely the edge quickly becomes untidy and straggly, and takes some time to recover its proper form. Hollies and Yews both make splendid hedges, and an old, well-kept hedge of either of these is undoubtedly an ornament in any garden. It is worth going to a lot of trouble to keep such a hedge in a healthy condition. Weeds should be kept well in hand and the hoe used at the base of the hedge, and if the soil is poor, a little artificial manure hoed in may be of great assistance. Laurels, either the Portugal or the common variety, are also extensively used as hedges and screens, and where properly managed are quite beautiful, but too often these Laurel hedges are allowed to grow out of all proportion to their surroundings, and finally have to be cut back severely, or removed altogether. A common error is that of cutting a Laurel hedge quite square, for when it becomes aged it is almost impossible to keep it in good condition, the top ultimately getting so strong as to bulge right over. If possible, these hedges should be cut slightly wedge-shaped, so that they are always broadest at the base. On no account should broad-leaved shrubs, such as Laurels, be clipped with shears, as by so doing the foliage becomes mutilated, and if this treatment is continued the hedge eventually falls into an unhealthy condition. After growth is finished for the season, Laurels should be gone over carefully and the superfluous shoots shortened back to just above a good leaf. If well done now the hedge should require little more attention until next season. A few lateral shoots may start into growth, and these should be removed entirely at the end of the season.

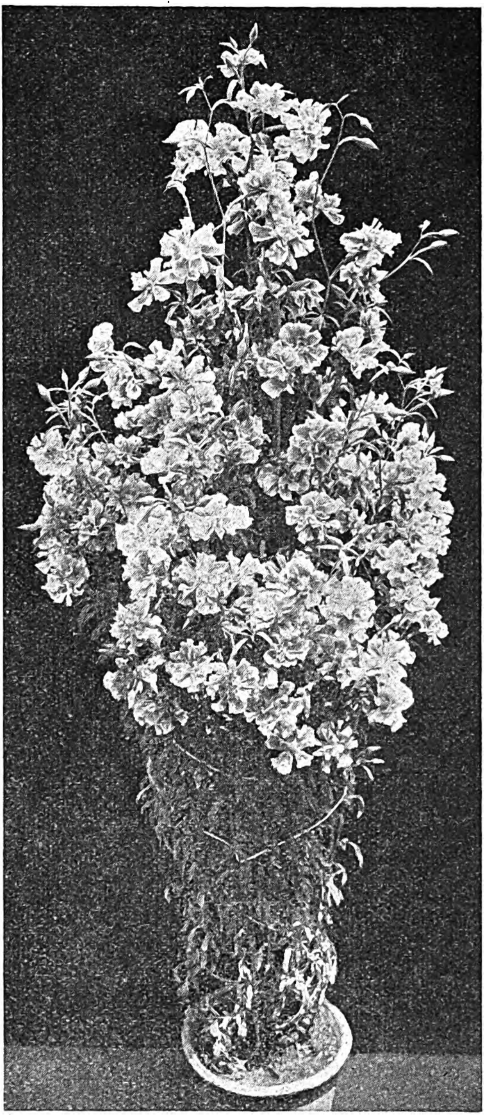

FIG. 34.—GODETIA TALL DOUBLE CHERRY RED AS A POT PLANT.
(see p. 95).

Lavender.—This favourite shrub is grown in quantity in many gardens, and where the flower-spikes are valued for use in a dried state, they should be picked off just before they are fully-blown, tied into small bunches, and laid out in an airy place to dry, but not in hot sunshine, and turned occasionally so that no moisture is retained. After the blooms have been cut off, if the Lavender is grown as a formal hedge, it should be clipped lightly at once, so that the resulting shoots may be properly hardened before winter. Many Lavender hedges are damaged by frost through being clipped too late in the season, the new growths being still soft when frost arrives.

Climbing Shrubs.—All kinds of climbers are now making rampant growth, and pruning and tying should be done at regular intervals, for too much should not be cut off at one time. As no hard and fast rule may be applied to climbers, this attention may mean simply looping up the shoots out of harm's way, or the removal of superfluous growth, but the situation of the particular climber of necessity governs any work of this kind. In the wild garden, where the climbers may be rambling over dead or dying trees, or rocks, the less tying or cutting given, the better for the natural character of the plant, and if they are growing over terrace walls, or pergolas and similar structures, too much cutting should be avoided, with the exception of strong growers encroaching on their weaker neighbours. For plants on verandahs, porches, or round the windows of the dwelling-house or pavilion, more attention is advisable, so that they do not become a nuisance.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener at Jordanhill Training Centre, Glasgow.

Cyclamens.—The time has once more arrived when the older plants should be repotted and thus prepared for their flowering period six months hence. Where the plants are in six-inch pots the best should be moved into eight-inch pots, using a good compost of loam, leaf-soil, well-decayed cow-manure and sand. The one-year-old plants should now be ready to move into five- or six-inch pots, and they may all be accommodated for a time in a cool, shaded house or frame, taking care to water them only when necessary, and spraying them twice a day. To provide another batch of plants, seeds should be sown now in pans, using a good open compost, and dibbling the seeds in about one inch apart and half-an-inch deep. The pans should be set in a house with a temperature of 55° to 60°, and shaded by placing darkened glass over them until the seedlings appear. These should be gradually accustomed to the light, and in course of time placed on a shelf in an airy house, where they may remain until ready for pricking out.

Cinerarias.—Seedlings of Cinerarias which were pricked out in boxes should now be growing rapidly, and should be lifted carefully and potted up singly into four-inch pots. Any extra strong or coarse-looking plants should be discarded, as these are usually unsatisfactory. Where good types of Cinerarias are rooted from cuttings, these should also be ready to move from the cutting pans or boxes into four-inch pots. Several very fine groups of Cinerarias grown in this way, were observed last spring, and the effect of two or three dozen plants of one shade of colour is much better than the usual mixed groups so frequently seen. These plants, if raised from cuttings, may be grown and flowered satisfactorily in smaller-sized pots than those required for plants raised from seeds.

Primulas.—Seedlings of indoor Primulas, such as P. sinensis, P. malacoides and P. obconica, should now be ready to transfer singly into three-inch pots. These winter-flowering plants are frequently grown on for a second season, and where vigorous and healthy one-year-old plants are available they should be moved into larger pots, using a good compost. The stellata forms of P. sinensis are probably grown more nowadays than the type, for they are extremely floriferous and may be obtained in a variety of distinct colours. Many improved forms of P. malacoides are also obtainable, and these may be grown with the same ease, for while they are perhaps not so densely flowered as the type, the individual flowers are larger and the colours are better; such improved forms include Advance and Eclipse. P. obconica has for many years been under a cloud, as it was suspected of causing serious skin troubles, but it is without doubt one of the most continuous-flowering plants we have, and in its latest form, Eureka, it is a most effective subject for using in artificial light.

INDOOR PLANTS.

RUELLIA MACRANTHA.

THERE are few autumn-flowering greenhouse plants more floriferous than Ruellia macrantha. It is true that the individual flowers do not last long, but they are produced in such abundance that the plants are laden with blossoms for many months. As it commences to flower in November, it is a very welcome addition to the conservatory, and as a room plant it is very successful, showing up extremely well under artificial light.

Although this subject is a native of Brazil, it flourishes in a slightly heated greenhouse. It has rosy-purple, tubular flowers which are about one inch in length.

Fortunately, this plant is remarkably easy to grow. Cuttings should be inserted in sandy loam in April, and the pots plunged in a slightly heated propagator, roots being produced as easily as in the case of Fuchsias. When the cuttings are well rooted they should be potted on into three-inch pots, using an ordinary compost of loam, leaf-mould and sand, and from these—by the usual gradual stages—they should finally be accommodated in seven-inch pots, which are quite large enough for ordinary purposes.

Stopping is a very important item in the cultivation of this Ruellia. The shoots should be pinched back to the last pair of leaves on each branch, and this process should be continued until the end of July, after which they should be allowed to develop unchecked. During the summer months the plants do well in a cool, well-ventilated greenhouse, shaded only from the hottest rays of the sun. When well-rooted in their final pots they should be given bi-weekly applications of a complete fertiliser. Liquid animal manures or chemical nitrogenous manures are not suitable as they tend to produce very sappy growths.

On the approach of cold weather accommodate the plants in a warm greenhouse, where they should quickly produce their flowers and continue to do so until the New Year, and it is this capacity for winter flowering that has given rise to the popular name of Christmas Pride.

After flowering, water should be gradually withheld for several weeks, after which the plants may be cut back and potted into larger pots, or cuttings may be taken and the old plants dispensed with.

Although R. macrantha is the most showy of all the species, there are several others which are well worth growing. R. amoena produces bright scarlet flowers in July, and grows about eighteen inches in height, and R. rosea flowers about the same time but has large, rosy-pink blossoms. Altogether there are about eighteen species in cultivation, all of which are more or less worth growing. As a foliage plant for draping the edge of the greenhouse stage, R. Portellae is very effective. It has small, ovate leaves, which are covered with fine, purple hairs; the undersides of the leaves are purple and the upper surfaces are purplish-green with silvery veins. *G. F. Gardiner, Botanic Gardens, Bristol.*

CASTILLEJA INDIVISA.

THIS pretty annual is now being brought to the fore, and is likely to prove very popular as a decorative pot plant. It is one of a small genus belonging to the Scrophulariaceae, that received its name in honour of an eminent Spanish botanist, D. Castilleja.

The species in question is a native of Texas, and was introduced in 1878, but it appears to have been almost lost to cultivation until offered quite recently by a well-known seed firm. Unfortunately, the plants are not quite hardy, so that their garden use is somewhat limited. Where facilities are available for growing them under glass, they make an added attraction to the conservatory, and when well-grown are useful subjects for table decoration, as there are no other plants of exactly the same form and colouring. It varies in height from six to twelve inches, and if grown naturally usually produces only a single upright stem, and for this reason the plants should be stopped when about three inches high to promote branching. The flowers are produced in the axils of large bracts, the upper halves of which assume a bright orange-salmon colour, edged with scarlet, and have three raised, main veins on the undersides. The bi-labiate flowers are tubular, somewhat compressed, and curved outward from the main stem. At the base they are greenish white, changing towards the lobes to pure white, edged with carmine-rose. The leaves are sessile and oblong or linear in shape, while the upper ones have a faint red margin. The whole plant, with the exception of the corolla lobes, is covered with soft hairs.

The seeds, which are very minute, should be sown in February or March in a cool house, and the seedlings should be potted so soon as large enough to handle, placing four in a six-inch pot. Peaty soil containing plenty of leaf-mould and sand is most suitable for them, as the bracts do not colour well in rich loam. *R. K.*

HARDY FLOWER BORDER.

ROMNEYA TRICHOCALYX.

IT is, unfortunately, too true that the magnificent Romneya Coulteri does not bloom satisfactorily in some gardens, even in a proportion of those in which this magnificent Californian Poppy flourishes and even forms buds, which, however, do not open. This is apparently due to some climatic condition, but the reason still remains obscure, and the writer has been especially puzzled with the behaviour of R. Coulteri in one garden where it had what might be considered an ideal position, but the buds never open, even in the most favourable seasons.

In other places, R. Coulteri has had to give place to R. trichocalyx, which, although a most charming plant, lacks some of the majesty of a well-grown specimen of R. Coulteri. It is a capital border plant, but possesses a habit of running at the roots, which causes considerable trouble unless it is planted where it may extend without harming other plants. The writer knows a garden where R. Coulteri was a failure, but where R. trichocalyx has a small bed devoted to itself, where it may spread without harm to other plants; and very fine this is with its lovely glaucous foliage and its snowy flowers. It is a very beautiful subject, growing from two to three feet high, and delighting everyone with its beauty. R. trichocalyx grows well in ordinary loam and in a sunny place. It is much hardier than its ally but it sometimes succumbs to the winter.

CAMPANULA CARPATICA VAR. ISABELL.

FROM seeds, Campanula carpatica varies considerably, and flowers of different sizes and shades of blue or white may be found among the seedlings. Yet those who like the best flowers are well advised to secure the varieties which have been deemed worthy by good judges of varietal names. C. c. Isabell is one of these, and it is at present in flower with me. It is a very fine form with large salver-like blooms of a splendid shade of satiny-purple, and about nine inches high. C. c. Isabell has all the hardiness and obliging nature of almost all the carpatica forms, and is quite easy to grow in the front of the border or on the rock garden.

PIMPINELLA MAGNA ROSEA.

I SAW a good plant of one of the best coloured forms of Pimpinella magna rosea in a capital herbaceous border the other day, and was struck by the attractiveness of the plant, which was finer than usually seen. On referring to M. H. Correvon's delightful book, *Alpine Flora*, the illustration in that work by M. Phillippe Robert, gives one a faint—a very faint—idea of the beauty of a good form of Pimpinella magna rosea, as the colour is faint. It is one excellent feature of the illustrations in *Alpine Flora* that they are not over-coloured, and the tint of the drawing suggests that the plant chosen for the illustration is from a low elevation, as M. Correvon, in the text on page 338, tells us that "the colour of the flowers varies from yellow-white to the most vivid rose; the higher one climbs the more pronounced the red becomes." It is quite likely that much of the neglect of P. magna rosea in our gardens is due to poor forms being obtained, and this note may serve a good purpose by drawing attention to the fact that the flowers vary in colour in different individuals. P. magna rosea grows from about a foot-and-a-half to two feet in height. It is a native of the alpine meadows of Switzerland, is quite hardy, and grows in good ordinary loam. *S. Arnott.*

FLOWER GARDEN.

HEDYSARUM CORONARIUM.

THIS old-fashioned garden plant, for some reason called the French Honeysuckle, although its relationship to the Honeysuckle is rather obscure, for it belongs to the Order Leguminosae seems to be regaining popularity in the gardens and public parks of this country; in Hyde Park a special feature is made of this subject in the large herbaceous border. It is a native of south-western Europe, and was at one time grown extensively on the continent, and especially in Italy, as a fodder plant, but I do not know if it is still grown for that purpose.

It is a vigorous-growing subject, requiring plenty of space and also support, for its growths are usually three feet or more in length, and are clothed with leaves composed of eight or eleven elliptical or rounded, pale green leaflets, which are downy on the margins and on the under surfaces. The deep red flowers are produced in erect spikes, six inches or so tall, during July and August, while there is a form with white flowers which is, however, not so effective, although it might well be used as a contrast to the type.

In some countries H. coronarium may last for more than one year, but I have not heard of it doing so in the British Isles, and it should therefore be treated as an annual. The seeds are produced freely, and if these are sown early under glass and the seedlings are grown on quickly and planted out so soon as the likelihood of frosts is past, they should make good flowering plants by early July, if given an open and sunny situation and deeply cultivated soil of good texture. *Kent.*

ANEMONOPSIS MACROPHYLLA.

WOULD that someone would coin a good English name for this handsome Japanese plant! The botanical one is most cumbrous, although when put into syllables is not so difficult as it looks. One may translate it colloquially as the Large-leaved Anemone-like plant. The title is not very far from the mark, as it resembles the Anemones to a great degree, with also a touch of the Aquilegia and Ranunculus about it. It is, however, a very distinct plant, but it has not the best reputation for being easy to grow. A learned authority recommends a cool and rich, deep, woodland soil, in a warm and sheltered corner. With the writer, however, it throve for years in an open border of moderately light loam.

It forms a thick and fleshy rootstock, and has finely divided leaves, rather like those of Actaea spicata, while the slightly hanging flowers are after the fashion of those of Anemone japonica. In my plant the flowers are pinkish-white, but the authority already quoted speaks of them as being blue, which is, I think, an error, unless there are two different plants passing under the same name. It is not at all a common plant in cultivation, but is offered by the trade and may be purchased in pots and planted out at any season.

I have never tried to propagate this subject as it is not a plant which looks as if it would lend itself readily to division, and my plant has never produced seeds. Taking it altogether, Anemonopsis macrophylla is a plant well worth securing. *S. A.*

MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

V.—Orchid Hunting in the Naga Hills.

Most of the country around Kohima has long been under cultivation, and as already pointed out, there is little virgin forest left. The lower hills were probably once covered with Pinus Khasya; but P. Khasya never seems to come up again on *jhumed* land, and anyway, the cultivation here is of the permanent type. It is necessary to go about four days' journey to the east to reach the open Pine country, where Iris Wattii and Primula Listeri grow. Luckily, the Japoo forest reserve is at one's door, and there is plenty of secondary forest of a certain age, used chiefly as a source of firewood; many of the forest trees, such as species of Oak, Ilex, Castanopsis and Engelhardtia, are found here in miniature, and if left entirely alone, this copse would no doubt revert to primaeval forest. But it would take a long time!

Between the Manipur visit and our trip to the Khonoma valley, we spent some days exploring around Kohima; and between Christmas and my final departure from the Naga Hills, I made local excursions in every direction, chiefly looking for Orchids. These occur in considerable variety, but from the collector's point of view, I was considerably handicapped by the fact that hardly any of them were in bloom, and the whole time I was in Kohima I saw only about half-a-dozen species in flower, namely, Vanda coerulea and Coelogyne ocellata, which flower at the beginning of the cold weather, and are practically over by Christmas; Cypripedium insigne, which flowers throughout the cold weather; Arachnanthe Clarkei, a curious plant with acid-yellow flowers striped like a Bengal tiger; a Cymbidium; and a tiny orange-flowered Orchid which emitted such a shower of bright blossom that it hung in cascades from the pseudo-bulbs. I secured individual plants of a very dark Vanda coerulea; a well-marked Cymbidium with glossy, coffee-brown petals and a yellow lip beaded with crimson; the local form of Cypripedium insigne which has the top half of the standard pure white; Arachnanthe Clarkei, and the orange-tailed species referred to; the rest was guesswork.

There are plenty of Orchids in the Naga Hills, of course, among them several species of Dendrobium, Aerides Vandarum, Renanthera Imschootiana and Pleione maculata, all of which I found; but these flower in the hot weather, just before the rains, from March onwards.

A tragic story is told of Cypripedium insigne. The Deputy Commissioner has, perhaps, a couple of dozen plants flowering in pots in his compound. No one remembers a time when they were not, or knows whence they came; only that they have been there a long, long time, and are part of the fixtures. They flower finely every year throughout the winter, and if you ask the Nagas where they came from they shake their heads. They do not know, they have never seen such a flower; Angami, Sema and Ao Nagas are all equally ignorant. They will take you into the forest and show you Vanda coerulea, or Renanthera Imschootiana, in or out of flower; Cypripedium insigne is no whit less distinctive, but they know it not. It might be alien to the Naga Hills for all their knowledge of it. And it is apparently extinct. For the story goes that many years ago, long before the cart road to Manipur was built, a collector—he was not an Englishman—came to the hills, and in a certain valley, not far from Kohima, found Cypripedium insigne. Joyfully he took some plants back to his own country, where they created a sensation. Preparations were then made to scoop the pool. But news of the find had leaked out, a sleuth hit the trail, and when the collector got back to Kohima, he found that he had just been anticipated. Some cheerful pirate had been to the valley, *his* valley, dug up a few thousand plants (at eight annas a load), and then set fire to the valley! The pool had been scooped with a vengeance!

One has heard of collectors who, poor creatures, in their spite and fear of rivals, have played pretty low down tricks; but the ruthless splendour of ravishing a countryside in order to baffle a rival could only be transatlantic! Whether the story is true or not, the fact remains that C. insigne is extinct in the Naga Hills. In the Deputy Commissioner's compound you may see the Last of the Mohicans. He very kindly gave me two plants. Pleione maculata is said to be a pretty little species. I found one clump of its wrinkled, disc-like bulbs high up on a smooth, bare tree trunk, in the hot valley, less than 4,000 feet above sea level. The slope faced south and was covered with copse woods, where the sun smote all day long and the dew trickled out of the atmosphere all night. Already P. maculata had begun to grow. Arachnanthe Clarkei is a horse of another colour. It lives in the temperate, evergreen rain forest and shuns the light of day. Two plants which I found in January, between 5,000 and 6,000 feet, were in fine feather. They grew rather high up, reaching out for the upper storey of a big tree, but quite content with the gloom, the dazzle-barred flowers rendering them almost invisible.

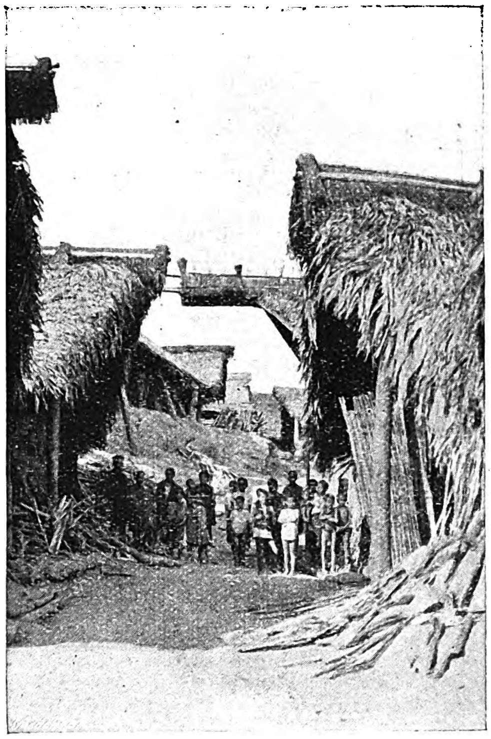

FIG. 35.—AN AO NAGA VILLAGE.

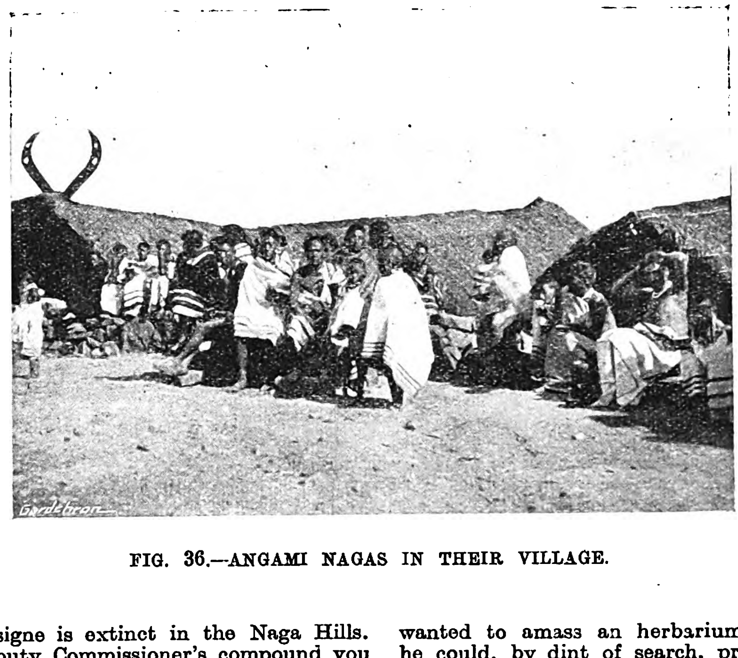

FIG. 36.—ANGAMI NAGAS IN THEIR VILLAGE.

As for Dendrobiums, there were many of them, some, like the large D. moschatum, evergreen, but more deciduous. Coelogyne ocellata was in flower when I first climbed Japoo; it ascends to 6,000 feet or more, its cheerful bunches of snow-white flowers, leopard-spotted on the lip, making a welcome show in the forest. There were not many Orchids in the copses; they prefer big trees. A Cymbidium, however, which nearly always grows rather low down for preference, was not uncommon here. The Vandas and Dendrobiums, which like growing high up, were practically confined to the jungle.

Besides the showy species mentioned, there were, of course, others of purely botanical interest, including some collected high up on Japoo, and a few ground Orchids. Among the latter, mention may be made of a Cymbidium with narrow, grass-like foliage, and rather small, apple-green flowers. This grew on banks in the deepest shade of the forest, and never did I see it striving after the light; perhaps this is C. cyperifolium?—it sounds an apt name.

It was not to be expected that I should find many plants in flower during mid-winter, but a certain number there always are in this latitude, even at 5,000 feet. For instance, several wee-flowered Acanthaceous herbs, and species of Strobilanthes also; Clarke's list names eight of the latter. Then there was a Violet (V. Patrinii probably), a Swertia, Geranium nepalense and one or two species of Impatiens. Compositae are always in flower, even if it is only that bane of the tropics, Erygerum; the most interesting Composite, however, is the giant Thistle, Cnicus Griffithii, which reaches a height of about twenty feet—it was not in flower. This grows in open places, pastures and the like. Various species of Polygonum, of course, were in flower, and Campanula colorata, and the unwieldy Lobelia pyramidalis; in fact, if anyone wanted to amass an herbarium in January, he could, by dint of search, probably find a hundred or more species in flower without descending much below Kohima. Whatever the original covering of the Naga Hills may have been—whether it was all evergreen rain forest, or as seems more likely, partly open Pine country, one may now recognise three types of vegetation there: (1) Primaeval forest, which is practically confined to the Barail range and to the transfrontier ranges away to the east where the head hunting tribes fight each other; (2) copse wood, covering the steeper and rockier slopes amid the cultivated valleys; and (3) permanent terraced cultivation, with a good deal of scrub and enough scattered trees to give a park-like appearance to the whole. The primaeval forest is evergreen and, like all the Indo-Malayan mountain forest, is divisible into (*a*) hill jungle, up to about 5,000 feet; (*b*) lower temperate rain forest, 5,000 to 7,000 feet; (*c*) upper temperate rain forest, 7,000 to 9,000 feet. Normally, the upper temperate rain forest would be succeeded by Rhododendron-Conifer forest, but the Naga Hills are not high enough for that, and the Rhododendron belt of Japoo must consequently be included with the upper temperate rain forest.

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* Previous articles on Mr. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII, and July 7, and 21, 1928.

The copse wood includes many forest trees which have not reached maturity, and probably never will. It also is evergreen, thanks to a number of leathery-leafed trees—species of Oak, Ilex, Schima, Castanopsis and Acer, besides a few normally deciduous species, such as Engelhardtia. A fine shrub often seen in the copse wood is Holmskioldia sanguinea, with brick-red flowers (scarlet with the sunlight piercing them), surrounded by a scarlet papery collar—the calyx. In similar copse wood, on the fringes of the jungle, I found a broad-leafed Ilex, freighted with pillar-box-red berries. The copse wood has probably replaced the Pine belt (P. Khasya), between 4,000 and 5,000 feet, as met with in the Khasia Hills.

Two trees frequently seen in the Paddy land are Albizzia procera and A. stipulata, with Bauhinia acuminata and a species of Spondias. In the deepest valleys, at about 3,000 feet altitude, an occasional Bombax tree is met with. The upper course of a stream flowing below the Kohima ridge is lined with Salix tetrasperma, whose large, polished green leaves shine in the sunlight. Then the little valley narrows down to a gorge and the cliffs are covered with jungle, where Oxyspora paniculata is conspicuous, with Heptapleurum, Jasmine, and many other shrubs, and Ferns.

In the scrub which clothes the slopes below the Manipur road are many climbing plants, species of Polygonum, Crawfurdia campanulacea, a Codonopsis, species of Vitis, Smilax, and even a Passiflora with its involved, cream-coloured flowers, followed by large, spherical fruits. On the edge of the jungle grew a beautiful species of Clematis with showers of cream-coloured flowers, trembling like large dew drops. The winter-flowering species of Clematis are most attractive, and several of them, such as the blue one from Manipur, would repay cultivation. A fourth species, also with cream-coloured flowers, sweetly-scented and woolly leaves, was recently over; this was C. Buchananiana of Clarke's list.

The scrub growth, like all secondary growth, is very thick, comprising evergreen shrubs, herbaceous plants and climbing plants all mixed up together. There are species of Ilex, Viburnum, Desmodium, Rubus and Luculia, with Osbeckia chinensis, Sambucus javanica, Gleichenia liniaris, and many other plants. A notable evergreen undershrub bearing heads of bright scarlet berries, grow by the path-side under the bushes; it is much sought after in Kohima for winter decoration, taking the place of Holly at Christmas.

Another fine plant, not recorded by Clark, is a species of Pentapterygium, or Agapetes. It is, of course, epiphytic, growing in thin jungle usually not very high up, and attaining, from a bulbous base, a considerable size. In January, it was so overwhelmed with a vast volume of pointed, glassy-pink urns, that, looking up at it from beneath, it resembled a rose-coloured cloud.

I might have continued exploring in the Naga Hills for some time longer, and profitably, no doubt; but being somewhat agitated about the conduct of the main expedition—that up the Lohit valley—I had arranged a meeting with the Political Officer for January, and it seemed best to move now in the direction of Sadiya. And so, on the 13th, with regret, I left Kohima for the plains, after one of the most enjoyable excursions imaginable. *F. Kingdon Ward.*

ALPINE GARDEN.

CAMPANULA ROTUNDIFOLIA VAR. ROBSONII.

Of the numerous Campanulas of the rotundifolia type, C. r. var. Robsonii deserves some consideration. It is a very large-flowered form with stems some nine inches high, with large, open, violet bells, and is quite striking in the rock garden. It came into flower early in July, and should, to all appearances, bloom for some time yet. I have no record of its origin, but I presume that it is either a garden-raised variety of C. rotundifolia or a selected form found among the wildlings, which vary considerably in appearance.

ORCHIS FOLIOSA.

To see the Madeira Orchis, O. foliosa, in perfection, when it reaches a height of from one to two feet, is to enjoy a picture of high charm, not too frequently met with. It seems to be scarcer than it was a long time ago, and the price at which it is sold points to its comparative rarity. Although it is not a plant which succeeds everywhere, there are gardens in which it is to be found in superb condition, producing long spikes of large flowers and creating a feature of high beauty. The writer has in mind the superb manner in which O. foliosa is cultivated in the magnificent garden of Mr. John Holms, at Formakin, Renfrewshire, where there is a grand stock of a superior strain, and when in bloom the many plants are a sight in themselves. One remarkable thing about O. foliosa is that it varies so little, and, some years ago, in discussing this plant with Mr. James Backhouse, then of York, he told me that he was contemplating sending a collector to Madeira to search for varieties of it. I believe this project fell through, and I am led to believe that O. foliosa in a wild state is now rare in its native land. One would like to see, if such is in existence, a white variety of O. foliosa—not an improbable thing. But whatever desire we may have to see any varieties, we should not fail to give the form we have our warm admiration, for it is truly worthy of this. It is very fine with its leafy stems terminating in dense, long spikes of rosy-purple flowers with dark spots. It seems to prefer a rather light soil, but requires a moist position to do it justice. The plants at Formakin were growing in an ordinary border, but the appearance of the plants revealed the highest culture. An excellent spot for O. foliosa is at the base of rockwork, where any surplus water from the higher parts would gravitate to its roots.

VERONICA LYALLII.

To many of us the dwarf New Zealand Veronicas appeal more forcibly than the taller ones, and among the most attractive of these in flower at present is a form of V. Lyallii. This appears to be the variety V. L. erecta, and is apparently the one figured in the *Botanical Magazine*, t. 6,456. It is of erect, bushy habit and has egg-shaped, pointed foliage of a deep green. It produces a great number of white blooms, with pink veinings, in neat sprays, and flowers for a long period. It has never assumed any more than a height of one foot or less with me, and is growing on rockwork.

V. Lyallii does not seem to require any special soil, and it is grown easily from cuttings rooted under glass, or in sandy soil in the open in early autumn.

DIANTHUS MULTIFLORUS ROSEUS.

Quite a number of hybrid Pinks are of great value in the garden. They are mostly very floriferous and flower over a long period, and they are attractive on the rock garden or in the border. Out of the numerous varieties several have attained special favour. Among these is the subject of this note, Dianthus multiflorus roseus. Its floral characters are well expressed by the specific and varietal names, for it is truly many-flowered, and gives a plentiful supply of rose-coloured blooms. It has, in addition to its other high qualities, that of sweet perfume—an almost indispensable thing in a Pink. Its moderate height, six to nine inches, enables it to be employed near the front of the border or in the rock garden, while propagation is a simple matter. *S. Arnott.*

SILENE SCHAFTA.

Those who seek to make their rock garden a place of attractions during the latter part of the season would be well advised to include this charming and extremely floriferous subject, for whether grown in sloping beds of well-drained, loamy soil, or on sunny cliffs, it never fails to produce masses of large, rosy-magenta flowers, borne so freely, each in a dark red calyx, as to completely hide the large tufts of foliage from view.

It flowers so freely that it invariably exhausts itself by the end of the season, and often perishes in the winter, but this fact is of little importance for it produces seeds with great freedom, and if these are sown early in the season the resultant plants should, by late summer, become fully-grown flowering specimens. *F.*

BOG AND WATER GARDEN.

HYBRID MIMULUSES.

There are many strains of hybrid Mimuluses available, and certain folk prefer those with exceptionally large flowers; such a strain finds favour with those who grow hardy and semi-hardy plants for sale in Covent Garden, and the plants they offer, although in small pots, are finely grown, and carry large blooms of gorgeous colouring. Other people prefer somewhat taller-growing strains, with equally gorgeous flowers, such as are known as M. luteus hybrids. These are suitable for a bed or border where the soil is moist, but are seen to best advantage in moist or slightly boggy situations; indeed, the majority of the Mimuluses are moisture-loving or bog plants. It is an easy matter to raise these hybrid Mimuluses from seeds, and provided they receive ample supplies of moisture, many of them are delightful plants for the cool greenhouse or even the window garden. Fig. 33 represents flowering stems of some of the so-called M. luteus hybrids. *B.*

MYOSOTIDIUM NOBILE.

Myosotidium nobile is a very interesting plant from the Chatham Islands, where the monotypic genus Myositidium is endemic. Before the advent of the white man, it was very plentiful on sandy shores, where it formed a belt just above high-water mark. Owing to the depredations of sheep and other grazing animals, it is fast becoming rare in the wild state, being able to survive in inaccessible places only.

The plant is cultivated in New Zealand gardens, where it is known as the Chatham Island Lily, despite the fact that it is a member of the Boraginaceae.

A stout, succulent, glabrous herb, growing up to three feet in height, M. nobile is a handsome addition to the herbaceous border. It should be perfectly hardy in Ireland and the milder parts of Britain, because it bears 10° of frost in the South Island of New Zealand without being damaged in any way.

The glossy, bright green, Rhubarb-like leaves appear in erect rosettes from the thick, cylindrical root-stock, which creeps along on, or just under the surface of the soil; the flowers are borne in dense sub-globose cymes which grow on stout stems from the centre of the leaf rosettes. The flowers are about one inch in diameter, and are of a very fine dark blue, shading away to white at the margins, and are borne in dense many-flowered heads, making the plant a wonderful sight when at the height of its glory, in November.

Although a maritime plant, M. nobile will thrive far inland if grown in partial shade in a well-drained border of deep sandy loam. It is easily raised from seeds, which usually germinate readily, but as the plant cannot bear having its roots disturbed, we find that the best way to grow the young plants is to pot them up into small pots, instead of pricking them off in the usual way. Then the plants may be planted in their permanent positions without receiving any check. *A. W. Anderson, The Botanic Gardens, Dunedin, New Zealand.*

ROSE GARDEN.

ROSA RUBRIFOLIA.

Although, perhaps, hardly suitable for the shrub border, this distinct species from the Alps of Savoy, Pyrenees, Switzerland and Austria might well be grown in the wilder portions of the garden, for although the flowers are not produced abundantly the leaves and stems are of such colouring as to make this shrub effective on their account alone. It grows to a height of from four to six feet, sometimes more, and its growths are reddish-purple and covered with glaucous bloom. The leaves are of the same colour, the mid-rib and base being crimson, while the flowers, which are attractive individually, are about one-and-a-half inch across, pale pink in the centre and reddish on the margins of the petals, and are borne either singly or in small clusters; the globular fruits are smooth and rich scarlet.

When well placed, R. rubrifolia is very effective in contrast with other shrubs, while the foliage, being of such unusual colour, is attractive when cut and used for decorative purposes. It is not particular with regard to soil, should be planted in a moderately sunny position, and pruned fairly severely each year to secure the full effect of the coloured stems and leaves.

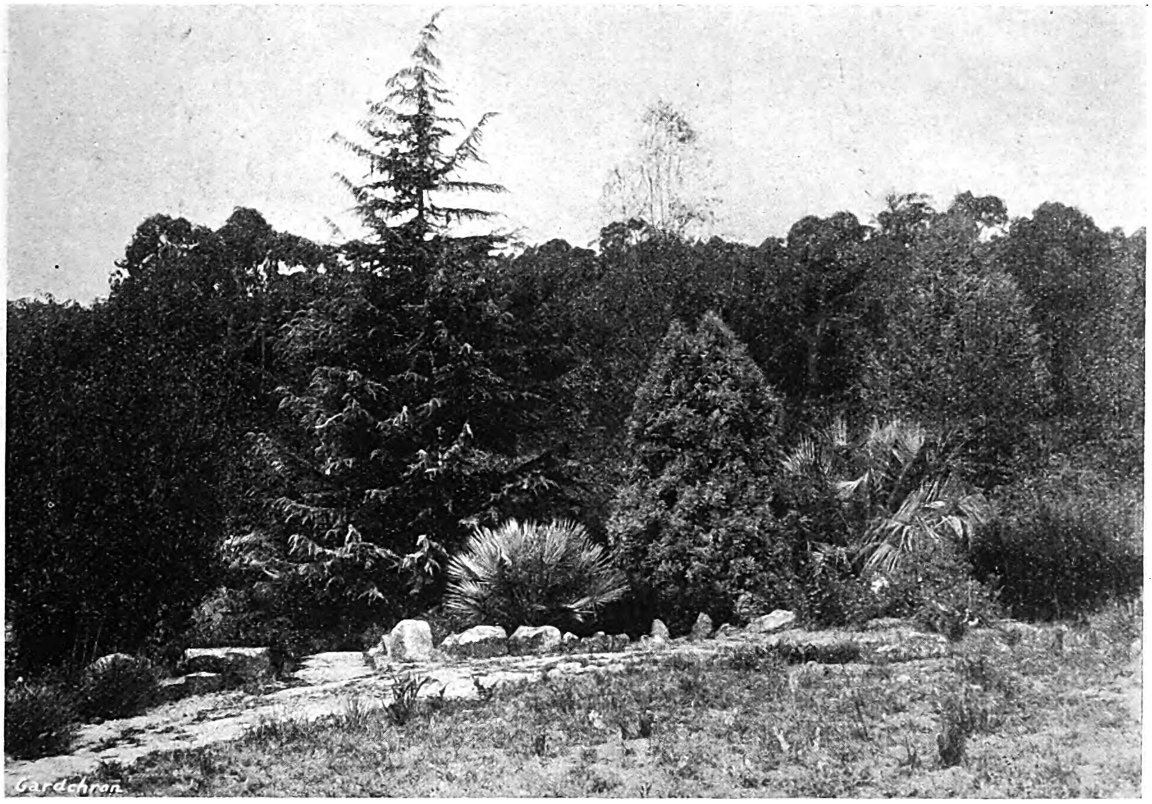

FIG. 37.—RAYWOOD GARDENS, ADELAIDE.
Cedrus atlantica glauca, with White Gums in the background. The house is to be built on the rising foreground. (see p. 90).

R. rubrifolia is figured as R. ferruginea in the *Botanical Register*, t. 430, and it should not be confused with R. rubifolia, a species of American origin, and quite distinct, now known as R. setigera.

ROSA CALOCARPA.

This Rose is of hybrid origin, for it is the result of a cross between R. rugosa and R. indica, and was distributed by Bruant, of Poitiers, during the latter part of the last century. Its relationship to R. rugosa may be seen in the flowers and foliage, and the former are large and rich rose-red in colour; they are striking in effect when produced abundantly.

The habit of Rosa calocarpa is a great improvement upon that of R. rugosa, for it is compact and should make a useful subject for an ornamental hedge. It is also striking when in fruit, for the "haws" are large and globose, and of a rich scarlet colour changing to a deep crimson tone when fully ripe, if left alone by the birds which, incidentally, are very fond of them. It is of easy culture, delights in good loamy soil, and requires very little pruning.

ROSA ROULETTII.

I do not know the origin of this dainty Rose, but whoever was responsible for its introduction to cultivation bestowed upon horticulture, and on alpine gardeners particularly, a lasting favour, for R. Roulettii is of such dwarf and compact habit that it should grace the smallest of rock gardens with its small clusters of minute, very double, rose-red flowers, which, if old ones are removed so soon as they fade, are produced intermittently throughout the summer. Although this Rose is such a dwarf—eight or nine inches seems to be its limit in height—there is no suggestion of deformity about it, for leaves, stems and flowers, although so small, are all perfectly formed.

Judging by its name, it would seem that this Rose is of continental origin, and it would be interesting to secure details of its parentage, if it is a hybrid, and also the time of its introduction. *M. W., Kent.*

TREES AND SHRUBS.

INDIGOFERA GERARDIANA.

This shrub is now very effective in several positions; at the base of a south-west wall it is particularly floriferous and attractive, and near the summit of a rocky bank, facing west, another specimen is conspicuously beautiful. The racemes of rosy-pink flowers contrast effectively with the greyish-green, light, Fern-like foliage, and are fairly persistent during July and August.

I. Gerardiana (syn. I. floribunda) forms a small shrub, sometimes as a wall plant, attaining a height of eight to ten feet; it grows well in a well-drained, loamy soil and is appreciably hardy, having passed through last winter here in Gloucestershire, unscathed. The plant starts into growth late, and if grown as a bush should be pruned back in April. It is propagated very easily from cuttings of half-ripened growths obtained, with a heel, in summer, and the resultant plants soon form floriferous specimens.

A native of India, I. Gerardiana was introduced to gardens at least fifty years ago. It is figured in the *Botanical Register*, t. 57, as I. Dousa, a name now applied to a very distinct species. *Ralph E. Arnold.*

CLEMATIS ORIENTALIS TANGUTICA.

This yellow-flowered Clematis is by no means common in gardens, not even in those where large collections of Clematises are grown, and few people, upon seeing the above for the first time, connect it with the Virgin's Bower. This failure to recognise the plant as such is due, doubtless, to the great difference, outwardly, in the appearance of the flowers. Instead of the usual expanded flower, the elegant growths are graced with partly open, bell-shaped blossoms, borne mostly in pairs, sometimes singly and occasionally in threes. Growth, however, is vigorous and plentiful, reaching with ease fifteen feet and more in height.

This Clematis is an excellent subject for wall or fence, and is both delightful and uncommon. Its flowering period is from July to September. *C. Turner.*

RHUS COTINUS ATROPURPUREA.

The attractive colouring of this Sumach lends it considerable value for grouping or for planting as an isolated specimen, and like most of its kind, it thrives in any good soil and in an open, sunny position. If used judiciously as a foil to flowering plants, it may be made to contribute to some very effective scenes, and as a dot shrub in large Rose borders it is particularly pleasing, its rich, purplish foliage combining harmoniously with the Roses, and particularly well with red and pink varieties. It is propagated easily from cuttings.

The type, R. Cotinus, known as the Wig Tree or Smoke Bush, is a fairly common shrub and was introduced into Britain so long ago as 1656. *R. A.*

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GARDENS IN AUSTRALIA.

THE Commonwealth of Australia is fortunate in possessing fine Botanic Gardens at Melbourne, Sydney, Adelaide and Brisbane, and there is also a small garden at Hobart, in Tasmania. Several other of the important towns, such as Ballarat, have also interesting public gardens, and in the parks and open spaces of the big cities a good deal has been done to make interesting floral displays.

In the matter of private gardens, there are some very fine examples, of which only a few may be referred to in detail. The garden at Government House, Perth, is a beautiful spot, containing a fair proportion of Western Australian and a larger proportion of exotic plants, but it is in some of the private gardens around Adelaide, in South Australia, that one is particularly struck with the excellence of the cultivation and the interest of the plants which are being grown.

Dr. Pulleine has an interesting garden largely devoted to Succulent plants, Cacti, Euphorbias and Mesembryanthemums, at the foot of the hills a few miles away from the heart of Adelaide, but it is among the Adelaide hills that one may find the best gardens in south Australia.

Among the gardens of particular interest that were visited, were those of Mr. Edwin Ashby and Miss Waite, and in the latter garden there was a remarkably fine specimen of the Cape Silver Tree, some thirty-five feet to forty feet in height, and a tree of Clethra arborea, twenty feet high. The garden, however, which is of especial interest is that of Mr. T. C. Wollaston, at Raywood, Bridgewater, in the Adelaide hills, at an altitude of about 1,700 feet above sea-level, which covers an area of about five acres and was commenced in the year 1907 (Figs. 37, 38, 39, 40).

Raywood gardens spread over two rounded sloping spurs which fall eastwards to a Willow-fringed creek—with green, grassy meadow flats along the main valley—and is flanked by a hill covered with the Stringy-bark Eucalyptus, E. obliqua, on the northern side. The gardens are sheltered by wooded hills which make an interesting broken skyline.

Mr. Wollaston has made a garden in this very beautiful spot on land which was originally covered by the Stringy-bark Eucalyptus, with a dense undergrowth of scrub formed of Rushes and the woody-rooted Leptospermum scoparium, which was in possession of the swampy flats. He has cleared the central area, and has left the wild vegetation forming a surrounding zone or irregular frame, and covered his cleared land, consisting of knolls and flats, with a very representative collection of native and exotic plants.

Single specimens of the fine white Gums, Eucalyptus rubida and E. viminalis, have been left here and there, and he has planted round them the magnificent orange and red-flowered Gums, E. ficifolia and E. calophylla rosea, and with these he has associated such characteristic Australian genera as Hakea, Grevillea, Exocarpus, Banksia, and a select collection of Acacias. These all enjoy dry and undisturbed conditions, and flourish among the roots of the tall Gum trees. These groups, which have been arranged within the garden proper, stand on the higher ground and make a somewhat unusual but very striking harmony with the introduced plants.

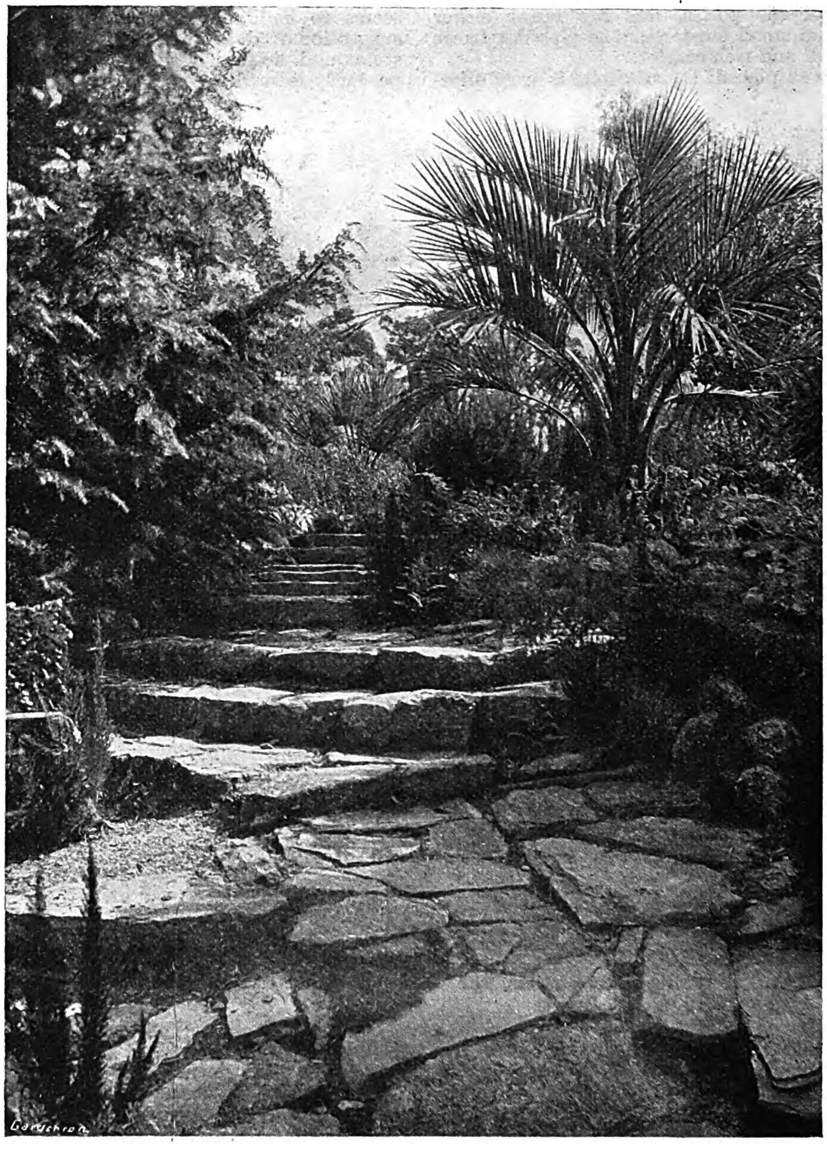


FIG. 38.—RAYWOOD GARDENS, ADELAIDE.

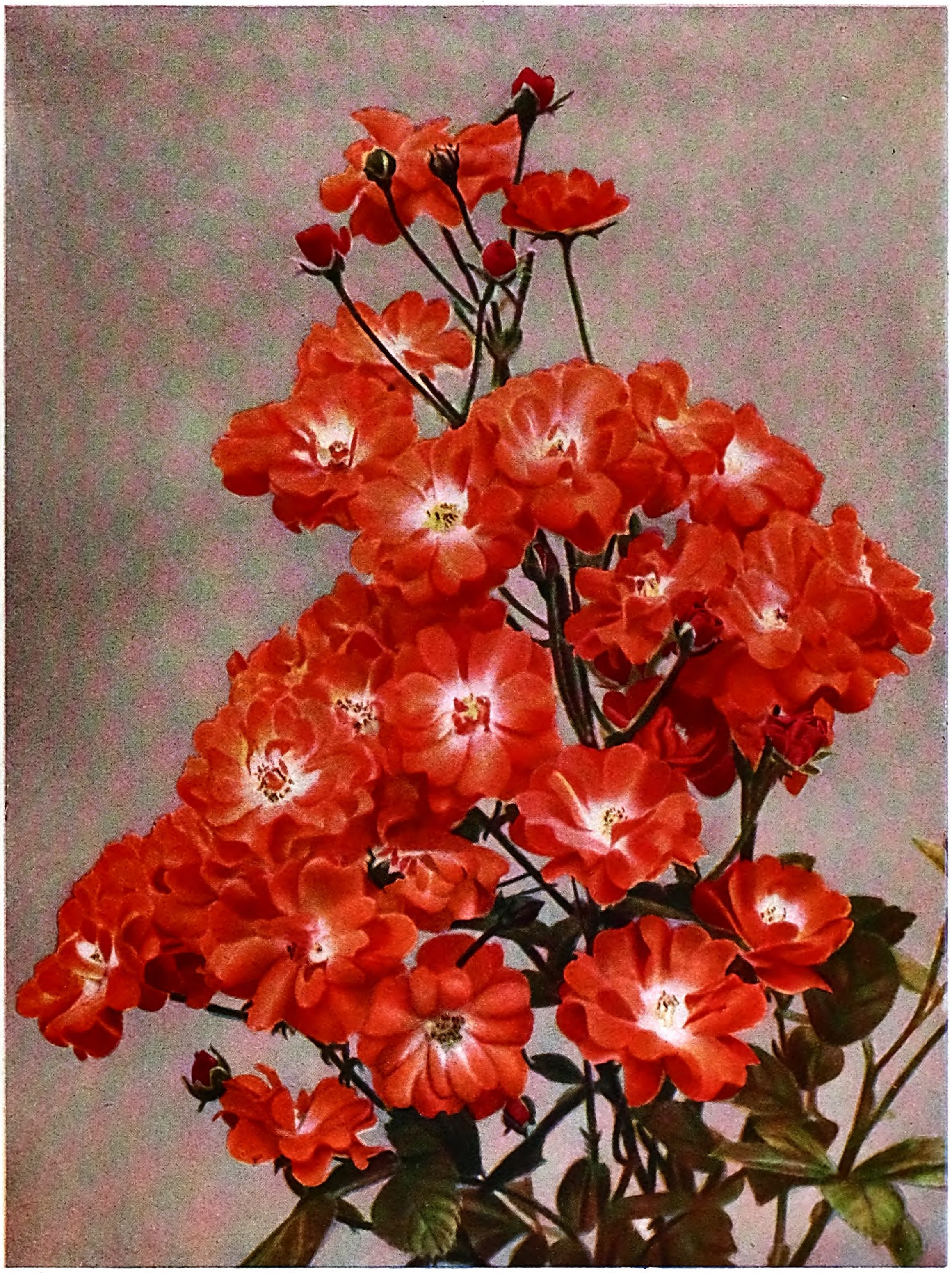
Cedrus deodora, Erythea armata, Cocos petraea, Chorizemas, Ericas and Ferns.

The climate, situation and variety of soils at Raywood have made it possible to bring together a very remarkable collection of plants from very widely-spread parts of the world, and there is a good rainfall of about seventy inches a year. For instance, the silver-blue form of the Atlas Cedar and the Canary Island Phoenix are growing perfectly happily with Araucaria imbricata from Chile, while in other parts are Cocos coronata and our Copper Beech. Libocedrus decurrens and Banksia grandis are growing close together with Abies cephalonica, golden Retinosporas, Taxodiums, and one of the Pacific Island Sabal Palms, while the Chilean Wine Palm, Jubaea spectabilis, Hollies, Myrtles, blue Erythea and purple-leaved Birches and Prunus Pissardii may be found growing happily near one another. These are harmoniously grouped with various species of native plants, such as Waratahs, Eugenias, Persoonias, Pittosporums and many other characteristic Australian shrubs.

In addition to the general garden, Mr. Wollaston has brought together a very large collection of rock garden plants which are mainly Australian, but with these he has growing a fair number of the rock garden plants which one would find growing in England, such as Lithospermums, Cerastiums, Rock Roses, Aubrietias and Campanulas. Among the Australian plants to be found in the rock garden are the exquisite Thryptomene Mitchelliana, Hovea pungens, Tetrathecas, Boronias in lovely variety, Epacris, Correas, Halganias, Dampieras, Brunonias with capitula of lovely sky- or turquoise-blue flowers about the size of small Scabious blooms, Dillwynias, Chorizemas, the sky-blue Leschenaultia biloba, yellow Goodenias and many others.

As the garden is situated at about 1,700 feet above sea-level, frosts are not unknown, and sometimes so much as 10° to 12° of frost have

Supplement to "The GARDENERS' CHRONICLE."



ROSE GOLDEN SALMON.

been registered. These frosts have been severe enough to blacken and sometimes to kill Clethra arborea, Arduina bispinosa, Melaleuca hypericifolia, Tecoma capensis and have even cut many Gums, but Thryptomene has never been touched nor have any of the Boronias. Leschenaultia withstands severe cold but not the actual frost on the stems, which, although it splits the bark to the ground, never kills the plant; this breaks out into lusty growth again in a month, but having missed its flowering time does not give a single bloom on the new wood.

Mr. Wollaston, being a keen cultivator, has discovered the secret of growing many very difficult species and in particular he has learnt the correct way of propagating Leschenaultia biloba, which, perhaps, is one of the most beautiful of Western Australian plants, with its sky-blue flowers. This, he finds, does very well on dry, poor soil with some sand, and it should be grown in places which are never allowed to become wet, so that good drainage is essential. When pruned hard and left in undisturbed ground it flourishes in a remarkable way. Boronias, on the other hand, he finds do very well in sandy peat, some species growing almost in bog, and if pruned fairly hard after flowering and given a little top-dressing of burnt ashes and earth now and again, they thrive well under cultivation.

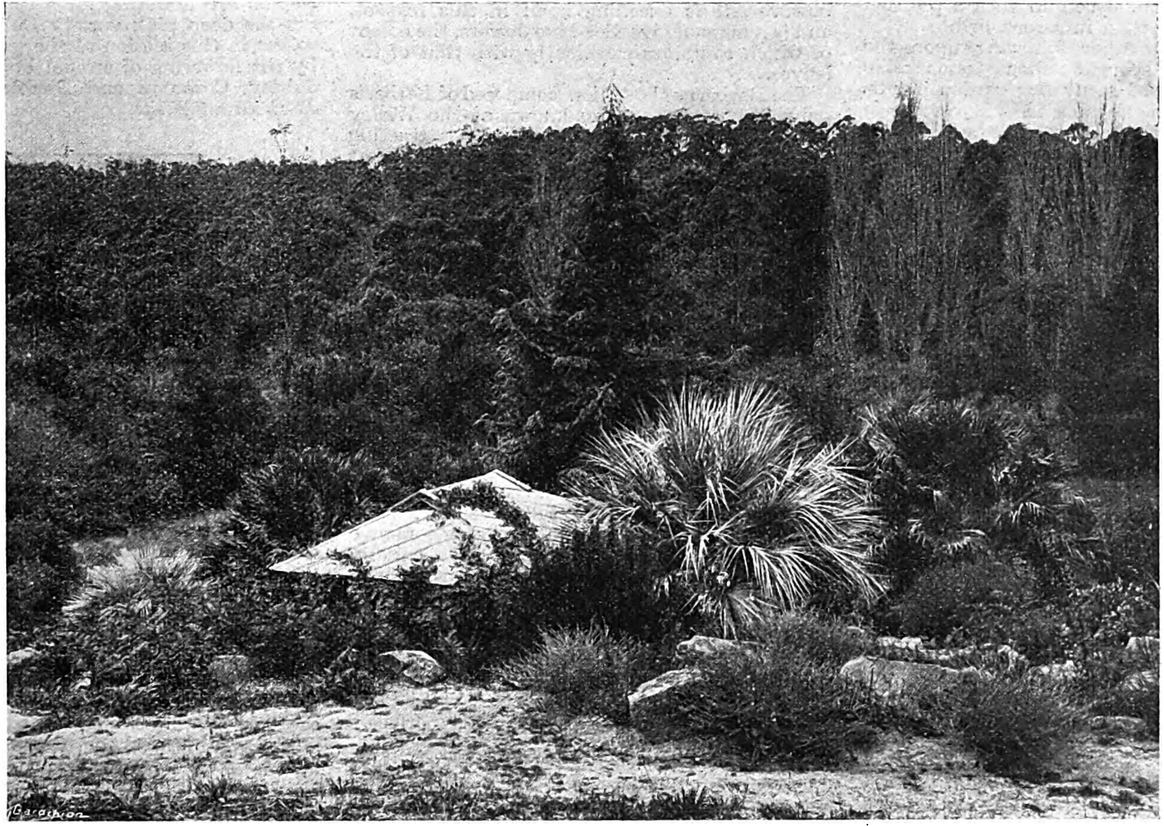


FIG. 39.—RAYWOOD GARDENS, ADELAIDE.

Dell and tea house, with Erythea armata, E. edulis, Astartea fascicularis, Lhotszkya genethylloides and dwarf shrubs.

Among the larger shrubs at Raywood and equally as striking as those mentioned, Mr. Wollaston is growing the following with success:—Lhotszkya genethylloides, Bauera sessiliflora, Leptospermum scoparium var. Nichollii, Baeckea linifolia, B. virgata and B. plicata, Eriostemon obovalis, Chamaelaucium uncinatum, Grevillea Dallachiana and G. Caleyi —none of which are touched by 10° of frost, except, perhaps, Chamaelaucium.

The climate of the Adelaide hills gives an opportunity for a wonderful display of prolonged autumn colouring, and in average years Mr. Wollaston states that for about four months he has a glorious riot of autumn colouring, starting with Berberis Thunbergii in late February, to the colouring of the Aspens in June, the main display lasting for quite two months. One of the most striking of the autumn colorations is that given by Crataegus prunifolia var. splendens, which becomes a veritable burning bush of glory. Crataegus cordata is almost equally good, and Rhus succedanea, R. typhina and R. glabra, Quercus coccinea and Q. rubra, Poplars—like golden spears thrusting through the Willows—Liriodendron Tulipifera, Amelanchier canadensis, Sambucus canadensis aurea and early Persimmons, make a wonderful display. Then come the Liquidambars—varying widely in time and colour according to position—the Viburnums and Rowans, Rhus Cotinus, Euonymus alatus, the lovely Lagerstroemias, Cornus Kousa and C. macrophylla, Enkianthus, Taxodium distichum, the Elms, Excoecaria sebifera, Japanese Cherries and Maples and the later Persimmons, Betula alba and B. alba purpurea, and last of all, Populus tremula pendula. When this last—the Weeping Aspen—in its exquisite dress of pink and gold and molten copper flutters in the soft fitful breeze, there are few sights so bewitching.

I cannot do better than close this account of Mr. Wollaston's remarkably interesting garden with his own description of some of the lines on which he has worked in forming it, for he has made a garden which is the admiration of every British gardener who has seen it, and he has brought together a collection of plants which would be the envy of any Botanic Garden in the world:

"The modern practice of forming a garden is rather severely to segregate different Orders and Genera and keep them in sections of their own. It has advantages, of course, and is better than sprinkling any striking or garish subjects indiscriminately about the garden, but from an artistic standpoint it is somewhat mechanical —Conifers certainly look noble and satisfying by themselves; so do Palms; and, in a general way, they should not be mixed up with Maples and deciduous trees.

But no rigid rule should condemn, for instance, the grouping of Liquidambars, Atlas Cedars and the Blue Spruce with, say, Cocos coronata and Phoenix canariensis, nor such a thrilling combination as the Raywood Claret Ash, the Mt. Morgan Wattle, and the Persimmons of gold and flame. It is poor criticism to call that 'garish.' Colour grouping is no doubt a difficult and dangerous art. The writer once saw in a large Botanic Garden a quadrangle formed by Dahlias of all descriptions, and the space enclosed therein crammed with Celosias, 'Bonfire' Salvias, and 'Rosy Morn' and puce Petunias. There are no words to express the mental pain and confusion produced by such an exhibition of crude lawlessness. One is dazed and uncritical, as when in boyhood one's mother had secretly put Jalap in one's tea!

The contention is that to help make an Autumn Garden a distinguished wonderland of glowing beauty, Palms and Conifers should be brought in to contribute their quota of lovely greens and soft blues and golds, and their striking classic beauty of form—it must be done with humility—that is the safeguard against perpetrating any horror.

And with that saving clause, building a garden is a gracious and lovely task, taxing all one's best powers, especially if the leisure is snatched from a crowded life. The true gardener is happy because he is a fellow worker with God—in league with the very stones and at peace with the beasts of the field." *A. W. Hill.*

NOTES FROM WISLEY.

The Rose borders by the main entrance to the gardens now exhibit an abundance of blossom, in the provision of which dwarf Polyantha varieties are most valuable. A particularly floriferous Rose of this class is Coral Cluster, while a hybrid Tea variety, which is particularly suitable for massing, and which is flowering extremely well at Wisley, is Salmon Spray. On the laboratory wall is a plant of the beautiful single Rose Mermaid, with large, sulphur blooms and among other plants of interest to which have been accorded the protection of this wall is Lobelia Tupa, a tender native of Chile, with scarlet flowers two inches in length, having a hooded lip and upturned stamens. The leaves are greyish and are furnished with a slight tomentum. On top of a neighbouring terrace wall, a little hedge of a hybrid Cistus named Silver Pink, has been planted, and is now in flower. Growing out of the wall below is an exceptionally fine specimen of the yellow Onosma stellulatum, which in such a position succeeds far better than in a rock bed.

The very hot weather following upon the wet spring has brought about remarkable growth in the case of many bog garden plants. One of the most noticeable in this respect is Spiraea gigantea, which has attained a height of nearly eight feet and looks particularly well in association with some over-hanging flowering branches of Spiraea discolor.

Primula Florindae is also very fine in the ditches, and plants of this new and valuable acquisition now present the appearance of gigantic Cowslips. Other Primulas of recent introduction now in bloom include P. microdonta alpicola and varieties such as violacea. All these Primulas may be seen to advantage in the newly-formed alpine meadow which, although somewhat handicapped by tall-growing grasses, is beginning to shape well. In addition to Primulas, it contains many other plants of interest, such as varieties of Astilbe crispa, with their curiously compressed flower spikes and foliage.

In the rock garden, Habenaria dilatata, a terrestrial Orchid with a long and compact spike of pure white flowers, is in bloom. In an adjoining bed the Orchid-like Primula Littoniana is in flower, while an equally handsome plant in bloom on the rock garden is Gentiana Lagodechiana.

Campanulas are still the feature of the alpine house at Wisley, where may be seen in flower many varieties and hybrids of C. carpatica, such as C. Hendersonii and C. Stansfieldii (a supposed cross between C. Waldsteiniana and C. carpatica). Another pretty Bellflower, found in the Austrian Alps, is C. Zoysii, with its small, flask-shaped corollas. Also in bloom is Conandron ramondioides, a rare tuberous-rooted plant from the Japanese mountains, having purple flowers and irregular leaves, while one of the last of the Saxifrages to bloom is S. squarrosa, with creamy-white flowers springing from a compact green cushion.

The white flowers of Helichrysum frigidum, which have long since shed their pollen, still persist, and the ray florets remain in apparently perfect condition for many weeks. Similar persistence is seen in the papery bracts which surround the flower stems of Paronychia nivea, a dwarf rock plant with very small and inconspicuous flowers, which is in bloom in this house.

In the alpine house nursery beds is a large and comprehensive collection of Sempervivums, many of which are now flowering. The blooms of many distinct species are very similar, and pink is the prevailing colour. An exception, however, is seen in the blooms of S. pulchellum, which are creamy-white and contrast well with the dark red bracts and leaves on the peduncle. One of the largest-flowered species in bloom is S. Royeni, while the species with the most attractive foliage is the Cobweb Houseleek, S. arachnoideum, of which there is also a pan in bloom in the alpine house. Among other useful plants in bloom in these shelter beds are varieties of Veronica spicata, such as a dwarf form of V. s. rosea and V. corymbosa stricta, a very dwarf variety with violet-blue flowers.

Also in flower is Scabiosa graminea, with lavender flowers and foliage which may easily be mistaken for that of a Dianthus.

On the field garden pond there is now a splendid show of Water Lilies, the majority of which are the giant Nymphaea Gladstoniana. Near the Willow-draped banks are clumps of Butomus umbellatus, the Flowering Rush, which was called by Gerarde "The Water Gladioli." The flower stalks, with their pretty pink flowers, are often deeply tinged with red, and the triangular leaves are extremely sharp. On the pond banks and in the surrounding shrub borders, shrubby Spiraeas in great variety are flowering. Although of lowly stature, a most attractive little hybrid is Spiraea Foxii, which seldom exceeds one foot in height, and has deep pink flowers combined with intensely green foliage. Another handsome Spiraea is S. sorbifolia var. stellipila, with creamy-white flowers and Fern-like foliage. A plant on the pond bank which is now conspicuous is Salvia officinalis var. purpurea. It is planted chiefly on account of its purple foliage and, like many Salvias, cannot be relied upon to flower with any certainty. This year however, it is excelling itself in this respect, and is a mass of lavender-blue flowers, the colour of which combines excellently with that of the leaves.

The Barberry plantation, composed of Berberis polyantha and what are known as the Wisley hybrids, is now in full flower and is attracting large numbers of bees. It seems likely that there will be an exceptionally fine crop of berries on those planted this autumn. Berberis Jamesiana is already in fruit and in this stage is particularly decorative. Its pink berries are hollow and thus have a translucent effect.

Many of the Cotoneasters also are amazingly floriferous as, for example, C. glaucophylla and C. serotina, both of which at a later stage have brick-red berries. Other shrubs in flower in the field garden include Calycantha florida, the Carolina Allspice, and Bladder Sennas, such as Colutea istria and C. persica, of which both the flowers and the bladder-like pods are now visible.

In the flower-trial grounds there is to be found a great variety of bloom. Many Delphiniums are still at their best, and some of the later flowering varieties are not yet in full bloom. Among the latter are Lord Derby, with huge mauve flowers, and Monarch of Wales, with equally large flowers, having a broad band of bright blue on each sepal. Another variety producing magnificent spikes is Sir Douglas Haig, but the latter has been affected rather badly with mildew. This may be due, however, to its position at the outside of a row. Shoots of Monarch of Wales also show signs of mildew, but those of Lord Derby are at present perfectly free from this trouble.

Many of the herbaceous Phloxes on trial are flowering well, notably the bright cerise-flowered Marshal French and Ruby King. Good white-flowered Phloxes in bloom include Tapis Blanc and Snowdon. The annual Phloxes on trial, which occupy a considerable portion of the trial ground, are as yet only just beginning to show flower. Although they did not look too well when first planted out, they have now made fine plants, and provided that the necessary rain is forthcoming, they should make a splendid display. Rogues occur rather frequently in this trial, and the seedlings of many stocks show considerable variation in colour and shape. There are, however, many handsome individual plants to be seen, as, for example, in stocks of salmon and rose varieties, which, if fixed, would be most decorative. Among the most regular are the dark red strains, while an attractive variety of the oculata type is one with large red blooms having a clear white eye.

Adjoining the Phlox trial is one of Salvias, of which the majority are of the splendens type. Among the latter, Harbinger and Early Dwarf Bedder were the first to flower. In addition there are other scarlet-flowered Sages, such as the sometimes perennial S. coccinea grandiflora and the dwarf perennial S. Koemeriana, with a funnel-shaped corolla. Blue Salvias are also included in this trial and are represented by the well-known S. patens.

The trial of annual Lupins is now at its best. The plants have grown well and by reason of their compact habit and free-flowering qualities are not unsuitable for bedding purposes. The colour of the flowers, however, in almost all the strains sent in (with the exception of the yellow-flowered varieties) is weak. The majority are of a feeble blue shade or are blue mixed with white, and there appear to be no really pink varieties among them.

Of the few Kniphofias in flower in the trial of plants of this genus, one of the best is Russell's Gold, with yellow flowers. Excellence, with shapely spikes of orange-red, has also flowered well. Gladioli are now beginning to bloom, and among the first are the orange-scarlet Aurora, the crimson Heinrich Kansleiter, and Early Sunrise, with deep salmon blooms.

During the past few weeks the plants in the newly-formed herbaceous borders in the flower trial grounds have made surprising progress, and there are now many handsome groups of Erigeron, Gaillardia, Anthemis and Sidalcea in flower. Perhaps the most ornamental plant in these borders, in spite of the galaxy of blossom, is Artemisia Palmeri, which is grown for its bright, silvery-grey foliage. Many perennial Lupins are flowering for a second time, including the deep pink variety Delight, and further colour in this section of the garden is provided by the flowering of annual Poppies such as the Shirley, Coronara and Double Opium strains. *J. E. Grant White.*

PLANT INDUSTRIES OF CORSICA.

II.—Nuts and Other Products.*

Before leaving the subject of fruits, let us glance at one or two other kinds which are brought under cultivation. Some years ago, the so-called Pepper Tree was planted in Ajaccio. The name is given to so many different trees and shrubs that without seeing it one cannot be certain which is intended. I believe, however, that in this case it was the tree with pretty bunches of coral fruit (Schinus Molle), and drooping pinnate leaves. The fruit is said to be sugary and edible. Owing to the discharge of a volatile oil from the leaves, fragments floated on water, especially in very warm weather, move about of their own accord in a series of jerks. They must be broken off near the base and placed gently on the water with the convex side downwards, when they will move about point foremost, like little gondolas.

Of greater value as cultivated plants, however, are "*les citronniers et les cédratiers,*" of the native authorities, or Citrons and Lemons. North-west of Ajaccio, at the Gulf of Porto, are the wonderful Calanche of Piana, and, near by, the little town of Ota. This is the centre of a district of remarkable fertility. Growing in rich profusion are Myrtles, Arbutuses, various kinds of Cistus and other wild plants, but also, thanks to the initiative of M. Benedetti, an ardent agronome, Vine and Olive, Chestnut and other trees are treated in the most effective way, and by the most modern methods. Among the fruits cultivated are the Citrons and Cédrats, or Lemons, valued because they may be converted into confections or made to yield acids, drinks, oils, essences and perfumes (*cedrato*). In the north of the island, however, one finds Ota outrivalled by the valley of Luri, between Pino and Sta. Severa. Thanks to its delightful situation this commune, especially in the part midway between the sea-shores, is one vast garden devoted largely to the culture of Citrons of various kinds. To those known as Cédrats Luri largely owes its prosperity. Nothing which may ensure the success of these plantations is neglected. Carefully planted and well trained hedges of Bruyére protect them during growth, with the result that more than a million kilogrammes of the fruits are exported annually to Leghorn, Genoa, and even to America. The fruits are variously known in French as Apple of Paradise, Adam's Apple, *Limone* and *Poncire*, and are converted into *confitures tres re-*

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* See Art. 1, Fruits of Many Kinds, *The Gardeners' Chronicle*, April 28, 1928, p. 296.

cherchées. Moreover, *On le confit aussi au sucre par tranches ou en entier.* And now for the Nuts.

The foremost place in this connection must of necessity be given to the Chestnut, Castanea sativa. The visitor who has an opportunity of exploring every part of the island cannot fail to be struck alike by the number of Chestnut trees which exist, their wide distribution, their splendid growth, and the wealth of Nuts which they produce. Dr. Bennet was probably the first English writer to bring this matter prominently before the British public. He visited the island more than once during the nineteenth century, and what he then wrote bears out entirely my own observations in recent years. While the Olive abounds and flourishes on the lower hills and valleys, where the Vine is also cultivated with great success, the Chestnut has established itself at a greater altitude and grows to a magnificent size, yielding fruit of the very highest quality. On the eastern side of the island in particular entire districts are covered with splendid Chestnut forests. Indeed, if we make the little town of Piedicroce our centre we may wander for miles through plantations which are so characteristic that they have given it the name of Castagniccia, or the Chestnut Country. The people of the different communes which form the canton of Piedicroce are reputed to be more than ordinarily industrious, and they are able to put their hands to a great variety of activities. It is probably true to say that the unusual number of people per square mile which exist in Orezza is chiefly due, however, to the Châtaigniers, or Chestnut trees, which, according to the local authorities "*fournissent aux habitants sans aucune culture, la base de leur alimentation.*"

The Castagniccia has always been famous in the history of Corsica for the unconquerable intrepidity and love of freedom of its inhabitants. Dr. Bennet recalls the fact that throughout centuries of tyranny and oppression, the people of this part of the island were never entirely subdued. This was due to the fact that their Chestnuts, together with Olive oil and wine from their own vineyards and Oliveyards, and the flesh of their sheep, or the milk and cheese from their goats, supplied them with all the food they required. The trees need no cultivation whatever, whereas the Olive and Vine must be regularly manured and pruned. Like the tropical Breadfruit, the Chestnut yields fruits which only requires to be collected when ripe, and since it never fails to produce a crop in these districts, the inhabitants may exist on one year's produce until the next is ready for use. Thus in their mountain fastnesses they could defy the invader and continue to hold their own.

As an article of food, the Chestnut is capable of being served in a great variety of ways. I have a special weakness for the cakes which are made of the meal, although some tourists speak of them as insipid. Baked on the open hearth, with Chestnut leaves and a tin apparently beneath them, as I have had them in the very heart of the island, they are delicious. They are alike heat-giving and nutritious. They may be roasted or boiled and eaten whole; formed into soup, mashed, or converted into a blancmange or curd, after the fashion of the Chinese Bean-curd; or mixed with goats milk and made into a kind of porridge or milk pudding—to mention only a few of the methods adopted in different parts. Let me quote a few lines from a French author, alluding to the Chestnuts of Campana, a village some four or five kilometres north of Piedicroce:

> *Les châtaignes de tout d'Orezza, mais surtout de Campana, sont exquises et jouissent d'une grande réputation. On en fait une farine blanche, légèrement sucrée, dont on se sert pour une sorte de pain, des gâteaux et de la polenta qui, mangée avec du Broccio* [a special native preparation of goat's milk], *forme la base de la nourriture de tous les bergers et de la plupart des habitants des villages de la montagne. On transporte la farine de la Castagniccia jusque dans le Niolo et dans la Balagne.*

The Chestnut groves, however, are not by any means limited to Orezza. They abound in many parts of the island. I particularly noted them around: Licavo, where the Mistleto was not infrequent on them as a parasite.* Between Bastelica and Cauro also, enormous Chestnut trees are to be seen, as well as at Guagno, Arbori, Calacuccia and elsewhere.

The Walnut, although it grows well in different parts of Corsica, occupies a far inferior position to that which the Chestnut has secured for itself. Although the home-grown Nuts are freely displayed in some of the hotels and inns as one form of dessert, I did not often meet with specially good samples. Possibly the best are not placed on the table for the tourist. They were served to me one day in Calacuccia, where I was successful in collecting specimens of Corsican worms. Between this place and Albertacce both Walnuts and Chestnuts are grown, while at Calcatoggio the white houses are surrounded by Walnut, Fig and Chestnut trees, the woods being intermixed with gardens and orchards—a description which might be applied with slight variation to quite a number of the more favoured localities.

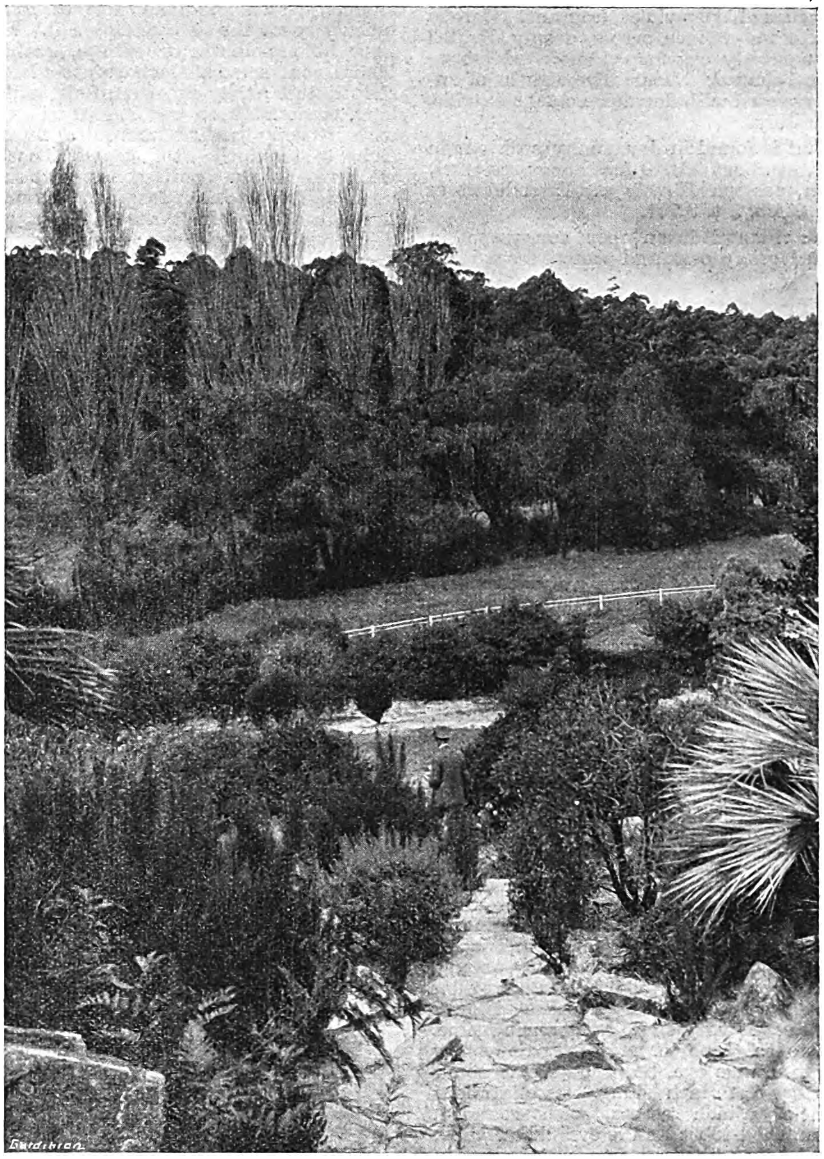

FIG. 40.—RAYWOOD GARDENS, ADELAIDE.

Part of the rock garden, with Erica melanthera, E. gracilis, E. pyramidalis, Japanese Maples, and Pittosporums; and the Creek, with Willows, Poplars, Blackwood, Birches and Eucalyptus viminalis and E. obtusa beyond. (see p. 90).

The nuts or kernels of the Olive might justly be included here, since they have their value in industry, but as we have already dealt with this tree and its fruits nothing further need now be said. The Almond, which flourishes everywhere in the Mediterranean and is an extensive article of commerce in Spain and elsewhere, grows in Corsica, and is cultivated in a few places for its fruits, but I did not personally see many evidences of its culture, although I was in the island at the time when its beautiful blossoms are always welcome and unmistakable.

All works dealing with Corsica call attention to the distinguishing feature of the maquis, bush or scrub, which is everywhere in evidence. The plants of which it is chiefly composed are various species of Cistus, Heath or Bruyére from which the so-called Briar pipes are made, Myrtle, Arbutus and Pistacia. The fruits of these shrubs and bushes are favourites with the birds, and give them their peculiar flavour which makes them so popular among Corsican gourmands. How the maquis is turned to account, however, is a subject of such wide interest that we must reserve it for another paper. The Lentiscus or Pistachia is indigenous, but I am not aware that they are grown to any extent in the island, although one meets with them on the Riviera. *Hilderic Friend.*

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* *Barry* (*Studies in Corsica*, p. 292) suggests that the name Vizzavona is from Guizza-Vona, the word Guizza being related to Viscus, which is the scientific name for the Mistleto. The plant certainly is plentiful hereabout.

THE GENUS PRIMULA.

(Continued from p. 73).

CHASMOPHILA (Balf. f.). Cleft-leaved P. (Soldanelloideae.)

A DWARF, compact, perennial species. Leaves one to one-and-a-quarter-inch long, broadly lance-shaped or oblong, wedge-shaped at the base; margins divided into small, wide, oval lobes which are furnished with one or two teeth; surface slightly wrinkled, thin, finely downy on both sides. Flower stem two-and-a-half to three inches tall; fairly stout, covered with fine down. Flowers in a cluster of about three, stalkless, reflexed, deep violet, fragrant. Corolla three-quarters-of-an-inch across, deeply divided into five narrowly egg-shaped, notched lobes; tube funnel-shaped, about five-eighths-of-an-inch long, covered with fine down on the outside. Flowers in July.

This plant is found in dry, sunny positions in rocky soil, at about 16,000 feet above sea-level, in Bhutan, eastern Himalaya. Introduced in 1917. *Bot. Mag.*, t. 8,791.

Culture: Plant it in an open, sunny spot in well-drained, gritty loam, and protect from damp in winter.

CHIONANTHA (Balf. f.). Eastern Snowy-flowered P. (Nivales.)

Biennial, inasmuch that it usually dies after producing seeds. Leaves six to ten inches long, broadly oblong or narrowly elliptic, blunt, finely toothed, narrowing into a winged stalk; smooth above, covered with pale yellow meal beneath. Flower stem fourteen to twenty-eight inches tall, stout, more or less covered with pale yellow meal. Flowers white, in two or three whorls on fairly long stalks. Corolla one-and-a-quarter-inch across, divided into five elliptic or oval segments; tube half-an-inch long, cylindrical below, somewhat swollen upwards. Flowers in April and May.

This species grows in open alpine meadows on the Chungtien Plateau in Yunnan, western China, at 12,000 to 13,000 feet above sea-level. *Bot. Mag.*, t. 8,816.

Culture: A half-shady spot and moist, rich loam and peat should suit it. It seeds freely and is quite hardy.

CHIONOTA (W. W. Sm.). Snow-marked P. (Petiolares.)

A deciduous perennial species, which produces its blossoms when the foliage is just beginning to show above the surface of the soil or is quite immature. Leaves in a loose tuft, oblong, with much lacerated margins, forming irregular lobes; both surfaces free from meal. Flower stem wanting, or very short at flowering time. Flowers two to three in number, pale yellow with a large orange eye, borne on stalks about three-quarters-of-an-inch long. Corolla about five-eighths-of-an-inch across, with rounded, narrowly-notched lobes and a cylindrical tube, which is slightly swollen upwards. Flowers in June.

Apparently a very delightful little plant, which grows in saturated soil in bogs and on mountain slopes, at Doshong La, south-eastern Tibet, at 12,000 to 14,000 feet above sea-level.

Culture: Fibrous loam and peat, in an open, spot in the bog garden, is indicated.

CHRYSOCHLORA (Balf. f.). Greenish-yellow-flowered P. (Candelabra.)

Perennial, with a spreading rosette of smooth, pale green foliage, without any meal. Leaves two-and-a-half to three-and-a-half inches long, oblong or narrowly oval, blunt, tapering to a short stalk; margins furnished with irregular teeth; surface of the leaf covered with glandular pits. Flower stems erect, stout, about twelve inches tall, greenish-black in colour, bearing three to four whorls of golden or greenish-yellow flowers. Corolla five-eighths- to one inch across, divided into five broadly heart-shaped lobes, each with a notch in the tip; tube half-an-inch long, cylindrical or slightly funnel-shaped, constricted at the mouth, covered with glandular hairs. Flowers from April to June.

A moisture-loving species inhabiting marshes near Tengyueh, in Yunnan, at 4,000 to 5,000 feet above sea-level. Closely allied to, in fact, a sub-species of P. helodoxa.

Culture: As for P. aurantiaca.

CHRYSOPA (Balf. f.). Golden P. (Farinosae.)

A beautiful, tufted, perennial species, with a slender rootstock, emitting numerous short stolons, which produce tufts of foliage that quickly cover the surrounding soil. The leaves have oblong-elliptic or elliptic, rather fleshy blades, contracted at the base into a long, wedge-shaped stalk; they are from four to five inches long, smooth above and slightly mealy below, with sharply-toothed margins. Flower stem eight to ten inches tall, slender, coated with white meal above, bearing one or two superposed umbels of two to four fragrant blossoms, about five-eighths-of-an-inch across, of a pale lilac colour with a white eye; their broadly heart-shaped, overlapping, bifid lobes are somewhat reflexed, and the blossoms are carried in an oblique manner. Flowers in July and August.

Grows in stony alpine pastures on the mountains of the Mekong-Tangtze divide, in eastern north-east Yunnan, at 14,500 feet above sea-level.

Culture: It requires good gritty, fibrous loam in a fairly moist open spot; quite hardy. Introduced in 1916.

CHRYSOPHYLLA (Balf. f.). Golden-leaved P. (Dryadifolia.)

A small, tufted, perennial species, with a well-developed rootstock furnished with numerous slender roots. Leaves about one-and-a-half inch long, narrowly oval or elliptic, abruptly contracted into a winged stalk, about the same length as the blade; margins recurved, slightly scalloped or wavy; upper surface green, more or less free from meal, underside densely covered with yellow meal. Flower stem one to one-and-a-half inch tall, bearing a one-sided cluster of about three pale rose, or purplish-rose blossoms with a yellow eye. Corolla five-eighths- to three-quarters-of-an-inch across, divided into five wedge-shaped, bifid lobes; tube funnel-shaped, very short, wrinkled inside. Flowers in August and September.

This delightful little species forms mats of foliage and flowers, on limestone cliffs and in moraines, on some of the mountains of Szechuan and south-eastern Tibet, where it reaches an elevation of 15,000 feet above sea-level.

Culture: Loam, peat and limestone chippings, in a damp, half-shady spot, or moraine treatment, with protection from damp in winter, are indicated.

CHUMBIENSIS (W. W. Sm.). Chumbi Valley P. (Sikkimensis.)

A small, tufted perennial species, with a short rootstock and thick fleshy roots. The smooth, leathery, rugose, green leaves have ovate-oblong or oblong blades half-an-inch to one inch long, rounded, wedge-shaped or heart-shaped at the base, with distinct membranously winged stalks one to one-and-a-half-inch long; the margins are sharply toothed and their tips are blunt and rounded. Flower stem six to ten inches tall, bearing an umbel of three or four yellow blossoms, about five-eighths-of-an-inch across, with oval, very slightly notched, sub-erect lobes and a cylindrical tube about five-eighths-of-an-inch long.

Grows in damp muddy places, which become almost dry for a certain period of the year, in the Chumbi Valley at 15,000 to 16,000 feet above sea-level.

Culture: Good, somewhat heavy loam, on the edge of the bog garden, with drier conditions when at rest, is indicated.

CHUNGENSIS (Balf. f.). Chung Valley P. (Candelabra.)

A smooth, tufted species allied to P. Cockburniana, with oblong-oval or oval-spathulate leaves three to six inches long, tapering to a short, winged stalk; margins furnished with broad teeth which are again finely toothed. Flower stem two-and-a-half to three feet tall, stout, mealy among the flowers which are produced in four or five whorls, of from six to nine blossoms, on stalks about half-an-inch long; they are three-quarters-of-an-inch across, of a golden-yellow, rich buff-yellow, or deep orange colour, with a darker tube and oblong, slightly oblique lobes. Flowers in May and June.

This fine fragrant species is found in shady bogs and in damp meadows, generally more or less in shade, in the Chung Valley, north-western Yunnan, also in south-western Szechuan and south-eastern Tibet, at 10,000 to 12,000 feet above sea-level.

Culture: Good rich loam and leaf-soil, in a damp, shady spot, is indicated; it has a poorly developed rootstock, and will probably prove more or less biennial in cultivation. *A. W. Darnell.*

(To be continued).

HYDE PARK.

WITH London sweltering in the throes of the heat wave, it was not surprising that many thousands of people sought rest and shade in Hyde Park and all must have been grateful to the guiding genius who had provided the brilliant arrays of flowers to greet them, and for the cooling shade of the giant trees which are so numerous as to provide shelter for all. Such was our impression upon visiting this great park a week or so ago, when upon entering from the Hyde Park Corner entrance we were greeted with such a brilliant display of colour that, despite the heat and allure of the trees, we had to stop and inspect them.

The arrangement of many of the beds is extremely daring, but the general effect of them was magnificent, while the condition of the plants spoke of the highest cultural achievement. One long border, winding its way around a large group of shrubs which looked especially fresh and formed a fine background, was composed of masses of Pelargoniums of various shades, both Ivy-leaved and Zonal; Petunias, annual Coreopsis, Antirrhinums, Stocks, Viscarias, border Pinks and many other subjects, all combining to provoke the admiration of thousands, both lay-man and connoisseur alike.

Each of the formal beds, set in grass of refreshing greenness, had its own especial colour scheme. One was filled with the pale lavender Viscaria; another contained magnificently-grown examples of Fuchsia Sylvia, an ideal bedding sort with giant double flowers of white and scarlet; while yet another was resplendent with fine examples of Canna Firebird, each with heavy spikes of large, flaming scarlet flowers.

Petunia Silver Lilac, with dot plants of the pale lavender Viscaria, filled one bed; while a vivid salmon-pink variety of Phlox Drummondii provided a singularly striking display. The bed of tall-growing Salpiglossis of numerous shades was also very prominent. Perhaps calling for the greatest amount of admiration, however, were the groups of Lilies. One was of the popular Lilium longiflorum, the chaste blooms of which were well set-off by the pale blue Nemesia beneath; but the finest was of the giant-flowered Lilium auratum platyphyllum, each plant being a grand specimen.

The bed of Hydrangea paniculata should now be a wonderful sight, for at the time of our visit there were hundreds of flower-heads just opening; while the mass of Arctotis scapigera, a South African Composite with flowers of shades from yellow to deep orange, should continue attractive for some considerable time, the silvery undersides of the leaves adding greatly to the charm of the plants.

Cleome violacea is another plant, seldom met with, that had been used with good effect. A corner bed had been devoted solely to it, and the plants, with their prickly stems, were from three to four feet in height, each terminated by a spike of quaint, pale purplish flowers. Even this does not finish the quota of plants with which these numerous beds were filled, for Statice Suworowii, Begonia Glory of Erfurt, Clarkias and hardy border Carnations all added to the general scheme, confined, as each was, to a separate bed.

The next border which claimed attention was one confined to herbaceous plants, which was bright with Lythrums, Sidalceas, Heleniums, Erigerons, Hedysarum coronarium and many other subjects, and having admired these we were able to stroll on, past a magnificent flowering specimen of Catalpa bignonioides, to the Serpentine, dotted with boats and looking especially inviting, and with the island clothed with Weeping Willows, lit up here and there with Lythrums and Buddleias, and with the inflorescences of the Pampas Grass.

Thus, amid the heat and bustle of London, may be found flowers in their thousands to gladden the hearts of the myriads of workers; flowers in such abundance and in ever-changing variety, thanks to the remarkable skill of Mr. Hay and his staff, that there is always something fresh to be seen and admired by those who seek recreation from their labours in this famous park.

NEW TALL DOUBLE GODETIAS.

The history of the origin of the new varieties of tall double Godetias, recently exhibited by Messrs. Sutton and Sons, should prove interesting, as it provides a very good example of how the progressive seed-grower sets about getting new varieties. There are also several points of interest in this particular cross. First it is a species cross, and in this particular case the progeny is fertile. In most other cases, the resulting progeny is sterile or nearly so.

A further point of interest, as will be explained below, is that all four new varieties originated from one single plant which appeared in the third generation. If this plant had not been noticed, or if it had not been decided to go on to the third generation, in spite of the fact that a very complete second generation had failed to produce anything of horticultural value, nothing would have come of all the labour connected with this cross. This also means that all the other plants selected and grown on—and these ran into thousands—gave nil results horticulturally.

Godetia rubicunda is the parent of the tall, loose-growing types, of which Sutton's Double Rose is a very good example. Godetia Whitneyi (or grandiflora) is the parent of the dwarfer-growing types, with bunched heads of large, open flowers.

The first cross was made in 1921 with Sutton's Double Rose as the female parent, and Sutton's Dwarf Pink as the male parent, the resulting history being shown below in tabulated form. Double Rose has double, delicate rose-pink flowers, with carmine centres and grows, in the open, two feet to three feet high. Dwarf Pink has single flowers of a bright glossy pink, and grows, in the open, nine to twelve inches high.

1921.—Sutton's Double Rose × Sutton's Dwarf Pink. 1922.—F_1. Rose-scarlet with paler edge to petals; flowers single and showing occasional traces of doubling; habit taller even than Double Rose, and very vigorous. 1923.—F_2. Very disappointing; although a large number of plants were grown, no good, tall double plants were seen with the colour of Dwarf Pink, and also, strange to say, no dwarf plants were found with double flowers, nor any ordinary dwarf pinks. A large number of plants similar to F_1 were produced, and some ordinary Double Rose. Among some variations from the Double Rose type, one plant was noticed which had a rather straggling habit, with double flowers of a washed-out, carmine-pink, with paler edges to the petals; in height it was not so tall as Double Rose. It was felt that there was something peculiar about this plant, but whether this was due to disease or not, it was difficult to determine. Strange to state, this weak, sickly-looking plant has given the four striking new varieties shown. All the varieties are perfectly fertile and are further characterised by very double and perfectly-formed flowers.

1924.—F_3. Among others were selected:—(*a*) Pale Shell Pink, excellent double, tall habit; (*b*) Pink, similar to Dwarf Pink in colour, double, and tall in habit.

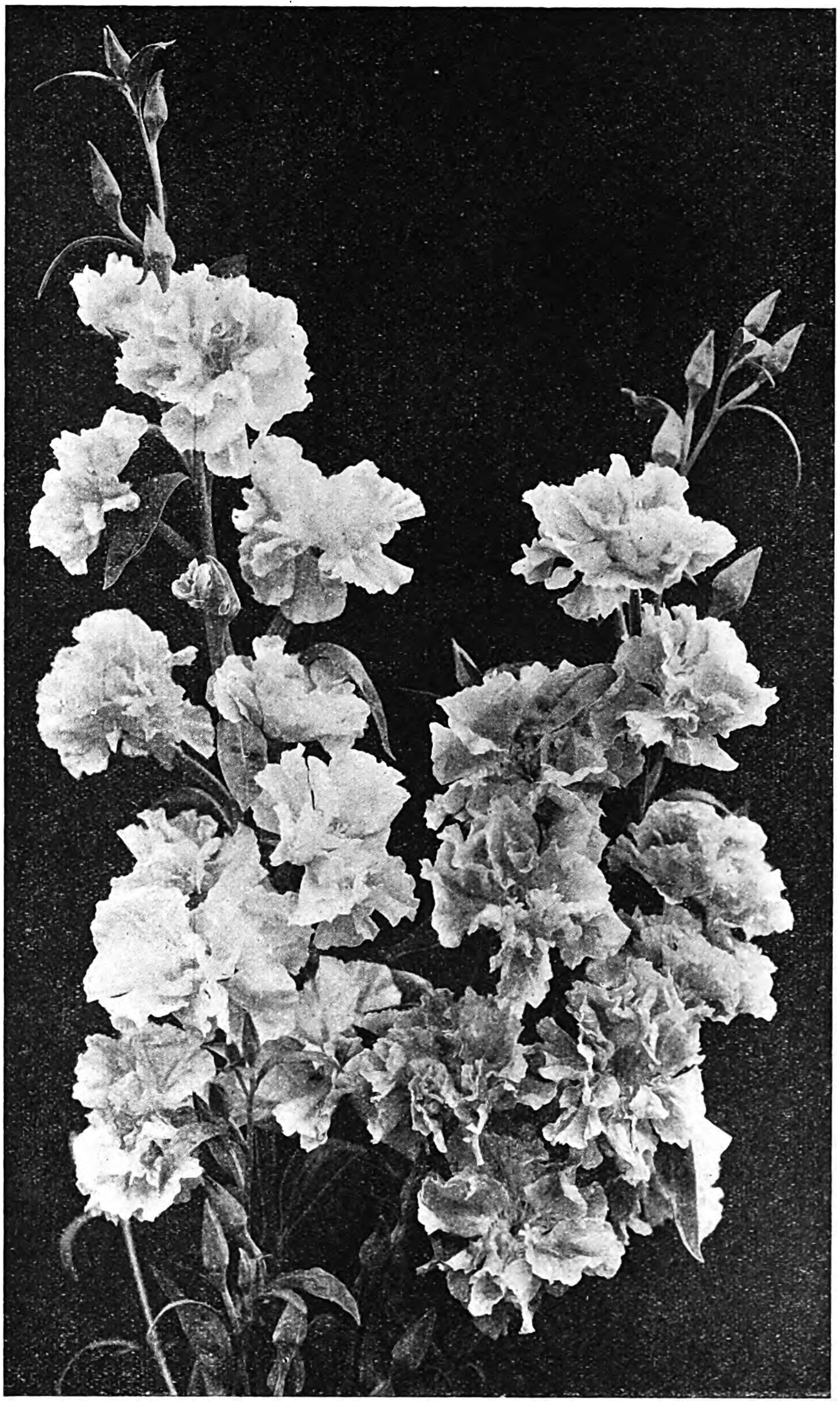

FIG. 41.—GODETIA TALL DOUBLE SHELL PINK (LEFT), AND G. TALL DOUBLE CHERRY RED (RIGHT).

1925.—F_4. (*a*) Pale Shell Pink, excellent double, tall habit; (*b*) Pink, similar to Dwarf Pink in colour, double, tall habit; (*d*) Pale Shell Pink, throwing a Double White rogue which was selected and fixed.

1926.—F_5. (*a*) Sutton's Tall Double Shell Pink; (*b*) Sutton's Tall Double Rich Pink; (*c*) Sutton's Tall Double Cherry Red Selection; (*d*) Sutton's Tall Double White Selection.

Sutton's Tall Double Shell Pink (Fig. 41) and Sutton's Tall Double Rich Pink were offered in 1927; Sutton's Tall Double Cherry Red (Figs. 34 and 41) and Sutton's Tall Double White in 1928.

The plants exhibited recently were sown on September 20, 1927, in pots. The seedlings were pricked out into sixty-sized pots, potted on into forty-eight-sized pots and finally into twelves. They were allowed to develop naturally and kept perfectly cool, being grown on in cold frames until the flower buds were beginning to show, when the plants were brought into a cold house. At no stage was much heat given, and then only sufficient to keep out frost and extreme damp.

The compost used was a good stiff loam with sufficient leaf-mould and sand to keep it porous. A little bone-meal was added when potting. Godetias in pots should be kept free from aphis and fed with Clay's or some similar fertiliser when the flowers begin to open.

NOTICES OF BOOKS.

Evergreens.[*]

This is one of a set of books known as The Home Garden Handbooks, designed to give information to amateur gardeners upon special groups of garden plants. The book is of American origin, and the title is misleading so far as gardens in the British Isles are concerned, for it deals chiefly with Conifers, references to other evergreens being, in most cases, limited to the mere mention of names. The information given upon Conifers is mostly accurate and to the point, as far as it goes, but many useful and beautiful kinds are omitted. A curious subheading occurs on page 49. This is "Deciduous Evergreens," a title that may well perplex the gardening enthusiast. Apparently the author thinks of Conifers as a whole, as evergreens, and finding himself in a corner concerning the Larches and deciduous Cypress, entitles them deciduous evergreens. The book contains a good deal of useful information on Conifers, but as a book on evergreens it can have little general value for the British Isles.

Seed Testing.[†]

Seed testing had its origin in Denmark in 1869, to be followed by other countries in Europe in the early seventies of last century, and by other countries in Asia and America within a few years. Not until 1900 was a Commission appointed to enquire into the seed business in this country, and a seed-testing station did not materialise until 1920, at Cambridge.

The methods of seed testing may be very simple or very complicated, all that are necessary being an incubator, or close case, flannel or blotting paper on which to lay the seeds, heat, moisture and air. Complicated machinery has been put into use by various inventors for removing the chaff from the seeds, the removal of weed seeds, rubbish, etc. Much scientific knowledge is required, however, to remove rogue seeds, which may be agricultural ones, but not those asked for, and for the determination of the various seeds of cultivated plants and weeds, which are legion.

An air blast separator is used for removing the chaff, but this can also remove or separate seeds of different specific gravity, although this was known in the seventies or earlier by people who used threshing machinery on the farms. A more complicated machine was the diaphanoscope for separating good seeds from chaff. As the seeds pass before the eye on a slowly revolving band, the rubbish and weeds are taken out, and the weeds are then divided into two classes, namely, good seeds not true to name, and harmful or useless ones. All the rogues are weighed separately and their sum substracted from the seeds asked and paid for, and it is surprising how little the farmer sometimes gets for his money. This is seed-testing as now carried out in various institutions.

Seed germinating incubators may be heated by oil, gas or electricity, and the temperature is regulated by a thermostat. The seeds are taken from the purity test, two trials are made, two hundred to four hundred of the smaller seeds are used and one hundred of the larger ones. New seeds germinate most quickly. Seedlings are counted from three to fourteen days and thirty days for Pines. A time limit for germination of ten to forty-two days is allowed, the latter for Pines. Farm and vegetable seeds are the more easy to deal with, but flower seeds do not seem to be so well understood. Some require to be sown on sand. Hard seeds occur in greater or less numbers among the Leguminosae, and some of them fail to germinate within the time limit. A temperature of 68°F. is employed, but some kinds of seeds are subjected to 86°F. for several hours during the day. These temperatures seem high for hardy plants, and it is probable that some of the seeds would germinate better, if later, at a lower temperature. The last chapter of the work under review gives a short account of the principal weed seeds found in Clover and Grass seeds, and it is amazing what a number of weeds are brought into this country, from Ranunculaceae to Gramineae. The book is well printed in large type, contains thirty-three illustrations, and should be of service to students, farmers, gardeners and seedsmen. The editing is excellent generally, but the spelling of the botanical names requires some revision.

The Care of Ornamental Trees.

This book,[*] by Mr. C. F. Greeves-Carpenter, consists of seventy pages, including index, giving instructions as to the planting, pruning, doctoring and general care of trees. It is based upon the practice of tree surgery, a business that has reached very considerable proportions in the United States during recent years, and the author goes into a good deal of detail regarding the doctoring of trees. While the information given is generally sound—and there is certainly room for a good deal of improvement in the way trees are cared for in some quarters—there appears to be a distinct tendency to carry the work to extremes. In numerous cases it would be far better to remove decrepit and worn-out trees and replace them by young ones, rather than spend time and money upon attempts at rejuvenation. The author appears to over estimate the necessity for applying fertilisers to trees growing in parks on lawns. He seems to look upon it as essential that such trees should be regularly supplied with fertilisers to make up for loss of decaying vegetable matter such as is found in a wood, but providing the soil is moderately good there is no necessity to feed these trees artificially. There are thousands of good lawn trees in this country that have never had artificial feeding, and at maturity are in perfect health.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Some Gardening Hints—Constructive, Destructive and Obstructive.—The constructive hint refers to the potting of plants, cuttings and seeds. Having done a good deal of this work from time to time, I have found that a layer of old cinders *i.e.*, cinders that have been exposed to the weather for weeks and had all the deleterious substances washed out of them—seems to be helpful in keeping the surface of the soil from getting caked by the watering and also in conserving moisture on the surface. I adjust the size of the cinders to the size of the plants and seeds, and in every case the layer is about one cinder thick and spread as evenly as possible over the surface of the pot or pan. I have no greenhouse or even a frame, and all my pots are exposed to the mercy of a north wall sheltered mainly by the next house and sometimes by pieces of glass on the pots when seeds are sown. The destructive hint is an application of the powdered alum idea for deterring snails and slugs. This is an excellent idea and has my unqualified approbation. I have tried it around cherished plants in the ground and viewed with such satisfaction the ring of molluscan corpses on the outer edge of the magic circle of alum, that I have extended it to my pots of cuttings, etc., and found it equally effective, and what is much to the point, I know of no case in which the alum has proved deleterious to the plants. All that is necessary is to sprinkle a broad ring of alum around the inner edge of the rim of the pot, taking care to leave no gaps and seeing that no bridges, in the shape of leaves overhanging from plants in adjoining pots, are available for the safe passage of the would-be marauders. The obstructive hint has reference to that unmitigated pest, the domestic cat, of which there are one hundred per cent. too many in this vicinity, and as we keep no dog, the surrounding cats use the garden as a pleasure ground (!), latrine, concert hall and battlefield. My heap of cinder ash is particularly attractive to them, but ground pepper, however, dusted over it keeps them at bay so effectively that I have sometimes heard a rash investigator sneeze! Incidentally, I found a half-grown specimen of one of the big brown slugs (Limax maximus) looking exceedingly unhappy on the edge of the ash heaps and next day it was obviously dead—another tribute to the pepper, I suspect! The drawback about the pepper is that it must be frequently renewed, as it loses its pungency at once in wet weather. *C. Nicholson, Hale End, Chingford.*

Thymus Serpyllum var. Lilliput.—Two years ago a strange little plant came up in my seed bed; its style and growth attracted my attention, and ultimately I was rewarded by a very beautiful little rock plant which was entirely new to me and to all my gardening friends who were specially interested in rock plants. I have since that time carefully grown and developed more plants, trying them in different positions, but the plant keeps true to its form even from seeds. I send you herewith a piece of the leaf growth and also a blossom stem, and I shall be greatly obliged if you will give me your opinion as to the family it belongs to. My idea is that it is a new form of a very dwarf Thymus, and as you will see from the copy of a letter which I enclose from Mr. Evans, of the Hardy Plant Nursery, Llanishen, Cardiff, he is of the same opinion, and you will also notice how well he speaks of it; in fact, when he saw the plant in full bloom with me, he could hardly suppress his fear that it would not consistently grow in the same way. The plant he saw was in full bloom, just a sheet of brilliant mauve about eighteen inches across and one-and-a-half inch high. The plant was two years old. It grows very closely to the ground or rock, being only half-an-inch high, just a dense mat of rich, close green, and the flower spikes stand up about an inch above the leaves, and so close are the blooms that not a leaf can be seen. Our soil here is a heavy grey limestone clay. The plant grows best in the direct sun and likes to be very dry. If it is, as I think, a new variety, it is certainly one of the most beautiful newcomers and worthy of a place among the very best of rock plants. I have provisionally named it Lilliput. *Penarth.*

[The plant in question is undoubtedly a form of the native Thymus Serpyllum—as Mr. Evans suggested. This species is variable, and it would appear that you have a particularly pleasing form and one worth perpetuating. Whether it is quite distinct from all other named varieties we cannot state, as comparisons with these would be necessary to determine its distinctness. Eds.]

Geranium sanguineum lancastriense.—I have been much interested in *J. F.'s* remarks re Geranium sanguineum lancastriense. Last summer, while walking along the shore above Seascale and admiring the masses of G. sanguineum which cover the sand there for about a mile, I discovered two or three plants of what I feel almost sure is Geranium lancastriense. I brought two pieces home with me and planted them in my rock garden. This year, they are flowering and growing strongly, still keeping their prostrate habit. The flowers are the size of a half-a-crown, of a lovely rosy-flesh colour and marked with beautiful deep-rose veinings. Farrar states that the plant has only one station, Walney Island; as these plants were found further up the same coast, is it possible they may have seeded? There were no others growing anywhere near, at least, after diligent searching I could not find any, and this year, while in the same district, again I could not even find the same plants! This may have been due to the movement of the sand, which had been blown up very thickly in that place and covered many of the plants of G. sanguineum to a depth of six inches. *(Mrs.) E. H. Raspin, Broad Ing, Nesfield, near Ilkley, Yorks.*

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[*] *Evergreens* (The Home Garden Handbooks), by F. F. Rockwell. Published by Messrs. Macmillan and Co., Ltd., London and New York. Price 4/6 net.

[†] *Seed Testing*, by John Stewart Remington, late Botanist to the Royal Lancashire Agricultural Society, etc. London: Sir Isaac Pitman and Sons, Ltd., Parker, Street, Kingsway, W.C.2. Bath, Melbourne, Toronto, New York. 1928. Price, 10/6 net.

[*] *The Care of Ornamental Trees*, by C. F. Greeves-Carpenter. Published by Messrs. Macmillan and Co., Ltd., London and New York. Price 5/6 net.

New Moon Sowings.—Happening to refer to *The Gardeners' Chronicle* for May 26 last, I came across the note by *G. S. Townend* under the above heading, and cannot think why it escaped my notice at the time. Although it is somewhat ancient history, I am writing now to ask the writer what his authority is for stating so definitely that "a change of the moon is known to bring about a change in the weather." In view of the fact that the moon does not change at all in *that* sense but is merely more or less visible, owing to the varying incidence of the light of the sun due to the varying position of the moon in its orbit round the earth, and in view also of the fact that it has been shown over and over again that the so-called changes of the moon do not bring about changes in the weather. One will await the reply, if any, with considerable curiosity. So far as sowing and planting when the moon is young is concerned, it is just possible there may be some truth in the idea that the results are "far superior than when these operations are carried out during the last stages of the moon," because as the moon's light waxes the plants may derive some benefit from the extra light, when the moon is not obscured by clouds! As has been pointed out repeatedly, these fanciful beliefs are usually the result of imperfect observation, the few occasions when the beliefs are apparently borne out being noted with satisfaction, and the many occasions when they are not, being unnoticed or conveniently ignored. If *G. S. T.* has any scientific evidence for his statements let us hear of it by all means! *C. Nicholson, Hale End, Chingford.*

Summer Pruning.—In your issue of July 21, *Market Growe* kindly mentions my name in connection with a quotation from *The Lorette System of Pruning*, to which I had ventured to call his attention. In his usual lucid way he there describes the results he has obtained from carrying out, in winter, the pruning operation referred to. I hope to read, later on, the effect of the same operation carried out in early summer, when the tree is in full leaf, as recommended by Lorette. With reference to the longitudinal incisions (also recommended and described by Lorette) *Market Grower* makes some interesting remarks on the rapidity with which these incisions heal when made in early summer; this observation seems to affect the whole question of summer pruning. Is it not a fact that cut branches heal more quickly in summer, when the sap is in full flow, than in winter? And if this is so, why is it the usual custom to do the greater part of the pruning in winter? For years I followed the method of pruning Apples and Pears to four or so leaves in summer, leaving the greater part of the work to be done in winter. I can only say that the results I obtained were very disappointing. Three years ago, by a lucky chance, I came across *The Lorette System of Pruning*. Following it carefully, the results I have obtained have astonished me. Never again would I go back to the old way. I cannot understand why this system is not more widely known and used in this country. *R. R. H. Moore, Painswick Lodge, Cheltenham.*

Youth will be Served.—I read with great interest the many biographies published in *The Gardeners' Chronicle*, and often marvel at the early age at which many of our eminent horticulturists achieved great things, as in the case of the late Mr. W. Taylor. Many other prominent men who are still great had responsible positions in their early twenties. Now, however, a man is not deemed capable of taking even a foreman's post until he has reached the mature age of twenty-eight or thirty. Why is this? Is it a slur on the intelligence of the younger men, or is so much more required of them? In other professions ten years' training turns out a skilled man, but a young gardener at twenty-four is often looked on by his superiors as still an infant, and he has to stagnate in bothy after bothy, his enthusiasm kept in check, and often killed altogether. I think if younger men were given a chance and more confidence placed in them, there would be a much greater incentive to excel. *One of them.*

SOCIETIES.

ROYAL HORTICULTURAL.

July 31.—At this fortnightly meeting of the Society, at Vincent Square, Westminster, herbaceous Phloxes were shown in considerable quantity and in commendable quality. Other floral features of merit included Achimenes, Gladioli, Dieramas, Carnations, seasonal border flowers and hardy Nymphaeas. The Floral Committee recommended five Awards of Merit to novelties, and selected two good herbaceous Phloxes for trial at Wisley. There were several small collections of Orchids, and the Committee recommended three Awards of Merit to novelties. There was an interesting exhibit of Gooseberries before the Fruit and Vegetable Committee, which selected a new Tomato of good appearance for trial at Wisley.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Mr. Gurney Wilson (Hon. Secretary), Mr. R. Ashton, Mr. T. Armstrong, Mr. A. McBean, Mr. Lionel de Rothschild, Mr. H. G. Alexander, Mr. Charles H. Curtis, Mr. Hatcher, Mr. Fred. K. Sander, Mr. A. Dye, Mr. Fred. J. Hanbury and Mr. S. Flory.

Awards of Merit.

Sophro-Laelio-Cattleya Olympia (*L.-C. Soulange* × *S.-L.-C. Mense*).—A particularly fine and handsome hybrid with a flower of large size and splendid proportions; the sepals and petals, of excellent form and substance, are soft, rich rosy-purple, while the lip, beautifully frilled, is intense deep velvety-purple with old gold veins in the throat. Shown by Messrs. Black and Flory.

Vanda coerulea var. Fascination.—A charming variety in which the petals are light blue with blue-white mottlings; the two lower and broader sepals are very pale blue with slightly deeper veinings; lip rosy-blue. Shown by Messrs. H. G. Alexander, Ltd.

Laelio-Cattleya Cassandra (*L.-C. Sargon* × *L.-C. Gladiator*).—A very large-flowered hybrid, with broad, purplish-mauve petals, and sepals of similar colour; the lip is royal-purple, with a paler edge and a gold and red-brown throat. Shown by Messrs. H. G. Alexander, Ltd.

Groups.

Some very interesting plants were shown by Messrs. Sanders in a group of moderate size. The showiest subjects were Cattleya Hardyana, albanensis type; C. Princess Royal, C. Freda Sander and C. Triumphans. Of special interest were the plants of Stanhopea insignis var. flava, Cypripedium Parishii, with a spike of four flowers; C. Curtisii var. Sanderae, C. niveum, Catasetum Russellianum, Oncidium Lanceanum, Lycaste leucantha, L. Barringtoniae, Galeandra Devoniana, a big specimen of Maxillaria tenuifolia and Odontonia brugensis.

A very pretty group was contributed by A. G. Brown Esq. (gr. Mr. F. G. Thurgood), Brownlands, Shepperton. This contained a fine example of Oncidium macranthum in the centre which carried sixty-seven showy flowers (Cultural Commendation). Disa grandiflora was well represented, as were Phalaenopsis Rimstadiana, Acineta Humboldtii, Cattleya Madame Ingram, C. Snowdon, Laelio-Cattleya Carmencita, Epidendrum Parkinsonianum, Cypripedium Godefroyae and Odontoglossum Ascania.

Messrs. H. G. Alexander, Ltd., exhibited Vanda coerulea var. Fascination with a spike of fourteen flowers; Laelio-Cattleya Cassandra, L.-C. Queen Mary, L.-C. Cavalese and the chaste Cattleya Egret. Messrs. Black and Flory showed the bright Laelio-Cattleya Vivid, the rich-hued C. Rhoda var. ardentissima, C. Eleanore var. alba and the large and handsome Sophro-Laelio-Cattleya Olympia.

Messrs. Charlesworth and Co. had a pretty group in which we noted Laelio-Cattleya Orebus, with golden sepals and petals; Cattleya Hesta, Miltonia Leda, M. gattonensis, Odontonia Macrope, O. Priapus, the brilliant Odontoglossum Hypatia, Masdevallia Harryana, Leyswood var., Epidendrum campylostalix and Coelogyne Sanderiana.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. J. F. McLeod, Mr. Arthur Turner, Mr. William Howe, Mr. R. Findlay, Mr. A. E. Vasey, Mr. W. B. Gingell, Major George Churcher, Mr. Charles E. Pearson, Mr. G. W. Leak, Mr. E. R. Janes, Mr. C. F. Langdon, Mr. D. Ingamells, Mr. Courtney Page and Mr. W. D. Cartwright, Secretary.

Section B.—Mr. Gerald W. E. Loder (in the chair), Mr. W. G. Baker, Sir William Lawrence, Bart., Hon. Henry D. McLaren, Mr. Clarence Elliott, Mr. G. Yeld, Lady Beatrix Stanley, Mr. E. H. Wilding, Mr. L. R. Russell, Mr. Mark Fenwick, Mr. F. G. Preston, Mr. G. Reuthe, Mr. T. Hay and Mr. N. K. Gould, Secretary.

Awards of Merit.

Campanula speciosa, Pourr.—In form and general appearance the flowers of this uncommon species are not unlike those of the Canterbury Bell, but the widely expanded corollas are shorter, and the yellow filaments project considerably beyond the margins of the flower. The colour is a medium shade of blue, becoming deeper at the margins. The leaves are lanceolate, serrate and about three inches long. The plant was dwarf, free-flowering, and of distinct garden value. We understand the seeds were collected in Macedonia. Shown by Mr. Clarence Elliott.

Dierama pulcherrima Windhover.—This is an excellent variety of the tall, graceful, South African bulbous plant. The illustration of the species in *Bot. Mag.*, t. 5,555, under the old name of Sparaxis pulcherrima, gives a good impression of its habit and flowers. In this new variety the flowers are rather larger and of a bright rose-pink colour. Shown by the Donard Nursery Co.

Gloriosa Plantii.—The award to this stove climber is subject to verification of name. The plant shown is of vigorous habit and bears flowers with revolute, undulate segments which are clear yellow in colour at first and successively become orange tinted and pale red. Shown by Messrs. L. R. Russell, Ltd.

Mutisia oligodon.—In habit this species is nearer to M. illicifolia than to M. Clematis, but the flowers are rounder and have fewer corolla segments. The colour is a pale satiny-pink, rather deeper in shade at the recurving tips. A coloured illustration of Mutisia Clematis which appeared with *The Gardeners' Chronicle* of November 29, 1913, and a half-tone of M. illicifolia in the same issue, give good impressions of the habit of these Chilian climbers which, although they have long been known to botanists, have never been in general cultivation. Except in the warmer parts of the country, the protection of a greenhouse is needed, and they thrive best in a peaty soil. Shown by Sir William Lawrence, Bt.

Cultural Commendation.

An award of Cultural Commendation was given to Ingham Whitaker, Esq., Pylewell Park, Lymington, for a very handsome branch of Eucalyptus ficifolia which bore large clusters of brilliant flowers.

Other Novelties.

Two particularly good herbaceous Phloxes, shown by A. D. Pitcairn Campbell, Esq., Teeside, Bangor on Dee, Wrexham, were selected for trial at Wisley. These were seedlings of Phlox decussata; one had spreading trusses of large, white flowers with a rose-pink eye, and the other bore slightly smaller flowers of deep mauve-purple colour with paler centres. Punica granatum plena, shown by Mr. Amos Perry, bore several large, fully double, scarlet flowers on quite a small plant. Bocconia cordata Coral Plume, which was shown by Messrs. Kelway and Son, is a useful variety for the large herbaceous border. In addition to the species which received award, Messrs. L. R. Russell, Ltd., showed Gloriosa Russelliana, a hybrid between G. Rothschildiana and G. superba, in which the yellow flowers are attractively flushed with deep rose-pink on the upper portions.

Groups.

At the end of the hall, Messrs. Sutton and Sons arranged a very extensive collection of Achimenes which illustrated an interesting variety of habits and flowers. The plants were all particularly well-grown, and the addition of graceful examples of Cocos Weddelliana and small Kentias added to the attractions of the display. The many varieties, which were arranged in distinct colours, included Attraction, a compact plant, bearing rose-coloured flowers; Freedom, with flowers of medium size and rose-magenta colour; Mauve Queen, one of the largest; Torchlight, deep rose-pink; Major Maxwell, of graceful habit and bearing scarlet flowers; Coral Pink and Pink Beauty.

Carnations were staged in considerable quantity by Messrs. C. Engelmann, Ltd., who included large vases of Laddie, Saffron, Rouge, Dorcas and Hebe. Messrs. Allwood Bros. had good vases of Wivelsfield White, Maine Sunshine, Harmony and Topsy. Adjoining their Carnations, Messrs. Stuart Low and Co. displayed a large plant of Datura (Brugmansia) Knightii, with Clerodendron fallax, Bignonia grandiflora and Cannas.

An attractive group, arranged by Messrs. L. R. Russell, Ltd., contained an extensive selection of flowers of many of the best hardy Nymphaeas in a pool flanked by Bamboos, Phormiums and other plants. The Nymphaeas included the varieties Gladstoniana, James Brydon, Newton, tuberosa Richardsonii and Escarboucle. Messrs. B. Ladhams, Ltd., had a small collection of Nymphaeas, but the chief features of their large exhibit were masses of Lavatera Olbia rosea, Sidalceas, perennial Coreopsis and other border flowers.

An exceedingly interesting exhibit, arranged by Mr. Amos Perry, included many dwarf plants of the rich scarlet Lilium Chalcedonicum and Delphinium sulphureum over a groundwork of hardy Ferns. He also showed plants of Astilbe hybrida crispa Daumling and Allium acutangulum. Mr. F. G. Wood associated various Heleniums and other tall border flowers with dwarf Campanulas and the rich blue Delphinium cinerium.

In a collection of half-hardy shrubs, Messrs. R. Veitch and Son showed Lasiandra mucronata, Feijoa Sellowiana, Magnolia ferruginia, M. glauca, Romneya Coulteri and Lobelia Tupa. The Donard Nursery Co. had a particularly attractive collection of Dieramas. Their chief varieties were Curlew, bright reddish-purple; Kingfisher, pink shades; Heather Bell, deep rose; Magic Wand, silvery lilac, and a good white form.

The Sidalceas staged by Messrs. Stark and Son illustrated considerable diversity of foliage and height, and all were very floriferous. The chief varieties were Dainty, pink with distinct white eye; Glowing, rich pink; Silver Queen, pale pink; Ruby Gem and The Jewel, a very dwarf rose-pink. They also displayed Poppy Ryburgh Scarlet, a very good double variety of the Shirley type. By the Tea Annexe, Mr. H. Hemsley also set up a good collection of Sidalceas, and included Doris McBean, pale pink; Abol, crimson; Mrs. L. R. Russell, blush, and Nina Pears, crimson.

In a large flower group, Messrs. M. Prichard and Sons displayed Kniphofias, Galtonia candicans, Hemerocallis, herbaceous Phlox and Gladioli. The Misses Hopkins showed border flowers and alpines, and Messrs. Maxwell and Beale had a collection of hardy Heaths, principally good varieties of Erica tetralix and E. cinerea.

An extensive exhibit of Gladioli, staged by Messrs. Kelway and Son, included many Primulinus and large-flowered hybrids. The latter included Earl Compton, salmon, with yellow blotch; The King, pink shades, with deep crimson blotch; Lady MacFarren, deep pink, with white blotch; Vesta Tilley, creamy-white, with lilac blotch; Rev. Ewbank, purple shades; Colossal, crimson self; Craganour, rosy-cerise, with violet blotch; and Duke of Somerset, rose, with white blotch. Mr. H. Prinz also had a collection of Gladioli.

Messrs. Dobbie and Co. set up a collection of their new "Orchid-flowered" Dahlias, a single-flowered type in which the ray florets are fluted, giving a star-like appearance. These were shown in a variety of colours, such as crimson-maroon, rose-pink, yellow, pale flesh and white.

Collections of Roses were staged by Messrs. Frank Cant and Co., Messrs. B. R. Cant and Sons and Mr. J. H. Pemberton.

Herbaceous Phloxes were an important feature of this show, several firms staging large collections, that set up by Messrs. Blackmore and Langdon being especially noteworthy. At the back, against a background of black velvet, were enormous pillars of such striking sorts as Selma, pink with a purplish eye; Frau Antonin Buchner, a fine white; Firebrand, rich glowing red; Europa, palest pink with a red eye; Asia, rich rosy-pink; Mrs. Ethel Pritchard, lilac-mauve, and Mrs. F. Robinson, salmon-scarlet. The rich purple La Mahdi attracted much attention, while other fine sorts which we noticed were Coquelicot, Border Gem, Dr. Koningshofer, Evelyn, R. A. Goldie and Mia Ruys, an exceptionally good white variety.

Another fine group, arranged on the floor, in association with the double-flowered Gypsophila paniculata, and edged with Maidenhair Ferns, was that displayed by Messrs. H. J. Jones. There were large clumps of Australie, the beautiful salmon-pink Mrs. Curwen; Auntie Kit, Exquisite, white with a red eye; and Fascination; while the end of the group, near the entrance, was a mass of the striking Daily Sketch, pink, with a deeper eye.

The group of Phloxes shown by Captain B. Symons-Jeune, consisted of many magnificent seedlings, several of them having flowers of good size and colouring. The plants were exceptionally good, all of them from seeds sown in March, 1928, but more care might have been expended upon the staging of them, for the baskets and boxes in which they were placed detracted greatly from the general effect.

A small group of Phloxes of good quality was staged by Messrs. Rich and Cooling, Ltd., the variety Sweetheart, a new sort with deep salmon-cerise flowers, flushed in the centre with violet, being the most striking; while other good varieties were America, La Mahdi, Rheinlander, Brilliant, Europa and Evelyn.

Another small collection of choice sorts was set up by Messrs. S. J. Goodliffe, and among them we noticed Frau Antonin Buchner, Alexandra, Thor, Gustave, Lind, Mrs. Ethel Pritchard and Gen. van Heutz; they also had attractive vases of Stokesia cyanea praecox, Scabiosa caucasica and Helenium Wyndley.

Fruit and Vegetable Committee.

Present: Mr. C. G. A. Nix (in the chair), Mr. James Cheal, Mr. W. Poupart, Mr. P. C. M. Veitch, Mr. G. F. Tinley, Mr. A. Bullock, Mr. W. F. Giles, Mr. A. Poupart, Mr. J. Wilson, Mr. W. H. Divers and Mr. W. J. Earl.

A Tomato named Table Dainty was exhibited before this Committee by Messrs. Stark and Son, Ltd., and was recommended for trial at Wisley in the next Tomato trials.

Groups.

Messrs. G. Bunyard, Ltd., were the only exhibitors of fruits, staging an extensive collection of Gooseberries. Among the red-fruited sorts were good examples of Companion, Speedwell, Napoleon le Grand, Bobby, Beauty and Prince Regent, together with Scotch Gem, Ironmonger and Scotch Red Rough, small-fruited varieties. The golden-fruited varieties were represented by Phoenix, Buerdsell's Yellow, Yellow Ball, Golden Chain, Lady Haughton, Yellow Rough, and the enormous-fruited High Sheriff. Of white-fruited sorts there were White Swan, Postman, Langley Gage and Bright Venus; while the green-fruited varieties were represented by Drill, Thatcher, Plunder, Greenock and Telegraph, all large-fruited; and Greengage and Rosebery, two small-fruited sorts.

THE YORKSHIRE SHOW.

The horticultural section of this show, held at Halifax, on July 18, was again a great success, and in the competitive classes possibly eclipsed the displays of any previous years. Large crowds were waiting for admission long before this section of the show was open to the public.

The miscellaneous groups of plants, Roses, Carnations, Sweet Peas, Delphiniums and the collections of hardy perennial plants and cut blooms, were magnificent, and the trade displays were also of excellent quality.

The first prize for the best group of miscellaneous plants was again won by Messrs. J. Cypher and Sons, followed closely by Mr. W. A. Holmes, the colouring of such plants as Codiaeums, Dracaenas and Alocasias in these groups being exceptionally good. Messrs. Engelmann, Ltd., were first for a collection of cut sprays of Carnations of fine quality and in great variety.

Messrs. Bees, Ltd., won the first prize for a collection of hardy perennial plants and cut blooms, showing flowers of wonderful quality with a lightness in the general arrangement that was most effective. Messrs. Artindale and Sons were second with a very fine group.

Messrs. T. Wadsworth and Son, and Mr. A. Leigh, Stoke-on-Trent, were first and second respectively for a collection of Sweet Peas, both with flowers of very fine quality; while in the class for a collection of cut Roses, the blooms were the best we have seen this season. The quality, variety and beauty in arrangement of the collections were excellent, each with some special quality that brought them very close to each other. Messrs. Wheatcroft Brothers were placed first; Messrs. McGredy and Sons' second; and Messrs. Thomas Robinson' third.

Messrs. Bees, Ltd., were first for a collection of Delphiniums with a wonderful exhibit of enormous spikes in great variety; Messrs. Hewitt and Co. were second, also with a very fine group. The old blue Delphinium is becoming displaced by enormous spikes all more or less of a bronze colour, which are not so pleasing or so satisfactory for general garden decoration.

Large Gold Medals were awarded to Messrs. Allwood Brothers for Carnations and Allwoodii Pinks; to Messrs. Conways, Ltd., for a rock and paved garden; to Messrs. A. J. Keeling, for Orchids; and to Messrs. Broadhead and Son, for a rock and water garden. Gold Medals to Messrs. J. Forbes and Sons, for Pentstemons, Phloxes and border Carnations; and to Messrs. Backhouse (York), Ltd., for alpines. Silver-gilt Medals were awarded to Messrs. Toogood and Sons, for Sweet Peas and Gladioli; Messrs. Daniels Brothers, for Gladioli and cut flowers; and to Messrs. Rasleys, Ltd., for a rockery; and Silver Medals to Messrs. R. V. Rogers, for alpines and also for Roses; Messrs. Bakers, for cut flowers; Messrs. Maxwell and Beale, for alpines; and the Hindlip Gardens, for cut flowers.

SAFFRON WALDEN SHOW.

With each succeeding year since the Saffron Walden Horticultural Society' Summer shows was re-started, the event has increased in popularity and in the quality of exhibits, until it is now once again acknowledged to be one of the best in the eastern counties.

The show was held in Lord Braybrooke's park, at Audley End, on July 26, and there was a record attendance of between 4,000 and 5,000 people, for the weather was perfect. The groups of plants and the displays of Roses, Sweet Peas, and other cut flowers arranged for effect were a feature of the show. Mr. G. Barker, gardener to Miss Gibson, Saffron Walden, was first for

Roses arranged on a space six feet by three feet; also for a collection of fruits, and for a collection of vegetables. He secured the premier award and **Dr. Travers'** Challenge Cup for a group of Sweet Peas. Mr. Plume, gardener to **Dr. Travers**, Saffron Walden, put up a fine group of flowering plants which secured the premier award, and he was also first for foliage plants and for six vases of annuals. Mr. J. **Pettitt**, Hatherley, was first for pot plants and also for annuals, and second for foliage plants and for Gladioli.

In the amateur section, Mr. W. H. **Scott** was very successful, securing first prizes for annuals, hardy perennials, Antirrhinums and Gladioli, and second prizes for Carnations, cut Roses, mixed annuals, Dahlias and Stocks. The exhibits in the cottagers' classes were exceptionally good. Messrs. C. Engelmann's Silver Challenge Cup for the greatest number of points gained in the cottagers' classes was won by Mr. J. **Lindsell**.

The large marquee devoted to table decorations and other ladies' exhibits was a feast of harmonious colouring; there were fourteen decorated tables. Miss H. **Clayden**, of Parkside, Saffron Walden, gained the first prize and Lady Babington Smith's Silver Challenge Bowl for an arrangement in mauve and cream of Delphiniums, Larkspurs, Carnations, Lavender and Grasses. Mrs. G. **Barker**'s table of Bridal Wreath, Heuchera, Statice, Asparagus, Gypsophila and Selaginella gained the second award, and Miss **Engelmann** was placed third for a table decorated with Saffron Carnations, Nigella, Delphiniums and Asparagus. Miss **Clayden** also gained the first prize for a basket of cut flowers.

The non-competitive trade exhibits were very fine. Messrs. **C. Engelmann, Ltd.**, occupied the whole of one large marquee with a magnificent display of Carnations, artistically arranged; Messrs. B. R. **Cant and Co.** staged a delightful exhibit of Roses; Messrs. **Dobbie and Co.** set up a very fine collection of Sweet Peas; and Messrs. **Vert and Sons, Ltd.**, filled the whole side of a large marquee with a display of fruit trees in pots. Messrs. **Morse**, of Woodbridge, exhibited a magnificent collection of Roses.

BIRMINGHAM HORTICULTURAL.

The two days' show of this Society, held at Handsworth Park, on July 20 and 21, was considerably larger and more representative than that held last year, and the show was deservedly a great success. The trade groups were exceptionally good, the local firms especially being responsible for a magnificent display, while the Birmingham Parks Committee contributed greatly to the success of the show by staging a wonderful group of miscellaneous plants, both flowering and ornamental foliaged sorts and covering an area of eight-hundred square feet. Two specimens of Kentia Fosteriana, each twenty feet high, and two of Phoenix Robelinii, each twelve feet high, were used to advantage, and there were effective mounds of Calceolaria Banksii and C. Mrs. James Witton, while the central group of Cannas and Anthurium crystallinum were relieved with splendid specimens of Humea elegans and Francoa ramosa. There were several baskets of Nepenthes, and Heliotrope Lord Roberts and Begonia Bertonii were employed in large quantities.

The best exhibit in the show, which was awarded the Silver Challenge Cup and a Large Gold Medal, was the spectacular group of Delphiniums set up by Messrs. W. H. **Simpson and Son**; while Sir **George Kenrick**, Whetstone, Edgbaston, received the premier award in the class of groups for miscellaneous plants, showing Codiaeums, Palms, Orchids, and numerous other subjects of exceptional quality; Messrs. **James Cypher and Sons** were placed second.

Roses, Sweet Peas and Delphiniums were staged well in all the sections, and formed attractive features of the show, Messrs. **Gunn and Sons** receiving a first prize for a fine display of magnificent Rose blooms.

Messrs. W. H. **Simpson and Sons**' prize-winning group of Delphiniums contained many fine varieties, other praiseworthy groups of this popular flower being staged by Messrs. **Hewitt**, and Messrs. **Blackmore and Langdon**. Among the most prominent varieties in these exhibits were Sir Douglas Haig, Millicent Blackmore and Alatia. The several groups of Sweet Peas were all of fine quality blooms, Messrs. E. W. **King** gaining the premier award for a magnificent arrangement; Mr. G. H. **Brookshaw**, Crewe, was placed second.

In the classes for table decorations there were many charming exhibits, a light and graceful arrangement of Orchids, shown by Sir **George Kenrick**, receiving the first prize; Mrs. A. E. **Reeves**, received the second prize for a charming effect, obtained with Rose Roselandia. In the class for displays of Pansies and Violas, Mr. H. **Milner**, Handsworth, was the first prize winner. Mr. S. **Bushell** and Mr. J. **Bostock** both staged good exhibits of Violas, and Carnations were well shown by Mr. H. **Woolman**, of Shirley, and Mr. A. **Reynolds** of Wylde Green.

The numerous classes for amateurs, cottagers and allotment holders were in most instances well filled, and competition was keen, Mr. A. H. **Hickman** receiving the chief award for vegetables.

READING AND DISTRICT GARDENERS'.

The annual outing of the Reading and District Gardeners' Mutual Improvement Association took place on Thursday, July 26, and proved a great success in every way. Four motor coaches left the Abbey Square at 10 a.m. and proceeded, via Newbury and Savernake Forest, to Marlborough, the ride through the forest being much enjoyed, and then on through Ramsbury to the Bear Hotel, Hungerford, where the party, numbering eighty-three, sat down to luncheon under the chairmanship of the President, Mr. Frank E. Moring. After luncheon the party visited Littlecote, the residence of Sir Ernest Wills, being received by Mr. Smith, the gardener, and under his guidance a thorough inspection was made of the beautiful estate. Notwithstanding the drought, the herbaceous borders were a great feature of the place, showing that great care and attention had been bestowed upon them during a very trying period. In the east and west borders, both of great length and width, large masses of Clarkias, Lavateras, Phloxes, Salvias, Pentstemons, Achilleas and Calendulas were noticeable, and the background of climbing Roses and Sweet Peas formed a lovely setting.

Passing through a gateway, the southern borders were reached, and these proved to be the chief feature of the garden, with verdant lawns and a running stream. The long stretches of perennials and annuals, in full bloom, made a charming display, and there were seen many fine standard Heliotropes. The Rose garden, containing over three thousand trees, looked as though the heat and drought had not reached Littlecote, and was the envy of everyone. The vegetable quarters were visited, and here the effects of the drought were visible, although the long rows of Peas and Dwarf Beans were producing fine crops.

Before leaving, the President, on behalf of the members, tendered thanks to Sir Ernest Wills for allowing them to visit Littlecote, and to Mr. Smith for the interest he had shown in the event.

Returning to the Bear Hotel, tea was partaken of, and then the return journey was made via Newbury, Greenham Common and Aldermaston village.

PUBLIC PARKS AND GARDENS.

At a recent meeting of the executive of the West Riding Playing Fields Association in Leeds, it was announced that Mr. Thomas Norton, Scissett, had given five-and-a-half acres of land at Thurstonland, and the Earl of Dartmouth had given five acres at Farnley Tyas for recreation grounds.

The Doncaster Town Council has received the approval of the Board of Education to appropriate sixty acres of the Town Field for school playing fields, and to spend £3,500 on the erection of five sports pavilions.

The Conisborough Urban District Council has resolved to borrow £3,200 for the purchase of the Northcliffe Hills for a recreation ground.

The Ministry of Health has held an enquiry into an application by the Town Council of Margate for sanction to borrow £23,230 for the purchase of the Hartsdown estate for playing fields and other purposes.

The Rushden District Committee, Northampton, recommends the purchase of about seven acres of ground near Purvis Road for a recreation ground.

NEW HORTICULTURAL INVENTIONS.

These particulars of New Patents, of interest to readers, have been selected from the Official *Journal of Patents*, and are published by permission of the Controller of H.M. Stationery Office.

Latest Patent Applications.

20,101.—Ammon, E. von, and Szombathy, K.—Insecticide. July 10.

20,131.—Lee, F.—Supporting-frame for plants. July 11.

20,295.—Plaes, J. van der.—Fertilisers. July 12.

20,258.—Richmond, T. G.—Potato-planting machines. July 12.

19,900.—Scholz, B. C., and Williams, J. F. D.—Flower pots. July 9.

Specifications Published.

293,369.—Bamford, J., and Bamford, C. J.—Machines for distributing manure or the like.

293,341.—Zellner, H. G.—Preservation of fruits, vegetables and the like.

293,499.—Turnball, G., and Carley, G.—Ditching and draining plough.

282,619.—Liljenroth, F. G.—Method of producing soluble phosphatic fertilisers.

293,523.—Moor, F., Greenwood, E. C., and Le Gros., E. C.—Grading machines for fruits, vegetables, and the like.

Printed copies of the full Published Specifications may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at the uniform price of 1s. each.

THE LATEST TRADE MARKS.

This list of Trade Marks, of interest to readers, has been selected from the Official Trade Marks *Journal*, and is published by permission of the Controller of H.M. Stationery Office.

DEWGRASS.

491,444.—All goods in Class 42, which includes vegetables, fruits, etc.—Burgess' Dairy, Limited, 32, 44, 46, 48 and 52, Gartside Street, Manchester. July 18.

WAKELEY'S.

490,981.—Fertilisers, bulb fibre, lawn sand, garden lime and compost.—Wakeley Bros. and Company, Limited, Honduras Wharf, Bankside, London, S.E.1. July 11.

ACE OF SPADES.

492,292.—Illustration of the ace of spades and the words ACE OF SPADES for chemical substances used for agricultural and horticultural purposes in Class 2.—G. and V. Moreels, Société Anonyme, 210, Boulevard du Petit Dock, Gand, Belgium. July 11.

CADRI.

491,339.—All goods in Class 12, which includes pruning knives, shears, etc.—P. Kay, Limited, 159, Bishopsgate, London, E.C.2. July 4.

ANSWERS TO CORRESPONDENTS.

Abnormal Foxglove Flowers.—*R. S.* The abnormal Foxglove flowers which you sent us are not of uncommon occurrence, in fact, there is a strain in commerce known as Digitalis purpurea monstrosa, in which this habit of producing a large flower of regular shape at the top of each spike, has become fixed.

Antirrhinums Failing—*W. S.* The Antirrhinum plants show decided signs of attack by some soil pest. The wilting is caused by the removal of the epidermis of the hypocotyl, which suggests damage by leather-jackets rather than by wireworms. The most satisfactory method of control against this pest is a bait composed of Paris green and bran. Mix 1 lb. of Paris green with 30 lbs. bran, to which add about two gallons of water and two pints of cheap Indian treacle to make a mash. Place the bait in small heaps and cover with a tile or Cabbage leaf. It is poisonous to domestic animals. Another method is to apply crude naphthalene at the rate of two to three ounces to the square yard around the affected plants and lightly fork it in. A heavy watering will produce better results.

Caterpillars Eating Zonal Pelargoniums.—*S. M.* The caterpillars which find the garden a convenient sheltering and feeding place are very numerous, and vary with the district as to their kind and time of appearance, the first fortnight of September being a particularly troublesome time with them in Surrey and Middlesex. Katakilla is a very effective insecticide, if the caterpillars are actually wetted with it, and is non-poisonous. If there are no vegetables, nor plants to be used as food near the Pelargoniums, a very effective but poisonous insecticide is arsenate of lead, which is safest to use in the form of paste. The plants may be sprayed with this about the time the caterpillars make their appearance, or a little before, this operation being repeated every two or three weeks in dry weather but more often if rain falls heavily. It should be used at the rate of one ounce to five quarts of water. Keep the mixture stirred while using it, as the arsenate does not dissolve.

Chestnut Roots Discoloured.—*J. R.* The condition of the roots received for examination suggest that the ground has been water-logged at some time since the tree was planted. Water-logged soil prevents aeration and is a fertile cause of ill health among trees. Even large, well-established trees are sometimes killed by the ground becoming flooded, or the natural water level being raised by wet weather over an extended period.

Cherry Shoots Attacked.—*G. W. H.* The shoots which you sent us were infested with the Cherry black fly, a very common pest of Cherry trees. When the fruits have been gathered spray the trees with a strong solution of soft soap and Quassia, and in the autumn spray them with a strong paraffin wash; this should not harm the trees as the foliage will then have finished its work, but it should destroy a large percentage of the existing aphis before the eggs are laid. This pest may only be dealt with effectively when it first appears, by spraying at least twice with soft soap and Quassia, or a Tobacco and soft soap wash, so as to destroy the aphis before the leaves become curled, when it is very difficult to reach them with any spray fluid. The Raspberry growths also seem to be attacked by aphis or some other sucking insect, which would be responsible for the curling of the leaves, but no remedial operations are advisable at the present stage, nor are they really necessary for the damage is negligible and the fruit crop should not be affected.

Correction.—The winner of the second prize for table decorations at Elstree Flower Show was C. E. Gabain, Esq. (gr. Mr. J. A. Paice), Sunnyfields, Mill Hill, and not Mrs. J. S. Pearce, as stated on p. 79.

Fishes and Water Lilies Dying.—*J. M.* It would be difficult to say why the Water Lilies died, except that they may have been tender varieties and were killed by the severe frosts of last winter in water that was too shallow. There is the possibility that the water became too dirty last year and choked the pores of the leaves. This has happened in tanks built of concrete, but from which water was dipped for watering plants. There are, at least, two good reasons for the fishes dying. Evidently there were too many of them in the small, stagnant pool to get enough air from the water for breathing purposes. When this is the case it is necessary that the water should be agitated from time to time to get plenty of air in it for the fishes. If only a limited number were kept in the pool, and a proportionate number of water plants were grown in it, the water could remain stagnant without any addition to it. Plants give off oxygen in the water, required by the fish, and the latter give off carbon dioxide required by the plants. It is possible, however that the fish were attacked by the salmon disease (Saprolegnia ferax), which is a fungus, that is very destructive to salmon and to fish kept in tanks or ponds. A third supposition is that some poisonous substance got into the water, say, weed-killer for the walks, which would be fatal to Lilies and fish. If the Water Lilies do not grow this year, it would be advisable to clean out the pool at some convenient time and spray the bottom and sides of the pool with Bordeaux mixture some time before filling it with plants and fish. A small fountain, jet, or falling trickle of water from a rain-water butt, would be of great service to the fish, especially in summer, by carrying air into the water.

Grapes Diseased.—*H. C.* The fruits are affected with Grape spot disease, caused by the fungus Gleosporum ampelophagum. Dust flowers of sulphur over the leaves and fruits or spray the vines with liver of sulphur, half-an-ounce in two gallons of water. When the vines are at rest next winter, spray the rods with a solution of iron sulphate.

Malformed Tomato Trusses.—*T. B.* The teratological specimen of Tomato trusses is not uncommon. Professor Henslow referred to this malformation of the floral organs as a "multifold" flower, and it is closely connected with a similar abortion of Tomato flowers which, unlike the specimen under discussion, are able to produce fruits which are deeply ridged.

Names of Plants.—*E. T.* 43, Taxus baccata var.; 77, Veronica Traversii; 78, Forsythia suspensa (probably); 79, Forsythia atrocaulis; 80, Mimulus, a garden hybrid; 81, Cotoneaster sp.; 82, Abies Lowiana.—*I. A. B.* Strelitzia Reginae.—*M. B. S.* Ranunculus aconitifolius flore pleno.—*M. S.* Phlomis fruticosa. *A. W. G.* 1, Impatiens Noli-tangere; 2, send when in flower.—*S. H. B.* 1, Acacia armata; 2, Veronica Andersonii variegata; 3, send when in flower.—*C. M., Hunts.* Lastrea Felix-mas var.—*A. T. L.* Haemanthus incarnatus.

Onions Dying.—*A. M.* It is difficult to ascertain the reason for the Onions turning yellow, as no fungus disease is present and the bulbs seem to be quite firm. We can only suggest that they are suffering from lack of moisture, or possibly of nitrogen in the soil, or that there is something physically or chemically wrong with the soil in which they are growing. We do not see that the bonfire you had could have any effect on them at this present stage of development.

Orange and Lemon Trees.—*C. L.* It is quite unusual for Orange trees or any other to grow freely at the base and sparingly at the top. Usually the reverse is the case. The reason for it would be that the temperature is too low, and the atmosphere of the room too dry at the time the trees are making their young growth. If you had a greenhouse it would be easy to fill a deep box with fresh, fermenting manure and plunge the pots in this to get bottom heat. The foliage could be sprayed once or twice a day to supply the moisture. Manure could not well be taken into a room, but the trees could be sprayed to prevent the young leaves from falling. Weak liquid cow manure could be given once a week while new growth is being made, and up to the end of August. The size of the pots should be governed by the size of the trees. It is better to feed them than to use too large pots. The end of September would be the best time to repot them. Three parts of moderately heavy loam, one part well-rotted manure, and a good sprinkling of sand should make a suitable compost. The trees are evergreen and must have water in winter when the soil is getting dry, but this should not be often during the first winter, if you repot them. The room, with fire, will be warm enough in winter.

Plum Trees on Wall.—*W. H. B.* The current year's growth on Plum trees should be nailed to the wall now, but any shoots growing directly outwards should be pinched back to three or four leaves and cut back to two buds at the winter pruning, and buds between the shoots and the wall removed. As your trees were planted only last year, no harm will have been done as no crop could be expected. Disbudding is the first and most important item in the work of managing the growth of young fruit trees on walls; when this is carried out properly, there is little necessity for the use of the knife. June or early July is the best time to carry out this work, but unless you tie or nail the shoots now they will become firm and difficult to tie in to their proper positions. Allow the leading shoots to remain their full length until the winter cutting back, when they should be shortened to about one-third of their length.

Rose Leaves Diseased.—*H. G. S.* The Rose leaf you sent us is attacked by the Rose-leaf spot fungus, Septoria rosarium. Keep the growths thinned by pruning to allow the air to circulate among the stems and spray the plants with a copper sulphate solution.

Sweet Peas and Lack of Colour.—*M. L. F.* We have been troubled with lack of colour in Sweet Peas, particularly in the case of lilac, salmon and orange-salmon varieties, while crimsons were liable to burn and turn blackish. We have observed them fresh and standing up well in the morning, while they looked weary and faded late in the afternoon of a bright day. This was more particularly the case where the plants were near a wall or fence, where the sun-heat was reflected on to them. We are under the impression that a warm and arid atmosphere has more effect in washing out the colours, than the soil. If a situation were selected, shaded by trees or other objects from the noonday sun, but otherwise well-lighted, the Sweet Peas would remain in better condition, especially if the soil was mulched and watered. Some large growers who grow Sweet Peas in the open, erect a white awning, two feet or so above the plants, to shade them lightly and prolong their beauty. A dusting of soot may be applied safely because weak in nitrogen content; but lime is not likely to aid the colour in any way. A humid atmosphere, brought about by rain, with a lower temperature, would preserve the colour better than any amount of water that could be applied. Weak liquid manure would supply a safe amount of nitrogen, which assists colouring.

Communications Received.—F. I. B.—L. G. H.—E. A. G.—E. R., S. J. R.—C. R.—W. J. H.—W. W. C.—F. S.—M. C.—E. E. T.—W. H. J.—A. W.—K. Y.—A. C.—A. E.—A. F.

GARDENING APPOINTMENTS.

Mr. H. Pemple, for the past nineteen months chief assistant at the Walsall Parks Dept., and previously head gardener to Lord Manton at Compton Veinez, Warwickshire, as Parks Superintendent to the Borough of Stafford. [Thanks for 2/6 for R.G.O.F. Box.—Eds.]

Mr. W. H. Barker, N.D.Hort., has been appointed as Gardens Superintendent at The Horticultural College, Swanley, Kent.

THE
Gardeners' Chronicle
No. 2172.—SATURDAY, AUGUST 11, 1928.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 62·5°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, August 8, 10 a.m. Bar. 32. Temp. 65°. Weather, Fine.

Hardy Fruit Crops of 1928.

On August 19, 1867, *The Gardeners' Chronicle* published its first tabulated report on the condition of the outdoor fruit crops in the British Isles. This report was on somewhat similar lines to the one appearing in the present issue, except that the records of the quantity and quality of the crops were not reduced to the use of "average," "over" and "under," and "good," "very good" and "bad," and, moreover, seventy-one years ago the comments of exactly one hundred correspondents appeared in the narrow columns under the various crop headings and in some instances these were fairly extensive for tabular printing. The correspondents of those days included Mr. J. McIndoe, who later became a most successful exhibitor of fruits; Mr. W. Miller, of Coombe Abbey, Mr. William Ingram, of Belvoir; Mr. William Carmichael, of Sandringham; Mr. P. Grieve, of Bury St. Edmunds; Mr. George Sage, of Ashridge; Mr. A. F. Barron, of the R.H.S. Gardens, Chiswick; Mr. Thomas Ingram, of Windsor; Mr. Thomas Challis, of Wilton House Gardens; and Mr. John Campbell, of Downton Castle. There were no records from Scotland, Ireland, Wales, the Isle of Man or the Channel Islands, and no summary of the crop records was appended, but the editorial observations are interesting, inasmuch as they show that fruit crops suffered from the vagaries of climate just as much in those days as in the present. The year 1867 was a bad Apple year—"Ranging the counties into districts, it is evident from our reports that Apples are all but universally deficient, the deficiency being due in most cases to the injury done to the blossoms or to the young fruits by spring frosts; in some cases, where the trees have not borne for many years, however, a crop has been produced, and in many market gardens around the Metropolis, a fair crop of Apples may be seen. Pears are also, generally speaking, below average everywhere. Plums, with the exception of Damsons, which are reported as unusually abundant, are short in quantity." Further comments show that in 1867 there were good crops of Strawberries, average crops of Cherries, but of indifferent quality; small crops of Peaches, Nectarines, Apricots and Figs; an abundance of small fruits; and an average crop of Nuts, except Walnuts, which were a failure. Regarding the fruit crops of 1928, the records published on pp. 112-118 show that, on the whole, fruit crops have often been very much worse throughout the British Isles. Out of 216 reports on Apples, there are 159 records of "over" or "average" crops, and only 57 below the average. As the Apple is our most important hardy fruit crop, this record cannot be regarded as other than satisfactory. Moreover, the quality of the crop appears to march well with the quantity, for no fewer than 153 correspondents report the crop as being "good" or "very good." Ireland has apparently a very satisfactory Apple crop. The reports of Pears do not make such pleasant reading, although out of 214 records there are 120 which show crops of "average" or "over" average quantity, but alas! there are 94 reports of crops below the average. The Plum crop is disappointing, but not nearly so bad as anticipated in late spring; in certain districts there are very few Plums, as shown by 111 records of crops below the average; nevertheless, out of 213 reports there are no fewer than 102—nearly half—which indicate crops either "above" or about "average." Nor is there much cause for complaint concerning the Cherry crop, seeing that only 80 out of 203 reports record a harvest below the average. Peaches and Nectarines and Apricots are not a success this year, and the records of the first two named fruits show 76 of "average" or "over" average quantity, and 70 "under," while Apricots are distinctly bad, with only 20 records of average crops, one "over" and 80 "under," out of 101 reports. The small fruits are rarely a failure, and this season the reports are very satisfactory, *i.e.*, 198 indicate crops of "average" or "over" average quantity, and only 16 below the average. Remembering all that has been said, written and published concerning the failure of Strawberries in the British Isles, it is particularly pleasing to find a distinct improvement in the reports concerning these fruits, notwithstanding late frosts and a period of dry weather when Strawberries needed rain. Strawberries cannot be regarded as a failure when from 212 correspondents there are 103 who record average crops, 29 who report crops over the average, and only 80 confess to crops below the average. Nuts make the worst showing, as not a single correspondent has a crop over the average, and only 23 out of 95 records show an average crop. On the whole, therefore, outdoor fruit crops of 1928 must be regarded as of moderate proportions, for an analysis of the Grand Summary on page 118 shows that out of 1,614 reports of individual crops, 712 are of average quantity, and there are only 242 above the average to set against 660 that are below it.

Appointment of National Mark Committee and Trade Committee (Fruit).—The Minister of Agriculture and Fisheries has appointed a Committee, to be known as the National Mark Committee, which he has empowered to authorise the use of grade designation marks prescribed under the Agricultural Produce (Grading and Marking) Act, 1928, and to revoke or suspend such authorisation if and when necessary in individual cases. The Minister has also invited the Committee to keep under review the general working of the Act, and to advise him, from time to time, of any changes in procedure which the Committee may consider to be desirable, having regard to the importance of safeguarding the reputation of the statutory grade designation marks. The Committee is constituted as follows:—The Rt. Hon. The Lord Darling (Chairman), Sir F. A. Jones, K.B.E., C.B., Sir W. H. Peat, K.B.E. The Minister has also appointed a Trade Committee to consider applications for permission to use the grade designation marks in connection with home grown Apples and Pears, to make recommendations thereon to the National Mark Committee and to advise the latter generally in regard to the application of such marks to home-grown fruit. The Trade Committee (Fruit) consists of: Professor B. T. P. Barker, M.A. (Chairman), Mr. R. Martin Cowley, Sir William Lobjoit, O.B.E., Mr. F. R. Ridley, and Mr. W. P. Seabrook, all members of the Horticultural Advisory Council. The Secretary of both Committees is Mr. S. A. Smith, of the Ministry of Agriculture and Fisheries, 10, Whitehall Place, S.W.1, to whom all communications should be addressed.

New Chinese Species of Viola.—Among the several valuable articles contained in the *Bulletin of Miscellaneous Information*, No. 6, 1928, from the Royal Botanic Gardens, Kew, is one entitled "New Chinese Species of Viola," by Wilhelm Becker, the species described having been found among the Chinese specimens in the Kew Herbarium. Complete technical descriptions are given with each species, and in each instance the locality in which they are found is appended. The Violas included in this list are: V. serrula, V. rupestris sub-species Licentii, which is regarded as the representative of the type in China; V. Monbeigii, V. yunnanfuensis, from Yunnanfu; V. Hancockii, a very rare species found in shady places on the western hills of Peking; V. Duclouxii, another species from Yunnanfu; V. grandisepala, V. lucens, V. pulla, V. gan-chouensis, V. diffusa var. brevisepala, V. Wilsonii, which is synonymous with V. Diffusa var. tomentosa, W. Bckr., and V. Pricei. In passing, mention may be made of the article by T. A. Sprague on "The Orchid-flowered Butterworts," which appears in this *Bulletin*. These plants may hardly be recognised, unless inspected closely, as belonging to the genus Pinguicula, for in appearance they are not at all like the common Butterwort, P. vulgaris. The general appearance of the flowers is similar to that of some Orchids, Balsams or Violets, and for this reason they are referred to the section Orcheosanthus (Orchid-flower). So far as is known, this group of Pinguicula is confined to the mountains of Mexico and Guatemala, and included in the section are P. moranensis, P. caudata, P. orchidiodes, P. oblongiloba, P. flos-mulionis, P. Bakeriana, which was figured in *The Gardeners' Chronicle* in 1881 (Vol. XV, p. 541, Figs. 102, 103); P. Rosei, which appeared in *Gard. Chron.* in 1911 (Vol. XLIX, p. 82, Fig. 421), and in 1911 (Vol. LXV p. 31, Fg. 12); and P. gypsicola, which was figured in the *Bot. Mag.*, t. 602.

Sophro-Laelio-Cattleya Meulange var. Olympia.—We are informed that the correct name of the Orchid which received an Award of Merit at the R.H.S. meeting on July 31 as Sophro-Laelio-Cattleya Olympia is S.-L.-C. Meulange var. Olympia.

Bank Holiday.—Notwithstanding the unpropitious outlook on Saturday last, when rain fell heavily in most districts, the weather during the major part of the August general holiday was beautifully fine and bright, without being unduly warm. On Sunday and Monday many hundreds of thousands of people enjoyed the sunshine and pleasant temperature by the riverside, the hills and the dales of our lovely land, while others not able to go far afield enjoyed equally their visits to public parks and gardens. The Royal Gardens, Kew, the big London parks, Hampton Court, Epping Forest and Burnham Beeches, all attracted a full quota of Londoners and country cousins, not forgetting the American and Continental visitors who visited these and other resorts to see how Britishers enjoy a Bank Holiday recess in August.

Cyanogen Gas Treatment of Narcissus Bulbs.—From an American contemporary we learn that American bulb-growers are enthusiastic over the results obtained by Professor C. F. Doucette, who has been conducting experiments in the treatment of Narcissus bulbs with cyanogen gas as a means of destroying the eggs and larvae of the greater and lesser Narcissus flies. The experiments have been conducted on a large scale, and it is claimed that the results are completely satisfactory, and that the cost of fumigation and the labour entailed is considerably more economical than the system of "cooking" the bulbs now in vogue. The treatment box in which the final experiments were made holds from 10,000 to 15,000 bulbs, approximately one ton, the bulbs being spread on trays in layers not more than two bulbs deep, the bulbs previously having been properly dried and any moist soil removed. The trays were racked in the box so that plenty of circulation space was left between them, and when the box was filled twelve ounces of calcium cyanide was placed on the floor, without the addition of any moisture, and the doors were closed tightly. Four hours treatment was found sufficient to give one hundred per cent. mortality of both eggs and larvae. It is claimed that after this treatment growth of the bulbs is perfectly satisfactory, no ill effects being shown even from an excessive application of the gas; the only effect noticeable is that the treated bulbs flower a week or so earlier than the untreated ones. At present this treatment is permitted only for home-grown bulbs in America, imported stocks have still to undergo the hot-water treatment.

Chatsworth House and Gardens.—Throughout the summer the house and gardens at Chatsworth have been open to the public on Tuesdays, Wednesdays and Thursdays, when large numbers have availed themselves of the privilege of inspecting the historic mansion and famous gardens. The season ended this week, but a special day has been set aside for the benefit of the two national gardening charities, and next Thursday the gardens will be open from 11 a.m. to 7 p.m. A charge of one shilling per person will be made, and the proceeds are to be divided between the Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund. Given fine weather, we have no doubt but that these two deserving institutions will benefit materially from the kindly thought of the Duke of Devonshire, and it is to be hoped that it will become an annual event. The usual custom is for visitors to be taken by guides over the principal rooms and into the gardens in close proximity, but next Thursday, when only the gardens will be open, visitors may stroll at will over the whole of the grounds. The famous Chatsworth gardens are over one hundred acres in extent, and embrace a most pleasant variety of flower gardening and landscape features.

Frost as Cause of Tree Diseases.—The Royal English Arboricultural Society's quarterly *Journal of Forestry*, July, 1928, contains a valuable article on this subject by Mr. W. R. Day, M.A., of the Imperial Forestry Institute. The various types of damage by frost are classified: Late frosts, before shoot development, cause: (1) reddening of the leaves of Conifers, and (2) injury to the cambium; after shoot development (1) injury to the cambium; (2) death or injury of new shoots and leaves, and (3) injury to the bark. Early frosts cause (1) death of tips of unripened and, especially, lammas shoots; and (2) injury to the cambium. Reddening of the leaves is liable to occur in all the evergreen Conifers important in British forestry; the leaves affected by the frost turn reddish and then drop off. The injury to the cambium is one of the most important forms of frost damage. The cambium of most forest trees, when resting, is able to withstand severe cold, but so soon as it becomes active it is liable to damage, both in broad-leaved trees and Conifers; this form of injury is of real importance to the latter type of trees. The several types of damage caused by cambium injury are described in detail in this excellent treatise, and the conditions which favour each form of injury are given. Injury to new shoots and leaves; injury to the bark; the damage by autumn or early frosts; the prevention of frost damage; and the relation between frost damage and fungal attack, are all dealt with lucidly, and much sound advice is given.

London Gardens Exhibition at Lord's Cricket Ground.—In furtherance of the objects of the London Gardens Guild, and in particular that of the beautification movement with which the Guild's activities are closely identified, an All-London Gardens Exhibition is to be held at Lord's Cricket Ground on September 6, 7 and 8. Arrangements are being made to provide six thousand square feet for flowers, comprising exhibits from amateur gardeners and trade firms. The municipalities of London are co-operating, and will send exhibits from their respective garden departments, and there will be corporate displays from local garden societies, Civil Service, Post Office and various staff horticultural societies, schools, etc. Hitherto this exhibition has been held in the famous Temple Gardens, but increased interest and demands upon space made it necessary to seek a more favourable site, and the equally famous cricket ground at St. John's Wood was chosen. Schedules are obtainable from the Organising Secretary, London Gardens Guild, 9, Gower Street, London, W.C.1.

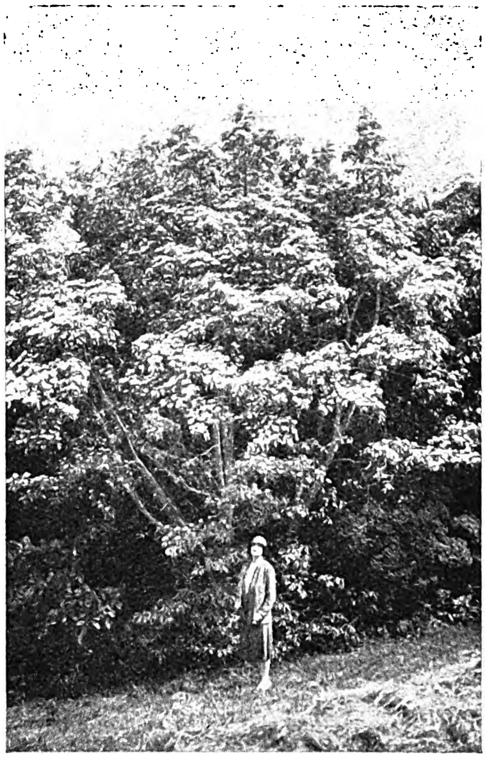

FIG. 42.—CORNUS CAPITATA.

The Marketing of Graded Tomatos.—Following on the recommendation of the Scottish Horticultural Advisory Committee, the Scottish Board of Agriculture held a meeting at Glasgow, on July 30, with representatives of the wholesale and retail fruit trades Associations, for the purpose of considering proposals that have been made for the adoption of grade designations for Scotch-grown Tomatos. Mr. A. Miur (Board of Agriculture), who presided, briefly explained the position that would be created by the Agricultural Produce (Grading and Marketing) Bill, whereby the Board may prescribe standards suitable for the Tomato trade of this country, and put the business on a definite system. In this way the public would be able to distinguish between home and foreign produce, and he explained the fact that a proportion of the latter was marketed in this country as fresh as the home-grown crops. He wanted the meeting to discuss the subject from the point of view of the wholesale and retail trades, and said that if they were agreeable to support the Board, definite marks would be adopted. On behalf of the wholesale traders, Mr. John Allan stated that they did not want too many grades, and suggested the following as a basis of grading:—A, large, four to seven to 1 lb.; A, small, eight to eleven; B, twelve to fifteen; and C, all rough quality, misshapen and very small fruits. The chief trouble was the excessive proportion of large Tomatos. His Society was willing to support the Board in fixing grades. Mr. Walker, on behalf of the retail trades, agreed that the adoption of a system of grading would be beneficial. He suggested that A, large, should consist of four to six fruits per lb.; A, small, seven to nine; B, large, ten to twelve; and B, small, thirteen to sixteen. In the discussion which followed, opinion favoured the latter scheme. Mr. Chalmers remarked that this was a year of big Tomatos, and it was his experience that the public wanted eight Tomatos to the pound. Having agreed on standards of size Mr. Miur asked if quality grading would be acceptable, as the Board wanted to be in a position to go to a grower and say "Your Tomatos are not up to the standard, and we will take away your marks." Mr. Walker and other speakers thought it would complicate matters if there were two qualities, and the meeting approved of Mr. Allan's proposal that all fruits should be marketed in a sound condition, fully and uniformly coloured and unblemished, and that everything which did not come up to that standard should be ungraded. It was also agreed that each package should contain a uniform weight of 12 lbs., and while the meeting generally favoured a non-returnable package, the large stocks of baskets in possession of the wholesale firms was considered a difficulty, and Mr. Miur gave the assurance that the non-returnable package would not be made essential from the beginning, but that the Board would work up to that ideal later on. The following delegates were appointed to attend a further conference with Edinburgh traders:—Messrs. Allan and Kirkwood (wholesale), and Messrs. Walker and Chalmers (retail).

New Park for Birkenhead.—Arrome Park, Woodchurch, was recently taken possession of by the Birkenhead Corporation, who purchased the park from Lord Leverhulme for the sum of £65,000. The estate is beautifully wooded and covers an area of 450 acres, and it has many fine walks. One hundred acres on one side of the park has been set aside for football and cricket fields.

Cornus capitata in the Isle of Wight.—Mr. Christopher Sandeman very kindly sends a photograph (Fig. 42) of a good example of Cornus capitata—better known as Benthamia fragiflora—to show that this handsome, flowering tree flourishes in the Isle of Wight. This Himalayan species is rarely seen, except in the south and south-western counties, chiefly in Cornwall, but it flourishes in the south of Ireland, and Mr. W. J. Bean, in *Trees and Shrubs Hardy in the British Isles*, states that the largest specimen known to him was at Fota, and was probably forty feet high and seventy feet in diameter. Cornus capitata is beautiful in fruit as well as in flower.

Iris Society's Publication.—The chief item of interest in *Bulletin* No. 6 of the Iris Society is a very comprehensive report on the trials of Bearded Irises, carried out in the Gardens of the Royal Horticultural Society at Wisley, from 1925 to 1927, a reproduction of the Report which appeared in the *Journal* of the Royal Horticultural Society, Vol. 53, 1928, and which should certainly be in the hands of all Iris lovers. An account of the visit of the members of the Society to Wisley and Bobbingcourt, the residence of Mrs. W. R. Dykes is also given. A very useful article is that which gives practical hints for the cultivation of Irises, and there is an interesting contribution by Mr. Franklin B. Mead, of Fort Wayne, Indiana, entitled, "Irises in America." "French Iris Novelties of 1928" is a valuable contribution by Mr. P. Murrell, and another one of American origin is "Iris-time in American Gardens," by Thura Truax Hires. Suffice it to say that the *Bulletin* is packed full of interesting matter, extremely well edited and prepared, while the several photographic illustrations are exceptionally well executed.

Antarctic and Sub-Antarctic Vegetation.—In the issue of *Nature* for July 28, 1928, a review of some interesting facts regarding Antarctic and Sub-Antarctic plant life, as recorded by Mr. R. N. Rudmose Brown, the Polar geographer and naturalist, is published. The vegetation is necessarily confined to the margins of the Continent, the mountain ranges and the islands near the coast, the great ice sheet being completely barren of any form of life. The poverty of the flora in comparison to that of the Arctic regions is striking, for in the north Polar regions are to be found some four hundred species of flowering plants, whereas only two are recorded in the Antarctic. This is ascribed to the shortness of the Antarctic summer and the exceptionally low temperatures, no month having a mean temperature above freezing point. Vegetation, with the exception of Lichens on cliff faces, is only exposed to sunlight for a month or six weeks, and the ground thaws only to a depth of a few inches on a few cloudless days. Mosses form the chief constituents of the vegetation, and fifty odd species have been recorded; only six of these are known to produce fruits.

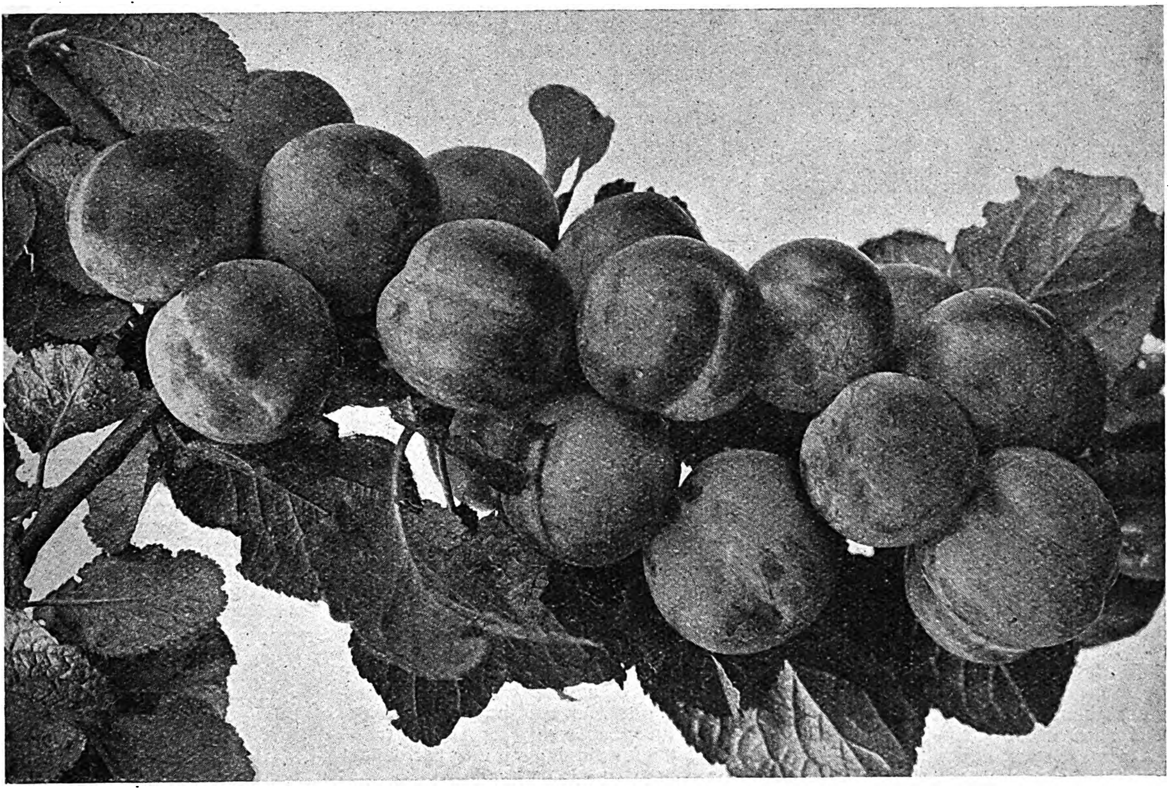

FIG. 43.—PLUM PRINCE OF WALES
(see p. 119.)

July Sunshine at Rothamsted.—A report on the sunshine records taken at the Rothamsted Experimental Station shows that an unbroken period of fine weather, lasting from July 6 to July 26, was experienced at this Station, the record week being July 9 to 15, when 97·3 hours of sunshine were recorded. Since 1891, when the sunshine records were commenced at Rothamsted, there were, until this year, only six days on which over fifteen hours of sunshine were recorded; this year there have been five such days, June 2 and 3, each with 15·2 hours; and July 12, 13 and 14, with 15·2, 15·3 and 15·3 hours respectively.

Appointments for the Ensuing Week.—Monday, August 13: Romsey Gardeners' Association's meeting; United Horticultural Benefit and Provident Society meets. Tuesday, August 14: Royal Horticultural Society's Committees meet; Clay Cross Horticultural Society's exhibition. Wednesday, August 15: Bangor Horticultural Society's exhibition (two days); Shropshire Horticultural Society's exhibition (two days); Banff Show. Thursday, August 16: Royal Horticulture of Aberdeen Society's exhibition (three days); Aberdeen Show (three days); Airth Flower Show (three days); Alexandria Flower Show (ten days). Friday, August 17: Inverness Show; Blairgowrie Show (two days); Bo'ness and District Show (two days); Brechin (two days). Saturday, August 18: Charfield Flower Show; Manchester Post Office Horticultural Society's exhibition; High Wycombe Horticultural Societys exhibition; Burnley Horticultural Society's exhibition; L.M.S. Railway Society exhibition; Highfields and District Gardening Society's show; Beattock Show; Blackwood Show; Broughton Show; Dalbeattie and Urr Show; Kippen Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—After existing for more than a century-and-a-quarter, the Physic Garden at Chelsea is about to be dismantled. Originally conveyed to the Society of Apothecaries by Sir Hans Sloane, in order that a garden near London might be for ever set apart for the promotion of botanical science, and in aid of medical studies, this place has gained an historical interest in consequence of its association with the name of Philip Miller, the prince of gardeners, as he has been not unaptly designated. He was appointed by Sir Hans Sloane himself, and so early as 1724 became celebrated as the author of "The Gardeners' and Florists' Dictionary," in two volumes, 8vo, which seven years afterwards expanded into the celebrated "Miller's Gardeners' Dictionary," the numerous editions of which are still conspicuous upon the folio shelves of all horticultural libraries. We believe there is no doubt that the plants which Miller enumerates were all cultivated at Chelsea, and that his practical directions for cultivation were the result of experience actually gained there. His collection must, however, have been very meagre in the beginning, for in 1724 the list of greenhouse plants, recommended by him to growers, amounted only to twenty-four sorts, among which were included the White Portugal Broom and the Althaea frutex, at that time supposed to be tender. For many years past the Chelsea Garden has been devoted to the gratuitous instruction of students belonging to the medical schools of the metropolis. So a considerable number of plants useful for teaching has been collected, and the whole of the plants under glass have been brought to a state of such excellent health by Mr. Moore, the present curator, that, notwithstanding the injury sustained by hardy plants from the smoky atmosphere which surrounds them, it is doubtful whether the Garden has ever been more really useful than it is at the present time. The Society of Apothecaries have now, however, resolved to pull down their houses, to discontinue the lectures, and to give away the tender plants; retaining nothing more than the shrubs and herbaceous plants still struggling for life in the open borders. And thus the ancient place will disappear from the map of the metropolis. It is this circumstance, we presume, which London gossip has distorted into a breaking up of the Horticultural Society; unless, indeed, so silly a story has been invented by some ingenious gentleman whose wish is father to the thought. *Gard. Chron., August* 6, 1853.

Publications Received.—*Forestry*, edited by H. M. Steven; Humphrey Milford, Amen House, E.C.; price 7/6.—*The Apple Maggot*, by B. A. Porter; United States Department of Agriculture, Washington, D.C.—*Flora of West Tropical Africa*, by J. Hutchinson; the Crown Agents for the Colonies, 4, Millbank, Westminster, S.W.1.—*Bulletin de la Societe Botanique de France*; Rue de Grenelle, 84, Paris.—*Year Book of the Academy of Natural Sciences of Philadelphia*; the Academy of Natural Sciences of Philadelphia.—*Proceedings of the Academy of Natural Sciences of Philadelphia*; the Academy of Natural Sciences of Philadelphia.

The Week's Work.

THE ORCHID HOUSES.

By W. GILDEN, Orchid Grower to Dr. F. CRAVEN MOORE, Manchester.

Dendrobiums.—Members of the semi-deciduous section of this genus, which flower in the early spring months, are growing freely and have made rapid progress in growth and root production recently, and they should be encouraged to make strong, firm bulbs. They respond best to sun heat, with plenty of water at the roots and atmospheric moisture, and with sufficient air admitted to keep the atmosphere buoyant. Only very light shading is required to prevent the leaves being scorched during hot, dry weather, and the plants should be sprayed lightly overhead, and the stages and bare surfaces syringed well. If the house is closed in the afternoon, after damping down, a little air should be admitted again in the evening to keep the atmosphere buoyant and prevent moisture condensing heavily on the foliage, which would probably cause the black spot disease to occur. Later, as the terminal leaves appear, the plants should be placed in a somewhat drier position at the cool end of the house, where they may receive all the available light and more fresh air; water should be reduced gradually and as the bulbs are finishing they should be removed to a drier and cooler house to complete the ripening, and rested until the flower buds appear in early spring; the roots during this time only require water at fairly long intervals and just sufficient to keep the bulbs in a normal state. The plants should be examined frequently for insect pests; scale and red spider are often troublesome during the gradual ripening period, and these should be removed so soon as detected by sponging with a weak solution of insecticide.

Mormodes, Catasetums, Cycnoches.—These remarkable deciduous Orchids are very similar in growth and requirements, and thrive during their growing season in a light position in the warm house. The plants are now growing freely and some are forming their bulbs, and therefore require ample moisture at the roots and in the atmosphere. The flower spikes are produced as the bulbs reach maturity. The heavily-scented Cycnoches chlorochilon is now commencing to flower and should keep in perfection for a long period if removed to a shaded and cooler house after the flowers expand. The bulbs of these Orchids should be well ripened if they are to pass through the winter successfully, therefore when the flowering period is over the plants should be placed in an intermediate house, in a position where they may receive all the available light and plenty of fresh air. They should be well supplied with water until the leaves begin to fall, when water should be withheld and the plants allowed to rest until they commence to grow again in the spring.

THE KITCHEN GARDEN.

By ALLAN FALCONER, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Autumn-sown Onions.—For these, select ground which has been treated liberally for a previous crop, and so soon as possible after the ground has been cleared, apply a dressing of soot and wood-ash, but do not manure the soil. It is advisable at this time of the year to prepare the soil in readiness to receive the seeds directly after it has been dug, for hot, dry weather often tends to cake the ground and difficulty arises in producing the fine tilth necessary for sowing. Finish the work by levelling and rolling to procure a firm seed-bed, such as this crop prefers, but on very heavy ground avoid making it too firm. Draw drills nine inches apart, sow the seeds thinly but regularly, and cover them lightly. In the north, they should be sown during the first or second week in August, and in the south towards the end of the month; much depends on the district. So soon as the seedlings appear, the soil surface should be hoed occasionally between the rows. There are many advantages attending autumn sowing; the bulbs grow larger, they ripen earlier, and in districts subjected to heavy rainfall they are better suited than spring-sown Onions. There are now several varieties which are as hardy as the Tripoli type, and therefore well adapted for sowing at this season. The varieties Autumn Triumph and Autumn Queen have proved specially suitable for this district to sow at this date, and they are good keeping sorts. Where exhibition Onions are required, the strongest plants should be transferred to a specially prepared piece of ground early in spring. February is the best month if favourable conditions prevail; they should be lifted carefully and planted fifteen inches apart in rows one foot apart. In unfavourable districts it is advisable to prick out seedlings in skeleton frames so soon as ready, and protect them during the winter from excessive frost, to secure strong plants ready to put out in February. I believe that when the variety Autumn Triumph becomes better known it will be sown in large quantities during the autumn.

Cauliflowers.—Two sowings may be made, either in August or September, according to the locality, for supplying plants to put out in early spring. It is always advisable to make two separate sowings, as sometimes the early-sown plants become too far advanced, if mild weather is experienced, and of little use. The seeds should be sown in a frame, which should be covered until germination takes place. So soon as the seedlings are ready, they should be pricked out into a prepared bed in a sheltered position. The bed should be raised about six inches above the general level, so that it may be free from excessive damp, and shallow frames should be placed on it, and a depth of three inches of moist soil placed in them. Shade the seedlings for a few days, until root action commences, and then gradually harden them. Admit air freely during mild weather, but during frost the lights should be placed over them.

Cabbage.—Another sowing may be made now followed by a further one a fortnight later, when a variety of the pickling type may also be sown. If skeleton frames are available, the seeds may be sown in these, and so may be protected against slugs and birds, while germination may be encouraged by covering them with wattle hurdles. Prick out the seedlings when large enough, a few inches apart; they should make nice sturdy plants for putting out into permanent quarters as ground becomes available.

PLANTS UNDER GLASS.

By J. COUTTS, Assistant Curator, Royal Gardens, Kew.

Bulbs for Early Forcing.—When dealing with bulbs for early forcing, success depends largely on their being potted early, so that they may have plenty of time to become well-rooted before being introduced to the forcing house. Bulbs of Roman and prepared Hyacinths, Paper White Narcissi, Duc van Thol and other early Tulips, should be potted so soon as they may be secured, hence the importance of ordering the necessary supplies so soon as possible. When obtained they should be potted or boxed according to the quantity and purpose for which they are required. Roman, miniature and prepared Hyacinths, and Duc van Thol Tulips, may be grown in boxes, from which they may, as they come into flower, be lifted and used for filling suitable receptacles for indoor decoration. After potting or boxing, they should be stood in the open and covered with weathered ashes; fibre or peat moss litter may also be used for this purpose. The use of covering material does away with the necessity of frequent waterings until they are well rooted, when the covering should be removed, as the more they are exposed to the influence of the weather the more readily do they force. It is an advantage if they may be placed in cold frames, so that the lights may be placed over them during spells of excessive wet weather, which might have an injurious effect on them. The foregoing cultural remarks also apply to later-flowering bulbs used for forcing purposes.

Freesias.—If these are required in flower about Christmas or shortly afterwards, there should be no delay in getting a batch potted, as they should be grown under perfectly cool conditions; they respond to gentle forcing, but only at the expense of the quality of the flowers. Ten or twelve sound corms may be placed in a five-inch pot, and about fifteen in a six-inch receptacle, while they do best in a good medium loam, with enough sand to keep it open and porous; a five-inch potful of bone-meal may be added to every bushel of compost, and also a sprinkling of soot and wood-ash. After potting, they should be watered and stood in a cold frame, where they should be kept shaded until they start to grow; by shading them much labour in watering may be saved. When growth has commenced, they should be given plenty of air on every possible occasion; the young growths should also have timely support, as they should never be allowed to fall over. Although the best results are usually obtained from early potting, under certain conditions it is wise to defer potting until the end of October. For example, in the immediate neighbourhood of London early Freesias are generally more or less a failure, due to the fact that most of their growth is made during the period when fogs are most prevalent and light is at a minimum. By late potting quite good results are obtained, the bulk of the growth being made under more favourable light conditions.

Lachenalias.—These charming subjects are worthy of more general cultivation. They should be treated in the same way as advised for Freesias, for they succeed under the same cultural conditions. Six or eight good corms may be placed in a five-inch pot. They are also very effective when grown in shallow pans. When they were more generally grown it was a common practice to grow them in hanging baskets, in which they were certainly very satisfactory with regard to growth, but it always appeared to the writer that this was a somewhat unnatural method of displaying them.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to Sir CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Pears.—Pear trees that are growing in borders in a cold house are now swelling their fruits freely, and to ensure their safety, the fruits need some support; perhaps the best method of preventing loss of fruits by falling is to tie the stem of each fruit with a piece of raffia and secure it to the trellis wires or branches. The borders should be well supplied with water, and where stimulants are needed these should be given according to the extent of the crop and the growth of the tree under treatment. The ventilators should be opened wide on all possible occasions, slightly reducing the air supply late in the evening. Birds are sometimes troublesome during dry weather, and the ventilators should be covered with a small-mesh netting. Remove all sub-laterals so that the fruits may receive the full benefit from sun and air.

Strawberries.—Where every attention has been given to Strawberry layers in pots they should now be ready for transferring into their fruiting pots. In a previous note I recommended the compost to be prepared and stored in a dry shed so that it would be in a suitable condition for ramming firm; to be successful with the Strawberries growing in pots the soil should be made tolerably firm about the roots of the plants. Good results cannot be obtained if the soil is used and rammed very hard when in a wet condition. After potting, the plants may be stood closely together for a few days, syringing them overhead several times daily and paying strict attention with regard to watering at all times.

Fruit Packing.—In a great many establishments the packing of fruits to travel by train calls for a great deal of attention, for the fruits have to arrive at their destination in first-class condition. Peaches, Nectarines and Pears should not be allowed to remain on the trees until they are quite soft, but should be gathered a day or so earlier than if they were required for home use. Grapes, Melons and Plums also travel better when not in an over ripe condition, but discretion is needed when gathering fruits for this purpose, for the flavour will be lacking if the fruits are gathered in an unripe condition.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to the Duke of Devonshire, Chatsworth, Bakewell, Derbyshire.

Campanula pyramidalis.—Although often grown in pots for use as a decorative plant in conservatories or corridors, this charming biennial is a welcome feature of the flower borders during August and September. It is comparatively easy to grow, being quite hardy and not at all fastidious in its requirements, succeeding in good garden soil; if given a little enriched loam at planting time it grows luxuriantly, and may be depended upon to grow into fine clumps for the back of the herbaceous borders. The seedlings usually vary slightly in colour, being of different shades of blue, and a charming companion to the above is the white variety which should always be grown in association with the type. There is also a dwarf form sent out under the name of C. p. compacta, which is exactly what its name implies and comes in very useful in positions where the taller varieties might be out of place. If in an exposed position the flower spikes should be secured firmly to strong stakes, otherwise they may be snapped or twisted off at the base if stormy weather is experienced. Being of no decorative value the first year, the plants should be grown in the reserve garden, where they should be planted out early in the season and encouraged to grow, in order to have strong plants for placing in their permanent positions in the autumn, when they may be depended upon to flower well the following season. Keep the ground well hoed, and give the young plants an occasional dusting with soot in the evening.

Gladioli.—As the flower spikes elongate, they should be secured to suitable sticks, if necessary. Hoe the soil about the plants at frequent intervals, and if very dry weather is experienced, a thorough watering should be given as the flower spikes are developing and before the blooms commence to open. This should be followed by a mulch of Mushroom-bed manure or other light material, to conserve the moisture. Very few flowers have been more improved during recent years, and the demand for them as cut flowers is enormous, and for all decorative purposes they are unequalled. Good named varieties may be procured at very reasonable prices, and clumps arranged in the mixed borders are most effective, the flower spikes showing up well if planted to the fore in the border. When grown in the reserve garden for cut blooms it is advisable to cut the spikes so soon as two or three flowers are open, standing them in water in a cool room, where the remainder of the flowers will develop and last much longer than if left on the plant to develop in full sunshine.

Hollyhocks.—Secure the flower spikes firmly to strong stakes when they are sufficiently advanced, as there is great danger of damage if stormy weather is experienced, the stems being extremely brittle at the base. Young plants from seeds sown this season should be grown in the reserve garden and planted out as recommended for the Campanulas. Where experience has proved that they cannot be wintered successfully out-of-doors, the seeds should be sown in late autumn, and the plants grown as rapidly as possible to secure strong plants to flower the same season as planted out.

HARDY FRUIT GARDEN.

By T. E. Tomalin, Gardener to the Earl of Bessborough, Stansted Park, Emsworth, Sussex.

Peaches.—The early and mid-season varieties are now ripening their fruits and the trees need daily examination in order to secure the fruits when in the best possible condition. They should be picked before they become absolutely ripe, and placed in a dry and airy fruit room for a few days before they are used as dessert. When Peaches have to be sent any distance by rail they should be packed on the same day as they are picked, while the base of the fruit is still firm. The boxes should be well-lined with fine wood-wool, and a strip of wadding should be wrapped around each fruit. Earwigs and woodlice are the two most troublesome pests of ripening Peaches. The former may be trapped by the old method of placing six-inch lengths of Broad Bean stalks among the branches; they should be examined each morning, and the insects blown out into a tin containing a small quantity of paraffin or boiling water. Woodlice may be trapped with pieces of Potato slightly scooped out, which may be placed about the tree and on the ground at the foot of the trunk. These should be examined daily, and any woodlice found on them destroyed.

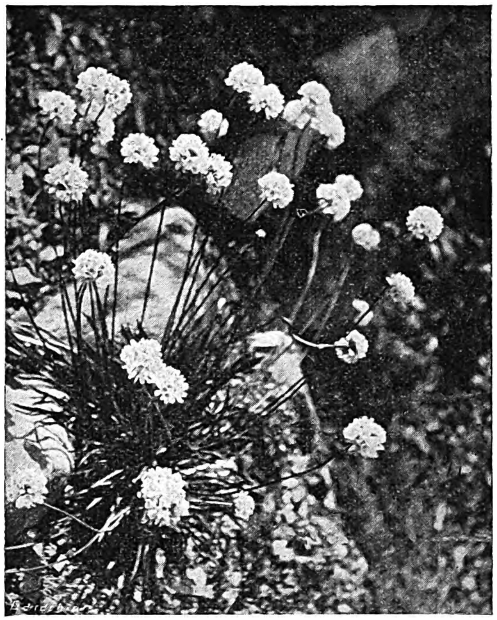

FIG. 44.—ARMERIA FILICAULIS (?).

(see p. 106.)

Netting Young Apple Trees.—Bush Apple trees which were planted two or three years ago, are carrying good crops, and although showery weather prevails, birds are beginning to attack the fruits. All the trees of the choicer dessert varieties should be netted wherever possible. This may be done by placing three tall stakes with T-pieces fixed to them, in a triangle enclosing the tree, over which a square of netting may be hung. The netting should reach the ground all round, and should be secured by pegs. The supports should be sufficiently high to keep the netting clear of the growing tips of the leading branches. The largest fruits should be made secure by placing Melon nets or squares of netting under them, and a convenient method of fixing the nets is by means of small S-hooks made of stout wire, the upper crook being hung on a convenient branch, while the corners of the net are gathered on to the lower crook. This method obviates the necessity of any tying and should be found particularly useful when netting fruits on tall trees, for the operation may be done with one hand, leaving the other free to hold on to branch or ladder.

Summer Pruning.—The summer pruning of Apple and Pear trees should be completed at an early date. The crop gains considerably in colour and flavour by the accession of air and sunshine, while next year's prospects also may be greatly improved by the influence of these elements on the developing fruit buds.

Alpine Strawberries.—If these were raised from seeds sown in April, and the young seedlings were pricked out into boxes, sturdy plants should now be available for planting in their permanent quarters. The position chosen should be one where the soil is not too rich, or the plants may become difficult to manage owing to the profusion with which they produce runners. The aspect should be favourable for the autumn sunshine, because the fruits are most acceptable in August and September, when the other Strawberries are finished.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener at Jordanhill Training Centre, Glasgow.

Propagating Shrubs.—Many varieties of early-flowering shrubs may be propagated successfully about this time if suitable cuttings are taken. These should be partially ripened, and in not a few cases success is more likely if they are taken off with a heel, but from experiments tried with Clianthus puniceus, it was found that those severed below a joint with a sharp knife, and those with a heel intact, rooted in about equal proportions. A shaded frame, where the newly inserted cuttings may be protected from strong sunshine for the first few weeks, is suitable, and the cuttings may either be placed directly into a firm sandy compost in the frame, or pots of the compost may be filled with separate kinds and plunged to their rims in any moisture-holding material, such as sand, ashes or cocoanut fibre. The frame should be kept close so well as shaded, and an occasional spraying through a fine-rosed can should be sufficient to keep the cuttings from wilting until they have rooted, when more air and water are naturally required. Among the shrubs which may be increased at this season are Ericas in variety, Olearias, Tricuspidarias, Cotoneasters, Desfontainias, Leptospermums, Ceanothuses, Carpenteria, etc.

Layering Border Carnations.—The plants out-of-doors have now plenty of young growths, and when these have developed sufficiently they should be layered by placing a mound of sandy soil around the plants and pegging the half-severed stems into it. The operation of layering is too well-known to need further description, but it may be emphasised that a sharp knife, with which a clean cut may be made, is very necessary, and that this cut should be kept open when the layers are being secured. Should the weather remain dry, the mounds of soil should be watered occasionally, and some means devised to prevent birds scratching among the layered growths before they are rooted. When a sufficient number of layers have been secured, the remaining growths should be thinned to four or five, and these, if vigorous and healthy, may be retained to flower next season.

Autumn Sowing of Onions.—To provide a supply of young Onions early next spring, seeds should be sown now in a well-drained border, where the young plants may pass the winter undisturbed. The soil should not be enriched before sowing, and the seeds may be sown more thickly than is recommended for spring sowings. Autumn-sown Onions are seldom attacked by the Onion fly (Anthomyia ceparum), but instances have been recorded, and if a visitation is anticipated means should be taken to prevent it by spraying the seedlings with a strong-smelling insecticide. A very simple and effective preventive for this pest may be made by mixing sand with paraffin, and sprinkling it between the rows, renewing the application from time to time as found necessary.

ALPINE GARDEN.

CHOICE ARMERIAS.

That remarkable little plant, Armeria Vindictive, has once again proved itself indifferent to the discomforts of a very trying season. As usual, it was the first to come into flower in spring, it cheerfully endured one of the coldest and wettest Junes ever remembered, and has been no less courageous throughout a baking July drought. Mr. Clarence Elliott modestly gives June as the flowering month of this prodigy of his, but it is rarely without blooms, and plenty of them, throughout the season, its vivid ruby-crimson flowers being the first to appear and the last to go off.

A. fasciculata is an uncommon species of much merit. Mr. Ingwersen tells me that it hails from Spain, but it is so absolutely hardy that it did not suffer in the least from the miseries of last winter on an open rock-garden ledge. This is a handsome plant with narrow, linear, green leaves and very erect flower stems about ten inches in height, bearing good heads of large-sized flowers of a clear shell-pink. I am told, however, that the blossoms of this Thrift vary in colour from white to pink and rose. It flowers from early May to late July.

A. Cephalotes Bees' Ruby is undoubtedly a fine plant but I often wonder whether it would not have been more pleasing had it been a little less fine. Its trouble is the inevitable result of trying to bear heads of blooms too large and heavy for such tall and slender stems to support. Compare it with another closely-allied Thrift (whose name I have for the moment forgotten) which holds its splendid rosy-crimson clusters erect on sturdy stalks of ten inches or so, and I rather think that this latter should be granted the heavier score of marks.

When in southern France early last year, I came upon an Armeria growing on the sea cliffs. It was not in flower, but as it appeared to be a stranger to me a piece was brought home. Planted on the rocky margin of a border, this has turned out a most attractive object, the rather low tuft of very glaucous foliage being about ten inches across and half as high. The narrow leaves, which have a deeply channelled mid-rib, are almost linear but widen to about two-eighths-of-an-inch near the points. They are slightly rough at the margins, which are inclined to roll inwards. This plant began to flower in May and has continued ever since, the erect, one foot, slender scapes bearing heads of blossom one inch across, of very pale pink, almost white. If I am not mistaken, this is A. filicaulis (Fig. 44), but I have doubts as to its identity since that plant is pronounced as rare on the Riviera. *A. T. J.*

HYPERICUM RHODOPEUM.

During the past few years much doubt has been expressed regarding the variety of rock garden plants actually grown by the late Reginald Farrer. It is not to be expected that anyone man could have cultivated in his own garden all the species and varieties mentioned in that exhaustive treatise—*The English Rock Garden*, and Farrer himself admits in the preface that he had frequently to rely on herbarium specimens and published botanical descriptions. It is therefore not surprising that he failed to appreciate the especial charm and value of Hypericum rhodopeum, and it is with no sense of condemnation that the suggestion is made here.

The account of this species in the above work is very brief and does not lead one to infer that the plant is desirable. Farrer records it as a native of Thrace and Macedonia, and synonymous with H. origanifolium, Urv. A slightly longer description of the H. origanifolium of Asia Minor leaves the enquirer in doubt as to whether this is the plant mentioned above or not, since no botanical authority for the name is supplied. Further information (in the English language) regarding H. rhodopeum appears to be very meagre, and it is to be hoped that those who are familiar with the flora of the Balkans will provide the details in a form which is accessible to the general public. For these reasons the writer may only attempt to describe briefly the plant which came into his hands from a reliable source as H. rhodopeum, with the reservation that he has no authority for the name.

In its young stages this species is quite prostrate. From a central axis several downy stems radiate, lying along the ground and set with equally woolly, blunt, grey-green leaves, about one-third to half-an-inch long and half as wide. Each stem bears, towards its apex, one, two or three comparatively large flowers of a delicate soft lemon colour, each with a cluster of prominent stamens. As they grow older the stems become woody and produce branches, so that eventually the plant rises as a downy-grey mound or cushion, which may be covered with blossom in early summer. The plant becomes open in the centre as the older leaves die, but this space is soon occupied by fresh young growths.

So far, there has been no sign of the prostrate shoots rooting at the nodes, although possibly they may do so if held in contact with the soil by stones; an attempt to root layers in this manner is now in progress. Seeds are produced in abundance and germinate readily.

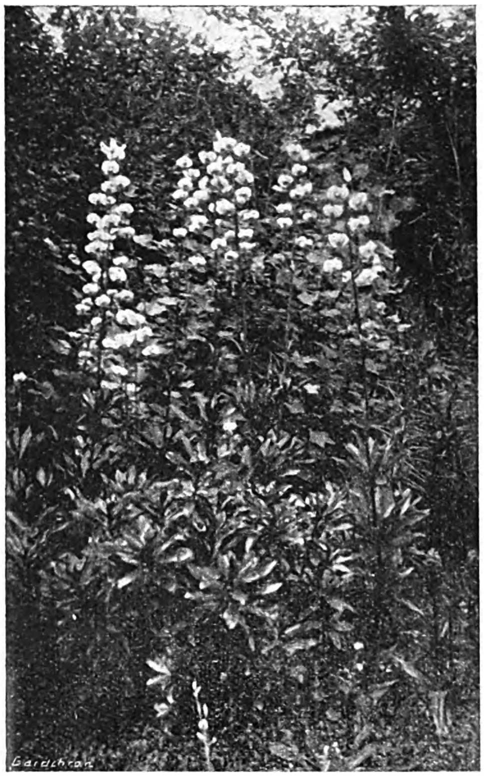

FIG. 45.—LILIUM MARTAGON ALBUM.

A small seedling with two or three shoots was planted out in March, 1927. It flowered freely and increased to a diameter of eight inches that year. The crown was protected by a sheet of glass during the winter. This year the plant has spread to nearly eighteen inches across, and was in flower from the end of April to the middle of June. It would appear that H. rhodopeum appreciates a gritty loam to which a little leaf-mould has been added, and a sunny position. A soil and situation similar to that which is usually provided for Helianthemums would probably suit this species very well; in fact, H. rhodopeum is not unlike a Helianthemum in general vegetative appearance, but softer and more fragile-looking. I have found that lime is distinctly beneficial to many Helianthemums, but have not yet incorporated it in the compost for Hypericum rhodopeum, although it would be an interesting experiment.

This charming plant is a decided acquisition for the rock garden. Its habit is neat and graceful, and the distinctive colour of the foliage and young growths is retained throughout the greater part of the year. In this connection it is interesting to record the peculiarly luminous appearance of the plant, due, possibly, to reflection from the basal leaves as they turn yellow with age. It is neither the dusty grey nor the steel-blue glitter which are characteristic of so many plants, but something infinitely more soft and restful to the eyes. Certain of the Australian Acacias exhibit something of this colouring, but are often more waxy in appearance.

On the authority of one who has made a particular study of the Balkan flora, H. rhodopeum is not confined solely to the Rhodope Mountains, but is spreading with fair rapidity in the Peninsula. The name does not appear in any of the trade catalogues known to the writer. *L. B. C.*

STACHYS CORSICA.

A charming little subject and very effective on the rock garden at the present time is this dwarf and quick-growing subject from the fields and waste places of Corsica. It forms a close mat of rich green leaves of diminutive size, and is at the present time studded with hundreds of flowers, large in comparison to the height of the plant and size of the leaves, and of a soft cream colour, flushed with flesh pink.

This is a useful subject for clothing a sunny drift on the rock garden, and it cannot be given too warm a position, while the soil in which it is planted should be light in nature, for even during the summer it is intolerant of excessive moisture and often suffers when periods of wet weather are experienced. With such a dislike for wet conditions it is not surprising that this subject seldom survives our winters, and a stock of it should always be secured, by potting small portions into sixty-sized pots, to be wintered in a cold frame and planted out during the following spring.

Despite the unfortunate fact that it is seldom able to last the winter, a bad habit which is amply compensated for by the ease with which it may be increased, S. corsica is worthy of inclusion in all rock gardens where summer-flowering subjects are appreciated. *M. W.*

BULB GARDEN.

LILIUM MARTAGON ALBUM.

The white Martagon Lily is surely one of the most satisfactory of all the family to grow, being easy to manage, stately and fragrant. A couple of years ago, I planted a dozen or so small bulbs in my garden, in a sloping bank of rather stiff loam with a background of shrubs. The bulbs were not then of flowering size, but in the interval they have grown wonderfully, and this year, at the end of June, they gave a delightful show of blossom (Fig. 45), well shown off by the green background of foliage. I think it is always a wise policy to plant small rather than monster Lily bulbs, no matter what the species or variety. They go ahead from the beginning without suffering the check that larger bulbs are bound to suffer, and if given the conditions they require, they very soon overtake and surpass the big fellows. Buying and planting large Lily bulbs is a temptation and a snare which will probably always be popular. I do not claim to be a Lily expert, but that is my view and my experience where planting Lilies permanently is concerned. I say nothing about planting the bulbs to flower in pots for immediate display. It would be interesting to have the views of someone who really is a Lily expert on this question of planting medium or small bulbs as opposed to full-sized and monster bulbs. Another very charming group of Lilium Martagon in my garden was a result of collecting a dozen or so bulbs at Bonneval in the Savoy Alps, four or five years ago. These are the ordinary wild type, with pinkish flowers, and I planted them in the rough grass of an old Apple orchard in imitation of the way L. Martagon grows at home in its own alpine meadows. These plants have done remarkably well, and sent up well-flowered spikes between four and five feet tall. I strongly recommend grassland planting for the species and no doubt the white variety would do equally well in orchard grass—if one may bring oneself to spare this rarer, choicer, and rather more expensive treasure from the selected parts of the garden one is prone to chose for it. *Clarence Elliott, Stevenage.*

HARDY FLOWER BORDER.

STOKESIA CYANEA.

A beautiful Composite from America and somewhat similar in appearance in its flowers to the China Aster, this fine herbaceous subject is useful alike for planting in the front of the herbaceous border or for the rock garden, in positions where its large, delicate blue flowers may be shown to advantage. Unfortunately, these flowers are produced so late in the season that their beauty is often wasted, but there is a variety in cultivation, namely, S. c. praecox, which originated on the Continent, in which this unfortunate habit is corrected and the flowers are produced from early August onwards. There is also an albino form, *i.e.*, S. c. alba, which is also well worth growing.

The Stokesias demand no special consideration with regard to their cultural necessities, for they flourish in well cultivated soil and sunny positions, while they may be increased easily by root cuttings. These should be inserted in pots or boxes of sandy soil during the latter part of winter or early in the spring, and if placed in a warm house should start into growth quickly and make suitable specimens for planting out late in the spring. *M. W.*

FLOWER GARDEN.

DRACUNCULUS VULGARIS.

The Dragon Arum is sometimes referred to as Arum Dracunculus, and is an admirable subject, with the typical Arum Lily habit of growth, for naturalising in the wild garden.

The pale green to flesh-coloured stems and pedate leaves grow to a height of three feet and are attractively mottled with black, giving them a strong resemblance to the skin of a snake, a character which possibly accounts for the name of Snake Plant given to it in many parts of the country. The flowers are produced about the middle of July, and are most conspicuous, as the colour is a dark, reddish-purple, shaded with black, and contrasts well with the surrounding foliage. They are large and handsome in form, although rather more elongated than those of the common Arum. Unfortunately, they emit a most abominable odour for the first few days after the flowers expand. Owing to this rather objectionable feature one rarely sees this plant grown in pots for indoor flowering, and the unpleasant scent naturally makes it quite unsuitable for cutting.

The corms of Dracunculus vulgaris are large and flattened, resembling at a glance large corms of Gladioli. They may be planted in autumn, four or five inches deep, in light, warm soil, and may be left undisturbed for a number of years. *R. K.*

CHIMAPHILA MACULATA.

This dainty little plant, but a few inches high, is often referred to Pyrola maculata, and was introduced from North America so long ago as 1752; the pendulous flowers, which appear in June and July, are white, the downy peduncles having apical corymbs, two to three-flowered. The acute, lanceolate leaves have white bands on the upper surface, and the under surface is coloured red; the leaves are arranged oppositely or in whorls of four, while the stem is procumbent at the base, ascending at the apex.

This subject is found in woods over a wide area, from Canada to Carolina, and in gardens thrives in thin woodland, in light leafy soil; or in semi-shaded situations, in peaty soil on the rock garden. C. maculata associates well with Ferns, as do the true Pyrolas, while it may be propagated by division.

The evergreen character of this species is indicated by the generic name, *cheima*, winter, and *phileo*, to love. It is figured in the *Bot. Mag.*, t. 897, and in Loddiges' *Botanical Cabinet*, t. 708. *Ralph E. Arnold.*

INDOOR PLANTS.

AGAVE FILIFERA.

To accommodate a complete collection of Agaves a considerable area of glasshouse space would be required. For this reason the late Charles Darrah decided not to cultivate a collection of species but was content to include only a dozen or so in his well-known collection of Cacti and Succulents.

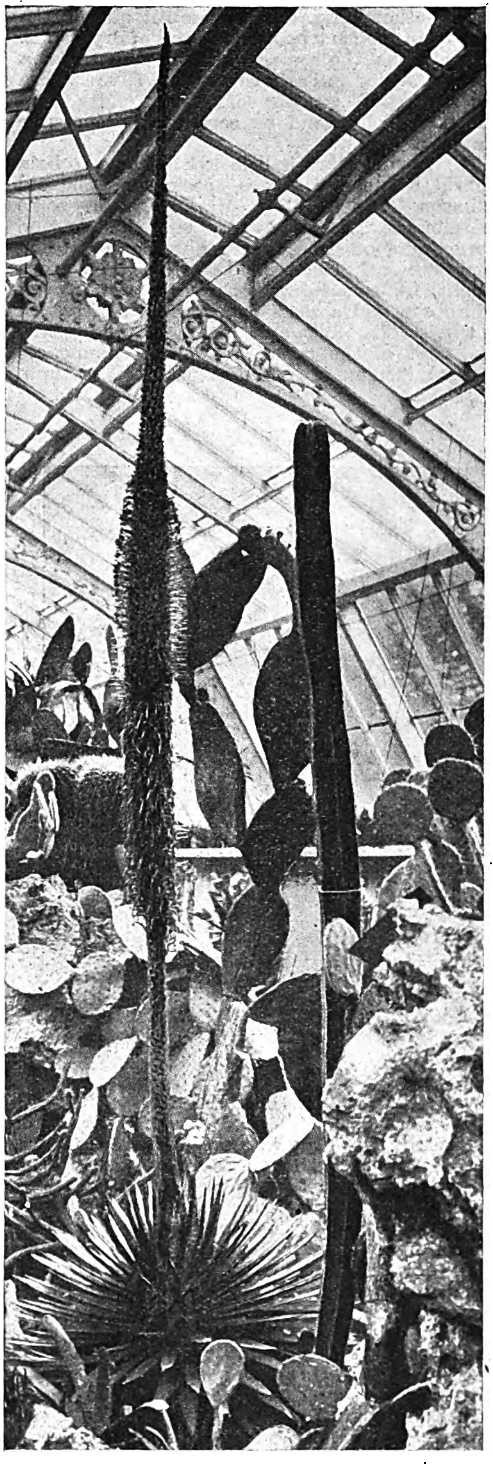

FIG. 46.—AGAVE FILIFERA AT ALEXANDRA PARK, MANCHESTER

When the collection was transferred to its new home in the Alexandra Park, Manchester, twenty-two years ago, a half-grown specimen of A. filifera—probably the variety filamentosa—was planted out in one of the two Mexican divisions of the house.

This plant is now in bloom (Fig. 46. The scape is ten feet high and bears innumerable, almost sessile flowers, which are borne in pairs in the axils of the spirally-arranged bracts, on a dense spike, to within two feet of the base of the scape. The flowers are an inch long and three-quarters-of-an-inch across; the perianth is greenish, margined with purple; the filaments are of the same tint, with chocolate anthers, which are exserted one-and-a-half inch. So copious is the secretion of nectar that, when the scape is slightly shaken, the "honey" comes down in a shower, while the hundreds of unburst anthers above the pollen-loaded mass below, produce a striking effect in chocolate and gold.

In its juvenile state, A. filifera is an attractive species, owing to the white, somewhat papyraceous substance which forms along the edges of the developing leaves; part of this becomes permanently impressed in broad, white, converging lines on both surfaces of the leaf, and part falls off. The margins of the leaves also bear numerous, brown, recurving threads, about three or four inches long, from which the species derives its name. *A. C., Manchester.*

ARISTEA CORYMBOSA.

This beautiful blue-flowered plant is a native of South Africa, and at one time it was a popular denizen of greenhouses, although now it is rather scarce; it was introduced to this country in 1803. This subject is peculiar in that it is to all intents and purposes a hard-wooded Irideae, and as it is generally regarded as being a difficult subject to propagate successfully, this latter belief possibly accounts for its comparative rareness. It may, however, be increased easily at this time of the year by means of cuttings, selecting the side-shoots from the base of the plant for this purpose. These should be inserted in pots of sandy peat and placed in a case or under a bell-glass in a cool greenhouse; the writer has also propagated this plant very successfully by simply inserting the cuttings in a sand-bed, in a frame or under a hand-light, in a cool greenhouse.

It is important that the young plants be placed singly in small pots before their fleshy roots have become too long. Subsequent cultural details consist in potting the plants on as they require it, in a mixture of fibrous peat and loam, with enough sand to keep the compost open and porous. Good drainage and careful watering are essential at all times, and with attention to these details the plants may, in time, be grown into large specimens.

HUMEA ELEGANS.

The middle of August is usually regarded as the best time to sow seeds of this beautiful subject, but as a matter of fact, successful results may be obtained from sowings made from now until the end of October. H. elegans is often regarded as a difficult subject to grow well, and it is quite true that one does not often see it in really good condition; this is, I feel sure, due entirely to the fact that it is not grown under cool enough conditions.

If perfectly cool and airy conditions are maintained, the successful cultivation of this plant should present no difficulty, provided that it is never allowed to suffer from lack of root room; the plants should never be allowed to become root-bound. There is no doubt that the most difficult period is when they are transferred to their flowering pots, when special care is necessary not only in repotting, but also in watering them until they are well established in the new compost. Plants raised from seeds sown about the middle of August should be well established in forty-eight-sized pots before the winter.

It is not generally known that some few persons are liable to suffer from a rash or eczema when they handle this plant; the writer has however, known several people to be so affected.

FICUS RADICANS VAR. VARIEGATA.

This subject is very useful for covering moist walls in warm plant houses, while if grown in pots it is an excellent subject for general decorative purposes, and for mixing with other plants. The variety major, which has larger leaves, is even more effective as an indoor plant. Cuttings of both these varieties root readily if inserted in a close case in any good, well-drained potting compost, and soon make attractive specimens. *J. C.*

ROSE GARDEN.

ROSA MOYESII.

This season has been an exceptionally satisfactory one so far as Rosa Moyesii is concerned; at least, my plant has done remarkably well, and has produced its beautiful flowers, which are of perfect shape and of a glowing dark crimson-red, velvety in texture, and of such distinct charm as to be extremely difficult to describe. The majority of them are produced singly, although sometimes in pairs or even threes, on leafy stems which are not so prickly as those barren of flowers.

Rosa Moyesii is a plant of sturdy growth, erect, and if anything, rather stiff in habit, the stems being armed with stout spines, while the leaves are up to about six inches in length, with from seven to eleven, sometimes thirteen, ovate or rounded, finely toothed leaflets. Although so beautiful when in flower, this species is equally attractive during early autumn, when the blooms have been replaced with large, bottle-shaped, vivid red fruits, between one-and-a-quarter inch and two inches in length. When these are produced in quantity, this shrub is a magnificent spectacle, and thoroughly deserves of a place in every garden where space may be afforded it. It is quite hardy and is a native of western China, being named after the Rev. J. Moyes, a missionary in China. It should be planted in deep loamy soil, and may be increased either by seeds or by layering.

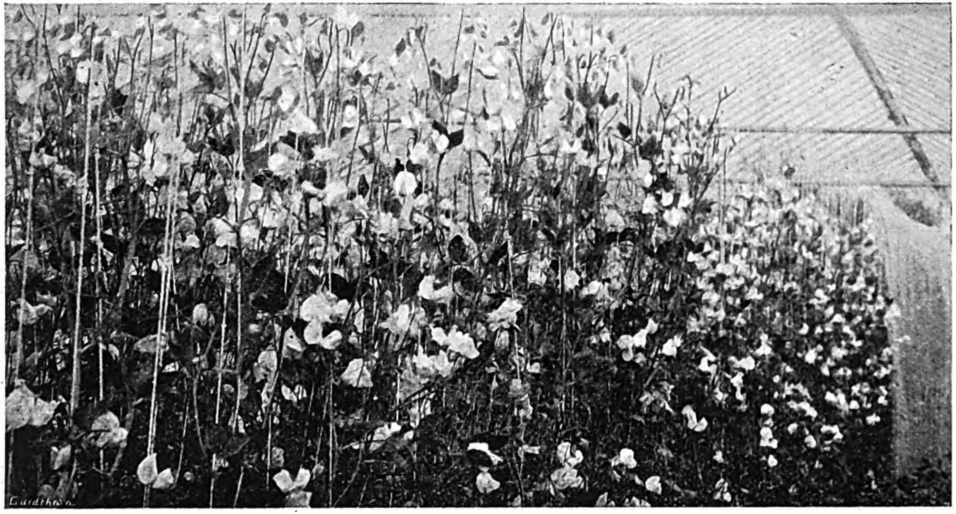

FIG. 47.—MULTI-PEDUNCLE SWEET PEAS.

ROSA WEBBIANA.

This attractive species has beautiful flowers, like huge Dog Roses, two inches or so across and soft and delicate in their shading of pink; they are usually produced singly on short twigs, and are followed by striking fruits, nearly an inch long, pitcher-shaped, and vivid red in colour.

It is a graceful shrub from the Himalayas, where it is found at an altitude of 6,000 to 18,000 feet, and is easy to accommodate in gardens, while it is quite hardy and attains a height of four feet or more. The slender growths are armed with straight, yellowish prickles, while the young shoots are often glaucous-blue; the leaves, up to three inches in length, are composed of from three to nine leaflets of variable shape, the margins being toothed towards the apices.

R. Webbiana flowers during the latter part of June and early July, and is closely related to R. Willmottiae, a species of fairly recent introduction from China. It may be increased by layering, or may be raised from seeds gathered from plants growing in isolated positions. *M. W.*

ROSA WICHURAIANA VAR. RUBRA.

This is a Rose that one does not often see in gardens, but it has quite sufficient merit to justify the suggestion that it should be more widely used. Although not so prostrate as the type, which is a trailing, or creeping, species, it has a lowly habit of growth which makes it extremely useful for covering banks, walls, rocky slopes and the like. It is, moreover, a vigorous variety, making ten to fifteen feet of new wood during the season, in good soil. But, on the other hand, I have found it quite satisfactory in the very poor, stony soil of dry banks. Indeed, like the type, which is essentially a species for hot and arid slopes, R. W. var. rubra gives a good account of itself under conditions which would be considered impossible for most Roses.

R. W. var. rubra is believed by some to be a hybrid between the type species and the old Crimson Rambler. It certainly bears some resemblance to the latter, but the flowers, borne in good-sized trusses, are larger, being over two inches across. In colour they are a bright, full-toned crimson with a pale, almost white eye and a conspicuous wreath of golden anthers. The foliage is evergreen and glossy like that of the type. Flowering commences about midsummer and continues until autumn. *A. T. J.*

ROSA POMIFERA.

This species is grown more for its fruits than for its flowers, although the latter are by no means unattractive, being rich rosy-pink in colour, one-and-a-half-inch or more in diameter, and produced either singly or in clusters or three or more. The fruits are deep red when fully ripe, dotted with bristly hairs, rounded or slightly elongated, and about an inch across; they are larger than those produced by any other Rose in cultivation. Rosa pomifera forms a bushy plant up to about five feet in height, the sturdy branches being sparsely furnished with prickles and with leaves up to seven inches in length, consisting of five or seven ovate leaflets which are downy on both surfaces, but more especially on the lower one.

Rosa pomifera is a native of Central Europe, and is well worth cultivating in gardens, for when heavily laden with fruits, a not uncommon occurrence, it is an extremely effective feature during early autumn, although the fruits are of such attractive appearance that they are not long left alone by birds.

This species is finely figured in *Bot. Mag.* t. 7241, where Sir Joseph Hooker states that "opinions are divided as to whether this fine Rose should be regarded as a variety of *R. villosa*, or the type to which *R. villosa* is referrable."

TREES AND SHRUBS.

VERONICA AOIRA.

This species was one of the few shrubby Veronicas that escaped last winter's frosts in this garden. In fact, not a leaf was injured and the bush is now covered with blossom. V. aoira, said to have come from Mt. Aoira, New Zealand, is a very distinct little shrub, making a neat, well-rounded hummocky bush some three feet in height and about four feet across.

The pale grey leaves are long and narrow, and from about midsummer onwards for several weeks they are almost hidden beneath a multitude of blossoms. These flowers, borne in finely-pointed racemes three to four inches long, are pure white with violet anthers.

V. aoira is very easily struck from cuttings in August, and here it occasionally produces self-sown seedlings. I grow it in the very poorest of shaley soil on a particularly dry, hot bank. *N. Wales.*

GENISTA HORRIDA.

A dry and sunny July has induced this usually rather shy flowering plant to produce a respectable display of blossom. Not only is it a first-rate little shrub for hot and arid spots where the soil is thin and poor, but its flowering season does not arrive until that of most kinds is over and the rock garden is getting dull. G. horrida is quite a dwarf shrub and so slow of growth that a specimen many years old is still only about six inches in height.

The wiry, rigid branches of this species are meagrely furnished with Trefoil leaves, each terminate in a spine, and the whole plant is more or less downy. The blossoms, which are yellow and nearly half-an-inch long, are borne in small clusters at the tips of the twigs. This species is a native of south-western Europe, it having been introduced over a century ago. Although apparently common to limestone, it does quite well in any dry, stony soil with full exposure to sun.

Cuttings strike fairly readily if inserted in pots of sandy soil provided the latter are placed in a closed frame during late summer. *J.*

RUBUS BIFLORUS.

For autumn and winter effect, few plants are more striking than this Bramble, which although not grown frequently, is well-known on account of its stout stems being covered with a white, waxy layer, which gives them the appearance of having been white-washed. In spacious gardens it might well be given a place, and is especially attractive if planted against a dark, evergreen background. It comes from the Himalayas and was introduced to cultivation so long ago as 1818; it is quite hardy, delighting in rich soil of a loamy nature, and often producing quantities of suckers, by means of which it may be increased.

There is a vigorous Chinese form of more recent introduction, in which the inflorescences are composed of five or more flowers, which goes under the name of variety quinqueflorus, but in other respects it is similar to the type, although it seems to be rather more vigorous in growth. I find that this Rubus is not a long-lived shrub, but the removal of the flowered and fruited growths, and any weakly shoots, tends to increase its life by keeping it in a healthy condition. *G. W.*

GAYA (PLAGIANTHUS) LYALLII.

This New Zealand species is a subject of the highest merit, and the garden which can boast of a good specimen would be hard put to find a rival shrub to equal it in loveliness during the later part of June and throughout July. Even at Bodnant where a competitor for high honours must be well above the ordinary, G. Lyallii stands out during the period named as a shrub of superlative quality. A specimen seen there a few days ago would be about ten feet in height and width, and although many of the flowers were hidden by the foliage, the bush was a mass of silvery whiteness, the effect against the light suggesting that of an uncommonly fine white Cherry in full bloom; and I think it is this spring-like effect among the warmer tones of full summer which is one of the secrets of this tree's fascination.

There are several forms of G. Lyallii. All of them are good shrubs, but some are better than others. There seems, however, to be a difference of opinion as to whether G. L. glabrata is superior to G. L. ribifolia, and while some experts will tell you that the downy-leaved form is the finest, authorities like Mr. W. J. Bean consider that it is the type which has the downy leaves. From this one may assume that we have to contend with seed-raised plants which vary considerably in the dimensions of their leaves as well as in their flowering qualities. The flowers, which are borne in small clusters at the leaf-axils of the current season's growths, are about one-and-a-half inch across, the petals overlapping and forming a beautifully-cupped corolla of an exquisite, almost translucent whiteness which is accentuated by the central tuft of yellow stamens.

G. Lyallii attains the stature of a small tree in its native land, but the average height of good specimens in this country does not appear to exceed ten feet. Although quite reasonably hardy, severe winters are liable to injure seriously, if not to destroy, even old-established specimens. My oldest and best plant (seven feet) was completely killed last winter, not even the roots surviving to throw up fresh shoots as it sometimes does. This shrub, however, was in rather cool soil close to water, and I feel confident that had it been in a drier situation it would have fared better. Although a damp soil is often advised for G. Lyallii, this has obvious disadvantages, and I do not think that anything more is desirable than a good, well-drained average loam. This shrub is not difficult to strike from cuttings or layers. It is a rapid grower and flowers at an early age. The foliage is practically deciduous in most parts of the country. *J., N. Wales.*

CISTUS LAURIFOLIUS.

Those who cannot grow the better-known Cistuses might well give C. laurifolius a trial, for it is a good deal hardier than most of the Rock Roses and a very beautiful shrub. At Kew it is said to have survived 32° of frost without injury, which is as good as saying that it is hardy enough for anywhere. C. laurifolius was introduced from southern Europe about two hundred years ago. In this country its average height would appear to be about six feet, but it is not a long-lived shrub. As a matter of fact, it has a way of going off with me at an earlier age than most Cistuses. Still, it sets large quantities of seeds, and these afford a ready means of raising fresh stock, so that replacing the worn-out bushes presents no difficulty. In many gardens, indeed, C. laurifolius produces an abundance of self-sown seedlings, and these may be moved without risk when anything under a foot in height.

The flowers of C. laurifolius are two to three inches across and pure white, with a cluster of yellow anthers. They are borne in erect panicles which rise to some eight or nine inches from the tips of short side-shoots with a stately, imposing effect. Like most of its kind, this Cistus blooms with the greatest prolificacy, it being sheeted with blossom from about midsummer onwards for six or seven weeks. In the foliage, C. laurifolius is very distinct, the ovate-lanceolate leaves being up to three inches in length and about half as wide, with long, tapering points and a rounded base. The smooth upper surface of the leaf is a deep green, the underpart being of a paler colour and downy, as are the young shoots. Both the latter and the leaves are glutinous and emit a fragrant, aromatic odour. I have grown this species for many years in the poorest of soil on dry, hot banks, and have never known it to suffer from drought. Cuttings strike easily in the usual way, but seedlings are better and certainly less trouble, since the seeds may be drilled into the open ground. *A. T. J.*

MULTI-PEDUNCLE SWEET PEAS.

From time to time the Sweet Pea gives us pleasant surprises, sometimes a big one, as in the "Spencer" break; sometimes a small one, as in the production of duplex flowers; but whatever the surprise may be it interests us.

About two years ago, Mr. W. B. Gautby, a one-time enthusiast and successful exhibitor, of Brigg, in North Lincolnshire, and now a trade florist at Burlington, Ontario, told me of a "break" in which two and even three flower stems appeared at each joint, without loss of size and beauty of bloom; it was well on the way to being fixed.

The natural reply to this letter was a request for more information when the fixing process had reached completion.

Mr. Gautby has now sent me two photographs (Figs. 47 and 48), with the following remarks:—

"The photographs of the new Sweet Pea which I enclose give, I think, a clear idea of the great improvement over all other varieties. We have grown it commercially for the past two years, and it is perfectly fixed and comes one hundred per cent. true. The two vines shown in the large photograph (Fig. 48) were cut from the rows shown in the smaller one (Fig. 47). I have marked the stems 1, 2, 3, that being the order in which they develop. This new variety always produces two stems to each joint, and very frequently three, as shown in the photograph. A large percentage of the No. 1 stems carry four blooms, and the other stems three and two blooms. The plant is a vigorous grower. No disbudding has been done to the plants shown, but when disbudded the variety produces blooms equal to the finest exhibition flowers. The stems shown in the photographs were twelve to fifteen inches long. We expect to have seeds of this variety to put on the market by the fall of 1929."

This is very interesting. I have not previously seen a multi-peduncle Sweet Pea. To be exact, I have not seen this one, and I am well aware that there is such a thing as photo-faking; but I have known Mr. Gautby too many years to entertain suspicion of his *bona fides*. Some twenty years ago he was an excellent grower and exhibitor in this country, and apparently has not lost his skill since migrating to Canada.

He does not mention the colour of the variety; it may be white. Whatever it is, its extreme floriferousness makes it important. It would be interesting to know whether this character has appeared elsewhere. *W. P. W.*

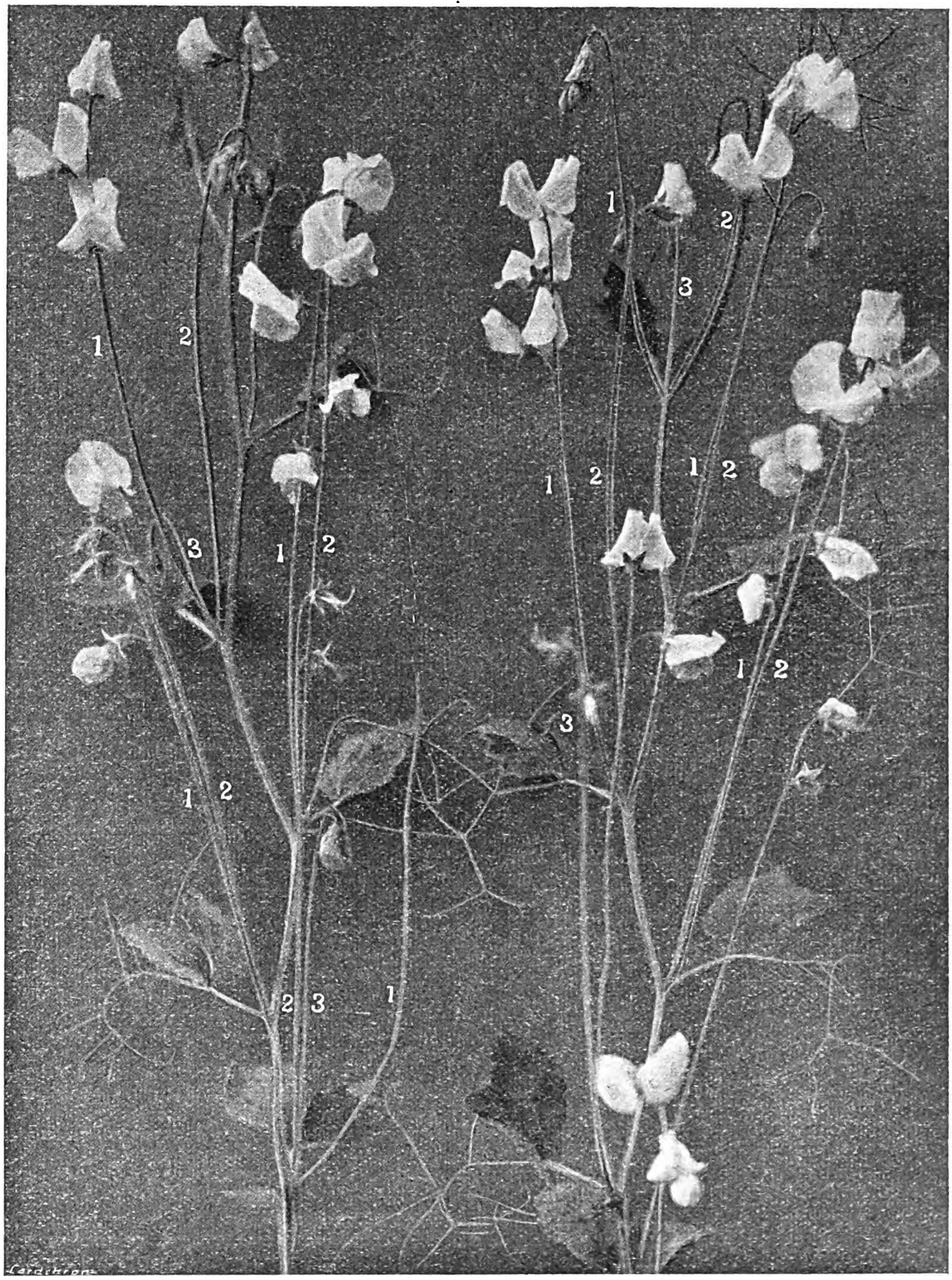

FIG. 48.—MULTI-PEDUNCLE SWEET PEAS.

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Editors and Publisher.—*Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

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PLANT INDUSTRIES OF CORSICA.*

III.—Scrub and Shrub.

EVERYONE familiar with Corsica is aware that it is famous for its maquis. The term is so frequently used by writers who deal with the island that some people suppose the maquis to be purely a Corsican characteristic, but that is not so. It is exactly the same kind of growth which one finds in the Esterelle and other parts of the Riviera, and also in Algeria and other places on the Mediterranean coasts. The word is related to the Italian *macchia*, recalls the Spanish *La Mancha* and *mancilla*, being related also to the Latin *macula* and the English *immaculate*, and is used generally to describe bushy ground, scrub or undergrowth, which in Corsica consists of a variety of resinous, gummy and fragrant plants such as Rosemary, Lavender, Cistus, Arbutus, Pistacia, Myrtle and various Heaths. It is this maquis which not only adds immensely to the charm and beauty of the island, but also fills the air with a fragrance which is noteworthy. "The perfume given off by the vegetation," states one writer, "is so lively (vif) and penetrating that one can say with truth the island is smelt before it is seen, recalling the words of Napoleon at St. Helena to the effect that by the odour alone he could recognise Corsica with his eyes closed." There is a book, I am told, on the Corsican maquis, but the author writes of the hills within a walk of Ajaccio and, while a sample like this may serve for the whole, so far as the plants are concerned, one needs to go inland to see how the scrub or maquis may be turned to account for industrial purposes.

By far the most important scrub industry, so far as we are concerned, is that which relates to the manufacture of the so-called Briar pipe. The term Briar is a corruption of *bruyère*, which may be of Celtic origin and represented by the Welsh *brwg* (bush), the Breton *brug*, or be related to the Spanish *broza*, which is akin to the French *brosse*, and many other words of a similar kind. *Bruyère* is the name given to a special form of Heath, although in its wider application it includes Furze and Broom. Its general meaning may be gathered from such terms as *terre de bruyère*, for vegetable mould, and *coq de bruyère*, grouse or heath-cock. The number of Heaths is almost beyond count, and the term *bruyère* may be applied to one and all; but when one speaks of the Briar pipe one particular species of Heath is understood. Some think it is the Mediterranean Heath, but it would appear that pipes are made chiefly from the Tree Heath (Erica arborea), which is a native of the south of Europe. In the maquis it comes next to the Arbutus in the matter of size, and visitors to the Riviera may find it abundant on the hills around Hyères, although less frequently in the neighbourhood of Nice. It is found in many other parts of Europe, as well as in Algeria. The flowers are fragrant, pink in colour, and the plant blossoms in March and April, or even from February to June in some localities. When not in bloom its hairy branches and its vigorous growth serve for its identification. In Corsica the plants are dug up by the roots in enormous quantities, cut up and sent to France to be manufactured into pipes. It takes about fifteen years for the plants to reach a sufficient size for the purpose, so that when the ground has been cleared a considerable time must elapse before it may be productive. In the higher levels, Bracken flourishes so luxuriantly that it threatens to oust the Heath wherever a patch of ground is cleared.

An advertisement reached me recently with an artistic reproduction of a Briar pipe and the statement that "the bowls are faultlessly carved from the very best, age-old Corsican *Bruyère*, and fitted with a glistening hand-made mouthpiece of the toughest jet vulcanite." This would seem to suggest that Corsican *Bruyère* is regarded as the best. The pipes are made from the burrs, roots and knots, which accounts for the beauty and variety of the grain to be seen when a varied collection is on exhibition. Barry, who wrote an instructive volume on Corsica, said he heard of one Frenchman who owned fourteen mills for cutting and trimming the roots for market. In these so-called mills or sheds, which could be moved from place to place when the district was exhausted, the lower parts of the stem were cut into suitable lengths and then sent to France or elsewhere to be properly carved and finished.

Another industry which, if not of so popular a nature is yet more important economically, is that of charcoal burning. In the spring, as one passes from place to place, one sees the smoke on the mountains, the charcoal burners around their pits, and the mules or donkeys laden with bags going to the different parts, all bearing witness to the value of the maquis. A large proportion of the charcoal is of small diameter, showing that it has been made to a considerable extent from bushwood or scrub. All the larger shrubs are used for the purpose, and the charcoal is not only used at home for cooking and other purposes, but is exported in large quantities. In 1880 and following years from fifteen to twenty thousand tons were sent abroad annually, and I saw at Sagone, Porto Vecchio and other places many small coasting vessels being loaded with this valuable cargo. It is brought from the mountains in bags, which often have the corners converted into handles, exactly after the fashion of the Hop pockets or bags used in Sussex. The Corsicans do not care for charcoal burning, as it is a dirty business; they therefore employ Italians for the purpose, thus losing much of the profit which might accrue to them if they kept the wages at home.

There is a small village in the neighbourhood of Ajaccio, now known as Suarella, which is said to have derived its name from *Suber*, the Oak tree which yields Cork (Quercus Suber). It was printed Sovarella on old maps, and it is possible that Soveria and Suaricchio have a similar origin, just as we speak of Oaklands. To-day one may travel for miles, on the east of the island in particular, through plantations of Cork Oaks. The trees have a somewhat weird appearance when they have been stripped of their bark, but if the operation is carried out with due regard alike to the age of the tree and the season, several harvests may be reaped before the trees succumb to the operation of flaying. In Bonifacio is a large factory where visitors may see the bark being converted into bungs, corks and other useful articles.

Some writers have derived the term "cork" from Quercus, the Latin name by which the Oak is known botanically. It seems, however, to come from the word cortex which means "bark." The Cork Oak sometimes reaches a height of thirty feet in the south of Europe, in the Mediterranean area and Northern Africa, attaining its greatest perfection probably in Spain and Portugal. It is usual to allow the trees from fifteen to twenty years' growth before taking the first toll. This is called Virgin bark, and is rough, woody and unequal, especially suitable for use in rustic work. The bark improves as the years go by and the number of strippings increases, say, every tenth year or thereabouts; July and August being usually the most suitable season of the year. After the bark has been removed it is flattened by heating and pressure, the surface being charred to close the pores and give the slabs "nerve." From the enormous stacks of flat sheets seen at Porto Vecchio and elsewhere awaiting transport, one would gather that this is a most remuneratve plant industry.

Among the many native plants which are capable of being used in various ways, we may note the Gum Cistus, Wild Lavender, Myrtle, Arbutus, Asphodel, Mastic and many others. The Mastich, is locally known as Stinchu, a corruption, apparently of Lentiscus. The thrushes and other birds feed on the wild fruits, and so acquire the flavour for which they are so highly prized by the epicure. A dentifrice and a liqueur are produced from the Mastich. It is also employed, as also are the Ilex and Myrtle, Prickly Pear, Oleaster, Smilax and Phillyrea, Hawthorn and Rubus for making hedges for protecting enclosures.

The scrub and shrub are also much in demand for heating the quaint ovens which one sees in all the villages and hamlets. The brushwood of Cistus, Arbutus, Myrtle and Heather is lighted inside the dome-shaped structure, just as in Sussex Hazel and Birch trimmings or faggots were formerly used, the ashes being raked out when the oven is at the right heat. There still remains a number of other industries which show that Corsica is rich in useful forms of plant life, and that the natives are by no means indifferent to the wealth which thus lies ready to hand. *Hilderic Friend.*

THE GENUS PRIMULA.

(Continued from p. 94.)

CINERASCENS (Franch.). Grey-leaved P. (Cortusoides.)

A PERENNIAL, forming a loose tuft of foliage covered with fine, greyish hairs. Leaves one inch to two inches long, oval, heart-shaped at the base, divided into small, minutely-toothed lobes on the margins; blades carried horizontally on slender, rounded stalks, which are fine and hairy, and one-and-a-quarter inch to two-and-a-half inches long. Flower stem three to five inches tall, finely hairy, more or less erect, bearing an erect umbel of three to eight rose-purple blossoms, on hairy stalks, three-quarters-of-an-inch to one-and-a-quarter inch long. Corolla about five-eighths-of-an-inch across, cup-shaped, deeply divided into five egg-shaped, notched lobes; tube half-an-inch long, cylindrical below, slightly swollen above. Blossoms in June.

This species is found in damp, shady woods, near Chingkow, in Szechuan, western China.

Culture: Oak and Beech leaf-soil, loam and sand should form a suitable medium; and treat it as a frame or cool greenhouse plant.

CITRINA (Balf. f.). Citron-flowered P. (Farinosae.)

A perennial species with a tuft of whitish-green, broadly oval, elliptic, or nearly round leaves, with blades one to one-and-a-half inch long, contracted abruptly into a wedge-shaped, winged stalk, dilated at the base into a short sheath; margins unequally and sharply toothed; upper surface sparsely pubescent, lower densely covered with white meal. Flower stem about two inches tall, downy. Flowers in an umbel of three to five, citron-coloured, five-eighths-to three-quarters-of-an-inch across. Corolla divided into five broadly heart-shaped, very deeply notched lobes; tube cylindrical, five-eighths-of-an-inch long.

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* See Art. 1, Fruits of Many Kinds, *The Gardeners' Chronicle*, April 28, 1928, p. 296; Art. 11, Nuts and Other Products, Aug. 4, p. 92.

Grows at Lien-Wha Shan, in western Kansu, western China, at 12,000 feet above sea-level, probably under the same conditions as P. flava (Max.), to which it is closely allied.

Culture : As for P. auriculata.

CLARKEI (Watt). Clark's P.
(Petiolares.)

A perennial species with a slender, woody root-stock, and a tuft of foliage resembling that of the Violet. Leaves one to one-and-three-quarters inch long and three-quarters to one-and-a-half inch wide, rounded or elliptic, heart-shaped at the base, sharply toothed, thin, smooth, on very slender stalks, two to four inches long, with narrow basal sheaths. Flower stem obsolete. Flowers three-eighths-of-an-inch across on slender stalks three-quarters- to one-and-a-half inch long. Corolla flat, divided into five oval or wedge-shaped, bifid lobes. The colour of the blossoms of this species has not been recorded, but it is probably pink or lilac. Flowers from May to July.

The plant grows near Poosiana, in Kashmir, at 7,000 feet above sea-level, and is subjected to a low temperature when at rest.

Culture : Leaf-soil, loam and sand, in a damp, shady spot, is indicated.

CLUSIANA (Tausch.). Clusius' P.
(Auricula-Arthritica.)

This very beautiful perennial species produces a tuft of broadly oval, or oblong, pointed leaves from three to four inches long, with quite entire margins bordered with a narrow membrane and fringed with fine glandular hairs; surface smooth or slightly viscid. Flower stem two to four inches tall, bearing a loose umbel of four to six rich, rose-coloured or lilac blossoms, frequently over one-and-a-quarter inch across, with deeply-cleft segments, bifid at the tip. Flowers in April.

Grows on rocks and in stony pastures on the Alps of Austria.

Culture : Fibrous sandy loam, in sun or half-shade, with plenty of moisture during summer; it may also be grown successfully in the moraine and is quite hardy.

COCKBURNIANA (Hemsl.). Cockburn's P.
(Candelabra.)

This well-known deciduous perennial species is usually not long-lived in this country, and gives the best results when treated as a biennial. Leaves two to four inches long, ovate-oblong, blunt, with obscurely-lobed, usually minutely toothed margins, tapering to a winged stalk; thin in texture, smooth when mature, more or less downy when young. Flower stem slender, six to twelve inches tall, bearing about two superposed umbels of three to six orange-scarlet flowers about three-quarters-of-an-inch across, with spreading, broadly heart-shaped, retuse lobes; tube cylindrical, about five-eighths-of-an-inch long.

Grows in damp pastures at Tatsienlu, in central Szechuan, western China.

Culture : Good light or heavy loam, in a moist, half-shady spot; frequently a better perennial where the soil is well-drained in winter; hardy. Introduced in 1906. *A. W. Darnell.*

(To be continued).

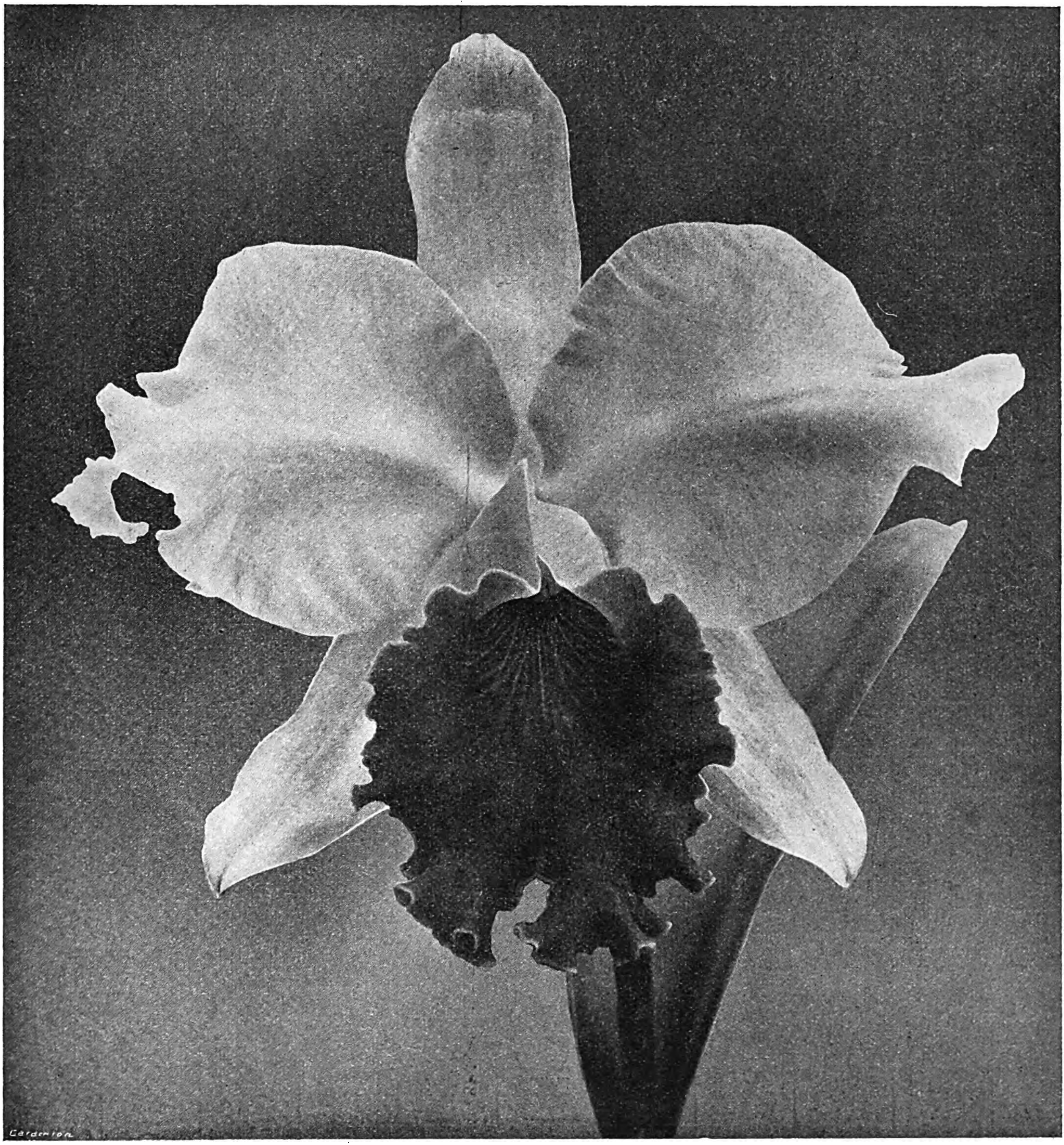

FIG. 49.—SOPHRO-LAELIO-CATTLEYA MEULANGE VAR. OLYMPIA.

R.H.S. Award of Merit, July 31. Flowers rose-purple, deep purple and old gold. Shown by Messrs. Black and Flory. (see pp. 97 and 101).

REPORT ON THE CONDITION OF THE OUT-DOOR FRUIT CROPS.

[FROM OUR OWN CORRESPONDENTS.]

THE WORDS "AVERAGE," "OVER," OR "UNDER," AS THE CASE MAY BE, INDICATE THE AMOUNT OF THE CROP; AND "GOOD," "VERY GOOD," OR "BAD," DENOTE THE QUALITY.

FULLER COMMENTS WILL BE GIVEN IN THE FOLLOWING NUMBERS. SEE ALSO LEADING ARTICLE ON PAGE 101.

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
SCOTLAND										
Scotland, N.										
MORAYSHIRE	Average; good	Average; good	Under	Under	....	....	Average; very good	Average	....	James Jamieson, Easter Elchies, Craigellachie.
SUTHERLANDSHIRE	Under; bad	Over; good	Over; very good	Average; good	....	....	Average; good	Over; very good	....	W. F. Game, Dunrobin Castle Gardens, Golspie.
Scotland, S.E.										
BERWICKSHIRE	Average	Average	Average	Over	Under	Under	Over	Over	....	Walter Richardson, Milne Graden Gardens, Coldstream
PEEBLESHIRE	Over; good	Under; bad	Over; good	Over; very good	....	....	Over; good	Under; bad	....	John Finnie, Stobo Castle Gardens, Stobo.
ROXBURGHSHIRE	Over; very good	Under; good	Under; good	Average; very good	Average; good	....	Over; very good	Over; very good	....	Alexander Black, Ancrum House Gardens, Ancrum.
Scotland, E.										
ABERDEENSHIRE	Average	Average	Average	Under	....	....	Average; very good	Average; good	....	Simon Campbell, Fyvie Castle Gardens.
	Under; good	Under; good	Under; good	....	....	....	Over; very good	Average; very good	....	James Bruce, East Lodge Gardens, Rothienorman.
	Average	Under	Average	Average	Average	....	Over	Average; good	....	Andrew McLeod, Cluny Castle Gardens, Monymusk.
	Under	Under	Over	Under	....	....	Over	Over	....	William Smith, Dunecht House Gardens, Dunecht.
BANFFSHIRE	Average	Under	Average	Average	....	....	Over; good	Average; good	....	George Edwards, Ballindalloch Castle Gardens, Banff.
	Under; good	Under; bad	Average; good	Under; good	Average; good	Under; bad	Over; very good	Average; good	Average; good	Alexander Grigor, Duff House Gardens, Banff.
	Under; good	Under; bad	Average; good	Average; good	....	....	Over; very good	Average; good	....	Archibald Cathie, Aberlour House Gardens, Aberlour.
FIFESHIRE	Over; good	Average; good	Under; bad	Average; good	....	....	Over; very good	Average; good	....	William Grieve, Balfour House Gardens, Markinch.
	Average	Under; bad	Under	Average	Under; bad	Under; bad	Average; good	Average	....	Patrick Hunt, Falkland Palace Gardens, Falkland.
	Under	Under	Under	Under	....	Under	Average	Under; bad	....	Charles Simpson, Wemyss Castle Gardens, East Wemyss.
	Average; good	Average; good	Under	Over; good	Under	Under	Average; very good	Average; very good	....	D. McLean, Raith Gardens, Kirkcaldy.
FORFARSHIRE	Average; good	Average	Over; very good	Over; good	Under; good	....	Over; very good	Average; very good	....	Donald McInnes, Glamis Castle Gardens.
	Average; good	Average; good	Under	Under; good	Under	....	Over; good	Over; good	....	Robert Bell, Kinnaird Castle Gardens, Brechin.
	Average; good	Under	Over; very good	Average; good	....	....	Over; good	Average; good	....	David Milne, Baldovan Gardens, by Dundee.
	Average; good	Under	Over; good	Under; good	....	....	Over; good	Under	....	J. Burnside Peffers, Panmure Gardens, Carnoustie.
	Average; good	Under; good	Over; good	Over; good	....	....	Over; very good	Average; good	....	Gavin Brown, Craigo House Gardens, Hillside, Montrose.
KINCARDINESHIRE	Under	Under	Average; very good	Average	....	....	Over; very good	Average	....	Andrew Reid, Durris Gardens, Drumoak, by Aberdeen.
	Average	....	Average	Average	....	....	Average	Average; very good	....	William Thomson, Ury House Gardens, Stonehaven.
MIDLOTHIAN	Average; good	Average; good	Average; good	Average; good	Average; good	Under; good	Over; very good	Under; good	....	David Armstrong, The Drum Gardens, Gilmerton.
	Average	Under	Average	Over	....	....	Over	Under	....	William Crighton, Morton Hall Gardens, Liberton.
PERTHSHIRE	Average; very good	Average; very good	Average	Average; good	Average	....	Average	Average	....	William Taylor, Meikleour House Gardens.
	Average; good	Average; good	Under; good	Over; very good	Average; good	....	Over; very good	Over; very good	....	Mr. J. Walpole, Drummond Castle Gardens, Crieff.
	Average; good	Under	Average; good	Average; bad	Under; good	....	Average; good	Average; good	....	John S. Brownlee, Scone Palace Gardens.
	Over	Over	Over	Over	Average	Under	Over	Average	....	James McGregor, Rossie Priory Gardens, Inchture.

CONDITION OF THE FRUIT CROPS—*(continued)*.

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
Scotland, W.										
ARGYLESHIRE	Under ; bad	Under ; bad	Average ; good	Over ; good	Average ; good	....	Average ; good	Under ; bad	Under	D. S. Melville, Poltalloch Gardens, Kilmartin.
	Over ; good	Under ; good	Over ; very good	Average ; good	....	....	Average ; good	Average ; bad	....	Evan Ferguson, Appin House Gardens, Appin.
AYRSHIRE	Over	Average	Average	Over	Average	....	Average ; very good	Average ; good	....	William James Orr, Culzean Castle Gardens, Maybole.
	Over ; good	Average ; good	Under ; bad	Average ; good	Under ; bad	Under ; bad	Over ; very good	Average ; bad	....	A. F. Lewingdon, Bargany, Dailly.
BUTESHIRE	Over ; good	Under ; bad	Average ; good	....	Under ; good	....	Over ; good	Under ; bad	....	John J. Davidson, Ardencraig Gardens, Rothesay.
DUMBARTONSHIRE ...	Over ; very good	Under ; good	Over ; good	Average ; good	....	....	Average ; good	Average bad	....	Frederick A. Bush, Arddarroch Gardens, Garelochhead.
	Over ; good	Average	Over ; good	Average	....	....	Average ; good	Average ; good	....	John Brown, Cairndhu Gardens, Helensburgh.
DUMFRIESSHIRE.........	Average ; good	Under ; good	Over ; good	Average ; good	....	....	Over ; very good	Average ; good	....	D. McIntosh, Castlemilk Gardens, Lockerbie.
	Average ; good	Under ; good	Average	....	....	....	Over ; good	Over ; good	....	James McDonald, Muirhousehead, Lockerbie.
ENGLAND										
England, N.E.										
DURHAM	Under	Average	Average	Average ; good	....	....	Average ; good	Average ; good	....	J. H. Yarrow, Wynyard Park Gardens, Stockton-on-Tees.
–	Under	....	Under	Average ; good	Under	....	Average ; good	....	....	A. Woods, Beamish Park Gardens, Beamish, S.O.
NORTHUMBERLAND ...	Average	Under	Average	Over ; good	Under	Under	Over ; good	....	....	James Hay, Alnwick Castle Gardens, Alnwick.
	Average	Under	Average	Average	Under	Average	Average ; good	Under ; good	....	Geo. Paterson, Chillingham Gardens, Chatton.
	Average	Under	Average	....	....	....	Average	Under	....	J. Winder, Howden Dene Gardens, Corbridge-on-Tyne.
	Average ; good	Over ; very good	Over ; very good	Average ; good	Average ; good	....	Over ; good	Over ; very good	....	Wm. J. Stables, Nether Warden Gardens, Hexham-on-Tyne.
YORKSHIRE	Under	Average	Average	Over ; good	....	Average	Over ; good	Over ; very good	....	J. H. Thistlethwaite, Aske Gardens, Richmond.
	Over	Under	Average	Under	Average ; good	Under ; bad	Average ; very good	Average ; very good	....	J. Turton, Sowerby Hall, Bridlington.
	Average ; good	Under ; good	Under	....	....	....	Average ; Very good	....	....	W. H. Bolton, Ash Grove, Beverley, Road, Hull.
	Under ; good	Average ; good	Average ; good	Average ; good	Average ; good	....	Over ; very good	Over ; very good	Under ; bad	J. S. Coates, Dalton Hall Gardens, Beverley.
	Average ; good	Average ; good	Over ; good	Average ; good	....	Under ; good	Over ; very good	Under ; good	....	Jas. E. Hathaway, Baldersby Park Gardens, Thirsk.
	Average ; good	Under ; good	Under ; good	Average	....	....	Over ; very good	Average ; good	....	J. G. Wilson, New Millerdam, Wakefield.
England, N.W.										
LANCASHIRE	Average	Over	....	Over	....	....	Average	Average	....	W. B. Upjohn, Worsley Hall Gardens, Worsley, Manchester.
England, E.										
CAMBRIDGESHIRE ...	Average ; good	Average ; good	Under ; bad	Over ; good	....	....	Over ; very good	Over ; very good	Average ; good	T. Spooner, Whitcroft, Meldreth, Royston.
ESSEX	Over ; good	Under ; good	Under ; good	Average	Under ; good	Under ; good	Over ; good	Over ; good	....	Arthur Bullock, Copped Hall Gardens, Epping.
	Average ; good	Under	Average	Over ; good	Average ; good	....	Under	Under	Under	Charles A. Heath, Morleys, Gt. Hallingbury, Bishops Stortford.
	Average ; good	Under ; good	Under ; good	Under ; bad	Average ; good	....	Average ; good	Under ; good	Under ; bad	John Dewhurst, Gilston Park Gardens, Harlow.
	Average ; good	Under ; good	Under ; good	Under ; good	Under ; bad	Under ; bad	Average ; very good	Average ; good	....	Charles Wakely, East Anglian Institute, Chelmsford.
HUNTINGDONSHIRE ...	Average	Average	Under	Under ; bad	Under ; bad	Under ; bad	Average	Under	Under	James Hewitt, Castle Gardens, Kimbolton.
	Under ; good	Average ; very good	Under ; good	Under ; good	Under	Under	Over ; very good	Over ; very good	Under	Guy S. Aubertin, Conington Castle Gardens, Peterborough.
LINCOLNSHIRE	Under ; bad	Average ; good	Average ; good	Under ; bad	Under ; bad	....	Average ; good	Over ; good	Average ; good	Alexander M. Warnes, Highfield House Gardens, Gainsborough.
	Under ; good	Average ; good	Under ; good	Average	....	Under	Average ; good	Average ; good	....	Thomas Cox, Hainton Hall Gardens, Lincoln.
	Under	Over	Average	Under	Under	Under	Over ; very good	Over ; good	....	F. J. Foster, Grinsthorpe Castle Gardens, Bourne.
	Average ; good	Under ; good	Average ; good	Under ; bad	Average ; good	....	Average ; very good	Average ; very good	....	A. E. Jackson, Normanby Park Gardens, Scunthorpe.
	Under	Under	Under	Average	Under	Under	Average	Average	....	J. F. Vinden, Harlaxton Manor Gardens, Grantham.

CONDITION OF THE FRUIT CROPS—*(continued.)*

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAW-BERRIES.	NUTS.	NAME AND ADDRESS.
NORFOLK	Under ; good	Average ; good	Average ; good	Over ; good	Under ; good	Under ; bad	Over ; very good	Under ; bad	Under ; bad	C. G. Nichols, The Manor House Gardens, Gt. Ormesby, Gt. Yarmouth.
	Average ; good	Average ; good	Under ; good	Average	....	....	Over ; good	Average ; good	Under	Isaiah Johnson, Catton House Gardens, Norwich.
SUFFOLK	Average	Under	Under	Average	Average	....	Average	Under	....	James Bumsted, Glenham Hall Gardens, Woodbridge.
	Average ; good	Average ; good	Average ; good	Average ; good	Average ; good	....	Over ; good	Average ; good	....	Arthur E. Sales, Flixton Hall Gardens, Bungay.
	Under ; good	Average ; good	Under ; good	Over ; good	Average ; good	Under ; good	Average ; good	Average ; very good	Under	A. K. Turner, Orwell Park Gardens, Ipswich.
	Average ; good	Average ; good	Average ; good	Average ; good	....	....	Over ; good	Average ; good	....	E. G. Creek, Horticultural Instructor, Abbey Ruins House, Bury St. Edmunds.
Midland Counties.										
BEDFORDSHIRE	Average ; good	Average ; good	Under ; bad	Under	Average ; good	Under	Over ; good	Average ; good	Under	William Warner, Chicksands Priory Gardens, Shefford.
	Average ; good	Under ; good	Under	Under ; good	Under	Average ; good	Over ; good	Under ; good	....	F. J. Clark, Woburn Abbey Gardens, Bletchley.
BUCKINGHAMSHIRE ...	Average ; bad	Average ; good	Average ; good	Under	Under	....	Average ; good	Under ; good	Under	William Brooks, The Abbey Gardens, Great Missenden.
	Under ; good	Average ; good	Average ; good	Under ; bad	Average ;	....	Average ; very good	Average ; good	Under	Albert Adams, Ridgway Gardens, Bledlow Ridge, West Wycombe.
	Over ; good	Average ; good	Average ; good	Average ; good	Average ; good	Under ; good	Over ; good	Average ; good	....	G. H. Emmett, Taplow Court Gardens, Taplow.
	Average ; very good	Average ; good	Under ; bad	Average ; good	Under ; bad	Under ; bad	Average ; very good	Average ; very good	....	William Arthur Bright, Hughenden Manor Gardens, High Wycombe.
	Average ; good	Under ; bad	Under ; bad	Average ; good	Average ; good	Average ; good	Average ; good	Average ; very good	....	W. Camm, Cliveden Gardens, Taplow.
	Under	Under	Under ; bad	Under	Average	Average	Average	Under	Under	Philip Mann, Education Sub-Office, Aylesbury.
	Average ; bad	Average ; good	Under ; good	Over ; very good	....	....	Over ; very good	Average ; good	....	G. F. Johnson, Waddesdon Gardens, Aylesbury.
	Average ; good	Over ; good	Under	Over ; good	Average ; good	Average	Over ; good	Average ; good	Average	F. Reid, Dropmore Gardens, Burnham.
	Average	Under ; bad	Under ; bad	Average	....	....	Average ; good	Average ; good	....	W. Turnham, Greenlands Gardens, Henley-on-Thames.
CHESHIRE	Average ; good	Under ; good	Under ; bad	Under ; bad	....	Under ; bad	Under ; bad	Under ; bad	Under	N. F. Barnes, Eaton Gardens, Chester.
	Under ; good	Average ; good	Under	Average	Average ; good	Average	Under ; good	Under ; good	....	T. A. Summerfield, Alderley Park Gardens, Chelford.
	Over ; very good	Over ; very good	Average ; good	Average ; good	....	....	Over ; very good	Average ; good	....	James R. Allan, Tirley Garth Gardens, Tarporley.
DERBYSHIRE	Average ; good	Average ; good	Under ; good	Average ; good	....	Under	Under ; good	Under ; bad	Under	William Parks, Whittington Hall Gardens, Chesterfield.
	Average ; good	Average ; good	Under ; good	Average ; good	....	Under ; good	Average ; good	Average ; very good	....	John Maxfield, Darley Abbey Gardens, Derby.
	Average ; good	Under ; good	Over ; good	Under ; bad	....	....	Average ; good	Average ; good	....	J. Tully, Osmaston Manor Gardens, Ashbourne.
HERTFORDSHIRE	Average ; good	Average ; good	Under	Under	Under	Under ; bad	Over ; good	Under	Under	R. Staward, Ware Park Gardens, Ware.
	Under ; bad	Under ; good	Under	Average ; good	Under ; bad	....	Average ; good	Under ; good	Under	Geo. H. Hill, Caldecote House Gardens, Bushey Heath, nr. Watford.
	Under ; good	Under	Under	Under	....	....	Under ; good	Average ; very good	....	Wm. Jas. Penton, The Node Gardens, Welwyn.
	Average ; good	Average ; good	Under	Average	Under	Under	Over ; very good	Average ; good	....	William Stephenson, Hyde Hall Gardens, Sawbridgeworth.
	Average ; good	Under ; good	Under ; good	Average ; very good	Under ; bad	....	Average ; very good	Average ; very good	....	T. Pateman, Brocket Hall Gardens, Hatfield.
	Average ; good	Average ; good	Average ; good	Under ; good	Under ; good	....	Over ; good	Average ; very good	....	A. J. Hartless, King's Walden Bury Gardens, Hitchin.
	Average ; good	Under ; good	Under ; good	Under ; good	....	Under	Under ; good	Under ; bad	Under	E. F. Hazelton, Laurel House, Cravells Road, Harpenden.
LEICESTERSHIRE	Average ; very good	Under ; good	Under ; very good	Average ; very good	Average ; very good	Under	Average ; very good	Average ; good	Under	A. H. Campin, Whetstone Pastures Gardens, near Leicester.
	Over ; very good	Average ; good	Under ; bad	Average ; good	Under ; good	....	Over ; very good	Average ; good	....	M. L. Garrett, Misterton Hall Gardens, Lutterworth, nr. Rugby.
	Over ; good	Average ; good	Under ; bad	Average ; good	Under ; very good	Average ; good	Average ; good	Under ; good	....	David Thompson, Whatton Gardens, nr. Loughborough.
	Under	Under	Under	Average	Under	Under	Average	Average	....	F. Ibbotson, Rolleston Hall Gardens, Billesdon, Leicester.

CONDITION OF THE FRUIT CROPS—*(continued)*.

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
NORTHAMPTONSHIRE	Under ; bad	Under ; good	Over ; good	Average ; good	....	....	Average ; good	Average ; good	Under ; bad	Alfred Child, Catesby House Gardens, nr. Daventry.
	Average ; good	Average ; good	Under ; good	Under ; bad	Under ; bad	Under ; bad	Average ; good	Under ; good	Under ; bad	F. W. Gallop, Lilford Gardens, Barnwell, Peterborough.
	Under ; bad	Average ; good	Under ; bad	Under ; bad	Under ; bad	Average ; good	Average ; very good	Average ; good	Under ; bad	Arthur R. Searle, Castle-Ashby Gardens, Northampton.
NOTTINGHAMSHIRE ...	Over ; good	Over ; good	Over ; good	Average	Average	Average	Over ; good	Average	Under	S. Barker, Clumber Gardens, Worksop.
	Under ; bad	Average ; good	Under ; good	Average ; good	....	Under	Average ; good	Under ; good	Under	Wm. R. Scott, Bunny Park Gardens, Bunny.
	Average ; very good	Average ; very good	Under ; good	Average ; very good	Average ; good	....	Over ; good	Average ; good	....	C. H. Cooper, Blyth Hall Gardens, via Rotherham.
OXFORDSHIRE	Average ; good	Under ; bad	Under ; bad	Under ; good	....	Average ; good	Average ; good	Under ; bad	....	Samuel Heaton, 38, Botley Road, Oxford.
	Under ; very good	Under ; very good	Under ; very good	Under ; bad	Under ; bad	Under	Average ; good	Under ; very good	....	T. W. Whiting, Shotover Park Gardens, Wheatley.
	Under	Under ; good	Under	Under	Under ; bad	Under	Average ; good	Under	Under	Ben Campbell, Cornbury Park Gardens, Charlbury.
	Under	Average ; very good	Average	Under	Under	Under	Over	Over	....	B. Elkington, Cotefield Gardens, Banbury.
	Over ; good	Average ; good	Over ; very good	Average	Under ; bad	....	Average ; very good	Average ; good	....	Victor Gammon, Eynsham Hall Gardens, Witney.
STAFFORDSHIRE	Under ; good	Average ; good	Average ; good	Under	....	....	Under ; good	Under ; good	Under	J. W. Miskin, Woodseat Gardens, Rocester.
	Average ; very good	Over ; very good	Average ; good	Average ; good	....	Under ; bad	Over ; very good	Average ; good	Average ; good	E. Bannerman, Blithfield Gardens, Admaston.
	Under ; bad	Under ; bad	....	Average ; good	....	....	Over ; good	Under ; good	....	W. R. Phillips, Tittensoe Chase Gardens, Stoke-on-Trent.
	Average; good	Average	Under	Average; good	Under	Under	Average ; good	Average ; good	Under	E. T. Gilman, Hillside, Rugeley.
	Under ; bad	Average ; good	Under ; good	Under ; bad	Average ; good	....	Average ; bad	Average ; bad	....	T. G. Cheney, Shenstone Moss Gardens, nr. Lichfield.
WARWICKSHIRE	Average ; good	Under ; good	Under ; good	Under ; bad	Average ; good	Under ; bad	Average ; very good	Under ; very good	Average ; good	Charles Marchment, Moneton Hall Gardens, Warwick.
	Under ; bad	Under ; good	Under ; good	Under ; good	Under ; good	Under ; good	Under ; good	Average ; good	Average ; good	H. Dunkins, 86, Emscote Road, Warwick.
	Average ; good	Average ; good	Under ; good	Under ; bad	Average ; good	....	Average ; very good	Under ; bad	Under ; good	A. E. Moss, Billesley Manor Gardens, Alcester.
	Average	Average ; very good	Under ; bad	Average ; very good	Average ; very good	....	Average ; very good	Average ; good	....	James Page, Moreton Paddox Gardens, Warwick.
	Over ; good	Under ; good	Under ; bad	Average ; good	Under ; bad	Under ; good	Average ; good	Under ; good	Under ; bad	H. F. Smale, Warwick Castle Gardens, Warwick.
	Over ; good	Over ; very good	Average ; good	Over ; very good	Under ; good	....	Average ; very good	Under ; good	Under	J. S. Buckby, Bilton Grange Gardens, Rugby.
	Under ; bad	Under.	Under ; bad	Under ; bad	....	....	Under ; bad	Under ; bad	Under ; bad	C. Harding, Ragley Gardens, Alcester.
England, S.										
BERKSHIRE	Under ; bad	Average ; good	Average ; good	Over ; very good	Under ; bad	....	Over ; very good	Average ; good	Under ; bad	Stanley R. Gammon, Farley Court Gardens, Farley Hill, Reading.
	Average	Average	Average	Under	Under	Under	Average	Average	....	A. B. Wadds, Englefield Gardens, Reading.
	Over ; good	Average ; good	Average	Average ; good	Under	Under	Average ; good	Average	Under	Henry Butcher, Wyld Court Gardens, Hampstead Norris, Newbury.
	Average ; good	Under ; bad	Average ; good	Average ; good	Average ; good	Under ; bad	Average ; good	Under ; good	Under ; bad	Geoffrey Cooper, Ranworth, Malvern Road, Furze Platt, Maidenhead.
	Average ; good	Under	Under ; bad	Average	Average ; good	Under	Average	Under ; bad	Average	Thomas Wilson, Castle Gardens, Wallingford.
DORSETSHIRE	Average ; very good	Under ; bad	Average	Average ; good	Average ; very good	....	Average ; very good	Under ; bad	....	A. W. Booth, Down House Gardens, Blandford.
	Average ; good	Under ; good	Under ; good	Under ; bad	Under ; very good	Under	Over ; very good	Average ; very good	Under ; good	Henry F. Maidment, N.D.H., Crichel Estate Gardens, Wimborne.
	Average ; bad	Average ; good	Average ; bad	Under ; good	Average ; good	....	Average ; good	Under ; bad	Average	W. E. Axford, St. Giles Gardens, Salisbury.
HAMPSHIRE	Under ; good	Under ; good	Under ; good	Under	Under	....	Over ; very good	Average ; good	....	George Ellwood, Swanmore Park Gardens, Swanmore.
	Average ; good	Average ; good	Under ; bad	Under ; good	Average ; good	....	Over ; very good	Over ; very good	Under	George Summersell, Buriton House Gardens, Petersfield.
	Over ; good	Average ; good	Average ; good	Under	Under	Under	Over ; very good	Under ; good	Under	A. J. Legge, Dogmersfield Park Gardens, Winchfield, Basingstoke.
	Average	Average ; bad	Average ; bad	Average ; bad	Average ; bad	....	Average	Average ; good	Average	Frederick Gooch, Bassington House Gardens, Houghton, Stockbridge.
	Average ; good	Over ; very good	Average ; good	Average ; good	Over ; good	Average ; good	Over ; very good	Average ; very good	....	W. G. Osborne, Sutton Manor Gardens, Sutton Scotney.

CONDITION OF THE FRUIT CROPS—(*continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
KENT	Under; bad	Under; good	Average; good	Average; good	Under; good	....	Average; good	Average; good	Under; good	J. George Woodward, Barham Court Gardens, Teston, Maidstone.
	Average; good	Average; very good	Over; good	Under; good	Over; very good	Under; bad	Under; good	Average; very good	Under	T. Cain, The Cottage, Dashwood, Gravesend.
	Under; bad	Under; bad	Under; bad	Under; good	....	....	Average	Average; good	Under; bad	George Lockyer, Rose Mount Gardens, Mereworth.
	Under; good	Under; good	Under; bad	Average; good	....	....	Average; good	Over; very good	Under; good	Arthur W. Carvell, Great Maytham Gardens, Rolvenden.
	Average; good	Average; good	Over; very good	Over; very good	Average; good	Under; bad	Average; good	Average; very good	Average; good	G. R. Pierce, Huntleys Gardens, Tunbridge Wells.
	Under	Under	Under	Average	Average	....	Average; very good	Average; very good	Under	E. Stubbs, Knole, Sevenoaks.
	Average; good	Under; good	Under; good	Under; bad	Under; bad	Average; good	Over; very good	Average; very good	Under; good	Henry Brotherston, Lympne Castle Gardens, Hythe.
	Average; good	Average; good	Average; good	Under	Under	....	Over; very good	Average; good	Under; bad	J. Bone, Olantigh Gardens, Wye.
	Average; good	Under; bad	Under	Under; good	Average; good	....	Over; good	Over; good	Under	E. A. Bunyard, Allington, Maidstone.
	Under	Average	Under	....	....	....	Average	Average	....	Charles E. Shea, The Elms, Footscray.
	Average; good	Average; good	Average; good	Average; very good	Average; good	Under	Over; very good	Over; very good	Under; bad	James Mayne, 32, Wigtown Road, Eltham.
	Average; bad	Under; good	Average; good	Average; good	Under; good	....	Over; very good	Over; very good	Under	H. E. Kemp, Holmwood Gardens, Langton Green, Tunbridge Wells.
MIDDLESEX	Average	Average	Average	Average	Under	....	Average	Average; good	Under	H. Markham, Wrotham Park Gardens, Barnet.
	Under; good	Under	Under	Under	....	....	Average; good	Under	....	James A. Paice, Sunnyfields Gardens, Mill Hill.
	Over; bad	Under; very good	Under	Average	....	....	Average; good	Average; very good	....	Geo. H. Head, Fulwell Park Gardens, Twickenham.
SURREY	Under; good	Average; good	Under; bad	Under; good	....	....	Average; very good	Over; very good	....	William Everatt, Burford Gardens, Dorking.
	Under; good	Average; good	Under; bad	Average; good	Under	Under	Over; good	Under; bad	Average	Grigor Roy, Bevenden Gardens, Oxshott.
	Average	Average; good	Average; good	Under	Under	Under	Average; good	Average; good	Average	F. Jordan, Ford Manor Gardens, Lingfield.
	Over; good	Over; good	Under; bad	Over; good	Average; good	....	Over; good	Under	Under	G. Carpenter, West Hall Gardens, Byfleet.
	Average; very good	Average; good	Average; good	Under; good	Under; good	Under; bad	Over; very good	Average; very good	Average; very good	John H. Shipley, Haling Park Gardens, South Croydon.
	Over; good	Under; good	Under; good	Average; good	Under	Under	Average; good	Average; good	....	O. Maddock, Ham House Gardens, Richmond.
	Average; good	Average	Average	Under	Average	Under	Over; very good	Average; very good	Average; very good	Stephen Edward Harling, Holmdale Gardens, Holmbury St. Mary, nr. Dorking.
	Average; good	Average; good	Under; good	Average; good	Average; good	Over; good	Average; very good	Over; very good	Average; good	Alan N. Rawes, R.H.S. Gardens, Wisley, Ripley.
	Over; good	Under	Over; very good	Under	Average	Under	Over; very good	Under; bad	Under	N. Fullegar, Eastbury Manor Gardens, Compton, nr. Guildford.
	Average; good	Under; good	Average; good	Under; bad	....	....	Average; good	Over; very good	....	G. E. Twinn, Polesden Lacey Gardens, Dorking.
SUSSEX.........................	Under	Under	Under	Under	Average	Average	Under	Under	Under	F. Streeter, Petworth Park Gardens, Petworth.
	Average; good	Average; good	Average; good	Under; good	Average; good	Under; bad	Over; very good	Over; very good	....	John W. Dickinson, Castle Gardens, Arundel.
	Under; good	Over; good	Under; good	Under; good	....	....	Average; good	Under; good	Under	E. M. Bear, Magham Down, Hailsham.
	Average	Average	Under	Under	Average	Average; good	Average; good	Under; bad	Average	Arthur Wilson, Eridge Castle Gardens, Tunbridge Wells.
	Average	Average	Average	....	Under	....	Average; good	Average	....	E. Markham, Granetye Manor Gardens, East Grinstead.
	Average	Under; good	Under; good	Under	Average; good	Under	Average; good	Under; bad	Under	W. H. Smith, West Dean Gardens, Chichester.
	Over; good	Average; good	Average; good	Average; very good	Under	....	Over; good	Over; good	Average	E. Neal, Tilgate Gardens, Crawley.
	Over; very good	Average; good	Under; good	Over; good	Under; good	Under; very good	Average; good	Under; bad	Under; bad	T. E. Tomalin, Stansted Park Gardens, Emsworth.
	Average	Average	Under; bad	Under	Average	....	Over; good	Over; good	....	J. J. Thompson, Compton Place Gardens, Eastbourne.
WILTSHIRE	Under; good	Under; good	Average; good	Under; bad	Under	Under	Average; good	Average; good	....	M. A. Mason, Strangeways Gardens, Calne.
	Average; good	Average; good	Under; bad	Average; good	Under; bad	Under; good	Over; very good	Under; good	Under; bad	S. W. Tucker, Longford Castle Gardens, nr. Salisbury.

CONDITION OF THE FRUIT CROPS—(*continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
WILTSHIRE	Over; very good	Over; good	Over; very good	Under; good	Average; good	....	Over; very good	Average; good	Under; good	A. L. Lyddiatt, Greenhill Gardens, Sutton-Veny, Warminster.
	Under; good	Average; good	Average; bad	Under; good	Average; good	Under; bad	Over; very good	Under; good	Under; bad	H. H. Mills, Fonthill House Gardens, Tisbury.
England, N.W.										
WESTMORELAND	Average; very good	Under	Average	Average	....	....	Average; good	Under; bad	....	James Jeffrey, Lowther Gardens, Penrith.
England, S.W.										
CORNWALL	Under; good	Average; good	Under; good	Average; good	Average; good	....	Average; very good	Under; good	Average; good	Harry Williams, Tolvean Gardens, Redruth.
DEVONSHIRE	Over; good	Average; good	Under; bad	Average; good	Average; bad	Under; good	Over; good	Under; bad	Under; good	E. E. Bristow, Castle Hill Gardens, Barnstaple.
	Average; good	Under; good	Under; bad	....	....	....	....	....	....	J. A. Stidston, Bishopsteignton, Teignmouth.
	Under; good	Average; very good	Under; bad	Under; bad	Under; good	....	Over; good	Under; good	....	T. H. Bolton, Hartland Abbey Gardens, Hartland.
	Average; good	Average; good	Under	Average	Under	Under	Over	Over; good	Average	P. C. M. Veitch, Royal Nurseries, Exeter.
SOMERSETSHIRE	Under; good	Average; good	Under; good	Average; good	Under; good	Under; bad	Over; good	Average; good	Under; very good	James Glasheen, Hestercombe Gardens, Taunton.
	Average; good	Under; good	Average	Over; good	Under	Under; bad	Over; good	Under; bad	Average	William Mackay, Ilchester Road, Charlton Mackrell.
GLOUCESTERSHIRE ...	Over; very good	Average; very good	Under; bad	Under; good	Under; good	Under; good	Under; very good	Over; very good	....	John Ettle, 201, Henleaze Road, Westbury-on-Trym.
	Average; good	Average; good	Over; good	Average; good	Average; good	Under; good	Over; very good	Average; very good	Under	W. J. Mitchell, The Arboretum, Westonbirt, Tetbury.
	Average; good	Average; good	Under; bad	Under	Under	Under	Over; very good	Average; good	....	S. W. Dance, Williamstrip Gardens, Fairford.
	Under; good	Under; good	Average; good	Under; good	Average; good	....	Over; good	Under	Average	John Banting, Tortworth Gardens, Falfield.
	Average	Average	Under	Under	Average	Average	Average	Under	....	William John Jefferies, Cirencester.
	Under; good	Average; good	Under; good	Under; good	Average; good	Average; good	Average; good	Average; good	....	G. W. Hollingsworth, Shire Hall, Gloucester.
HEREFORDSHIRE	Average	Over	Under	Under	Average	Under	Average	Under	Average	J. B. Cooke, Ledbury Park Gardens, nr. Hereford.
	Average; good	Over; very good	Under	Average	Under	Under	Over; very good	Average; good	Under; bad	F. Roberts, Stoke Edith Park Gardens, Hereford.
SHROPSHIRE	Under; good	Under; good	Under; good	Average; very good	Under	Average; very good	Over; very good	Average; good	Under	Roger F. Jones, Oteley Hall Gardens, Ellesmere.
	Average; good	Over; very good	Average; very good	Under; bad	Average; good	Under	Under; very good	Under; good	....	J. Clark, Sansaw Gardens, Clive, Shrewsbury.
WORCESTERSHIRE ...	Average; good	Under; good	Average; good	Average; good	Over; good	Under; bad	Over; very good	Average; good	Under; bad	Henry Thomas Cheeseman, Strensham Court Gardens, nr. Worcester.
	Average; good	Average; good	Average; good	Average; good	Average; good	Average; very good	Average; good	Under; bad	....	William Crump, V.M.H., Oakridge, Malvern Link....
	Under	Under	Under	Under	....	....	Average	Under	Under	Ernest Avery, Finstall Park Gardens, Bromsgrove.
WALES										
CARDIGANSHIRE	Over; good	Over; good	Average; good	Average	Over; good	....	Under; bad	Under; bad	....	W. Phillips, Derry Ormond Gardens, Llangbi.
CARNARVONSHIRE ...	Over; good	Over; good	Average; good	Average; good	....	....	Average; good	Under; bad	....	J. S. Higgins, Glynllivon Gardens, Llanwndad
DENBIGHSHIRE	Average; very good	Under; good	Under	Average; good	Average; very good	Under	Under; good	Under; good	Under; good	R. H. Crockford, Horsley Hall Gardens, Gresford.
	Over; good	Average; good	Under	Under; good	Average; good	Under; bad	Average; good	Under; bad	Under	S. J. Robbins, Cafn Park Gardens, Wrexham.
	Average	Average	Over	Average	....	....	Average; good	Average; good	....	J. A. Jones, Chirk Castle Gardens, Chirk, nr. Wrexham.
	Average	Under	Under	Average	Average	Average	Average	Under	....	F. C. Puddle, Bodnant Gardens, Tal-y-Cafn.
FLINTSHIRE	Average; good	Average; good	Average; good	Under; good	Over; good	....	Average; good	Under; good	Under; bad	Harry L. Jones, Horticultural Superintendent, Padeswood Hall, Padeswood, near Mold.
	Over; very good	Average; good	Over; good	Average	Average	Under	Average; good	Under	Under	J. L. Eversfield, Penbedw Hall Gardens, Nannerch.
GLAMORGANSHIRE......	Average; good	Average; good	Under; good	Under; good	....	....	Over; very good	Under; bad	....	W. E. Wright, Tregarth Gardens, Creigian, nr. Cardiff.
	Average; good	Under; good	Under; bad	....	Over; good	....	Over; very good	Under; good	....	Robert Carter, Miskin Manor Gardens, Pontyclun.

CONDITION OF THE FRUIT CROPS—(*continued.*)

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
MONTGOMERYSHIRE ...	Average; good	Average; good	Under	Average; good	Under; good	Under	Average; good	Average; good	....	William Durrant, Brookland Hall Gardens, Welshpool.
IRELAND										
Ireland, N.										
MEATH	Average; good	Under; bad	Over; good	....	....	....	Over	Average; bad	....	Michael M. Kearns, Julianstown, Drogheda.
TYRONE	Over; good	Average; good	Over	Average; good	....	....	Average; very good	Average	....	Fred. W. Walker, Sion House Gardens, Sion Mills.
WESTMEATH	Average; good	Under	Over; good	Average; good	Average	....	Average	Average	....	William Allan, Pakenham Hall Gardens, Castlepollard.
Ireland, N.E.										
DOWN	Over; good	Average; good	Over; good	Average; good	....	Under	Average; good	Under; good	....	T. W. Bolas, Mount Stewart Gardens, Newtownards.
Ireland, S.										
CORK	Over; good	Under; good	Under; good	....	....	....	Average; good	Average; bad	....	J. Dearnaley, 17, St. Patrick's Magazine Road, Cork.
KILDARE	Over	Under	Average	Over	Under	Under	Over	Under	Under	Alexander Black, Carton Maynooth.
KILKENNY	Average; good	Under; good	Under; good	Average; good	....	....	....	Under; good	Under	Henry Hall, Shanhill Castle Gardens, Whitehall.
	Average; good	Under	Under	Average; good	Average; good	Under	Average; good	Average; good	....	T. E. Tomalin, Bessborough Gardens, Piltown.
CHANNEL ISLANDS										
GUERNSEY.....................	Average; good	Under; good	Under; good	Under; good	Average; good	....	Average; very good	Under; good	....	C. Smith & Son, Caledonia Nursery, Guernsey.
	Average; good	Under	....	....	....	....	Under; bad	Under; bad	....	W. Mauger & Sons, Brookdale Nurseries, Guernsey.
JERSEY	Average; good	Over; good	Average	Under; good	Average	....	Average; very good	Under; bad	....	G. Harper, Springfield Nursery, Jersey.
ISLE OF MAN										
CASTLETOWN	Over; good	Average; good	Under	Under	....	....	Over; very good	Average; good	....	F. Large, Great Meadow Gardens, Castletown.
DOUGLAS	Average	Average	Under	....	....	....	Average	Under; bad	....	James Inglis, Peel Road Nursery, Douglas.

SUMMARIES OF THE HARDY FRUIT CROPS.

SCOTLAND.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records .	38	37	38	35	17	8	38	38	2
Average	20	13	16	18	9	—	14	24	1
Over	10	2	12	10	—	—	24	7	—
Under	8	22	10	7	8	8	—	7	1

ENGLAND.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records .	154	153	152	149	116	85	153	150	87
Average	84	77	52	67	53	19	78	71	22
Over	21	15	11	15	3	1	62	22	—
Under	49	61	89	67	60	65	13	57	65

WALES.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records .	11	11	11	10	8	5	11	11	4
Average	7	6	3	7	4	1	7	2	—
Over	4	2	2	—	3	—	2	—	—
Under	—	3	6	3	1	4	2	9	4

IRELAND.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records .	8	8	8	6	3	3	7	8	2
Average	4	2	1	5	2	—	5	5	—
Over	4	—	4	1	—	—	2	—	—
Under	—	6	3	—	1	3	—	3	2

CHANNEL ISLANDS.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records .	3	3	2	2	2	—	3	3	—
Average	3	—	1	—	2	—	2	—	—
Over	—	1	—	—	—	—	—	—	—
Under	—	2	1	2	—	—	1	3	—

ISLE OF MAN.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records .	2	2	2	1	—	—	2	2	—
Average	1	2	—	—	—	—	1	1	—
Over	1	—	—	—	—	—	1	—	—
Under	—	—	2	1	—	—	—	1	—

GRAND SUMMARY, 1928.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records.	216	214	213	203	146	101	214	212	95
Average	119	100	73	97	70	20	107	103	23
Over	40	20	29	26	6	1	91	29	—
Under	57	94	111	80	70	80	16	80	72

SUMMARY OF 1927 FOR COMPARISON.

Records.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
Number of Records.	225	223	219	214	154	109	224	222	110
Average	98	52	59	101	69	23	112	90	35
Over	34	7	7	32	18	—	82	13	3
Under	93	164	153	81	67	86	30	119	72

BOG AND WATER GARDEN.

MIMULUS LUTEUS VAR. A. T. JOHNSON.

As I am so often receiving inquiries as to this Mimulus, a few notes upon it may perhaps be of interest to readers of *The Gardeners' Chronicle*. It was found on the banks of a moorland stream in North Wales where M. luteus is not uncommon. But while there was none of that species growing near the plant under discussion the latter very closely resembles the yellow Mimulus in its habit of growth, stature and fondness for water. In my plant, however, the foliage is broader and the stems stouter, and both of these often have a bronzy-red hue. The flowers also are larger than those of M. luteus, and their colour, which never shows any variation, is a rich and velvety crimson-maroon, each of the five lobes being distinctly margined with a narrow border of deep yellow. The throat is also yellow with a few small crimson specks.

In good soil, with abundant moisture, this Mimulus grows to four feet in height, but two feet is the normal stature. It commences to flower in May, several weeks earlier than M. luteus, and continues until the end of August when, if cut down, it immediately produces fresh growths and flowers throughout the autumn. Its amazing prolificacy, especially when grown in shallow water, is a constant source of wonder. As a border plant it does very well in any good soil which is fairly moist, and under such conditions it naturally demands less space. It is perfectly hardy. In fact, this plant and M. Bartonianus were the only Mimuluses of a fairly representative collection which survived last winter here, and of these not a root was lost.

That this plant is a form of M. luteus is mere assumption on my part. We all know that the naturalised alien is subject to a certain amount of variation, but my Mimulus departs so widely from the type in the particulars stated that I often think it may be of hybrid origin. I hope it is not necessary to add that although this Mimulus bears my name, I have no commercial interest whatsoever in its distribution. *A. T. Johnson.*

SAGITTARIA JAPONICA FLORE PLENO.

The double form of the beautiful Japanese Arrow-head is an exceedingly fine water plant. It is quite hardy if the egg-shaped crowns are planted in soil beneath twelve or eighteen inches of water. The handsome foliage is typically sagittate, and is furnished with long, barb-like points, while the pure white flowers are like large, closely-packed balls, and are borne in a spike in the manner of a huge, double Hyacinth; they are carried well above the surface of the water.

LYSICHITUM CAMTSCHATCENSE.

Despite the rather lengthy name that botanists have bestowed upon this subject, it should be grown in every garden where a suitable situation may be found for it. It is an inhabitant of swamp land in north-eastern Asia and north-western America, and is quite happy in this country when planted close to the margins of a pond or stream.

The flowers appear in April at the same time as the leaves, and the plants continue to provide a succession of blooms for six or eight weeks. In form the flowers resemble a large Arum, with one side of the spathe or cup open, displaying the spadix or thick spike of flowers inside. They are of an attractive bright, golden-yellow colour and form a conspicuous feature even from a distance. When mature, the flowers emit a rather unpleasant odour, and an abundance of pollen is produced. The first leaves produced are rather small, but later leaves attain a length of two or three feet and may be from six inches to one foot across; they are beautifully marbled with pale green, and the plant is well worth growing for the decorative effect of its foliage alone.

With the advent of the first frost the whole plant dies down and forms a long, pointed resting bud, which commences to grow the following spring.

Propagation is easily effected by means of offsets or by seeds. This is a somewhat uncommon plant and may be recommended with all confidence for growing in such situations as recommended. *T. H. Everett.*

FRUIT REGISTER.

PLUM PRINCE OF WALES.

This Plum, although not ranking as a really first-class variety, is well worth cultivating on account of its heavy cropping propensities (see Fig. 43), while the fruits are suitable for both culinary and dessert purposes during the early part of September. They are of medium size, rounded or oval and regular in shape, deep red in colour with a pinkish tinge, often mottled or dotted with yellow; the flesh is yellow and coarsely grained, while the flavour is moderately sweet and brisk.

Plum Prince of Wales was at one time very popular, but it is not planted so freely nowadays, although it is so fertile as to recommend it as a variety of general utility. It was raised by Mr. Chapman, at Brentford, in 1830, from a stone of the Orleans Plum.

It is said to be, like Orleans, subject to sun-scald, and it is also liable to attacks of die-back disease. *F.*

PUBLIC PARKS AND GARDENS.

The Harmondsworth Privy Council has received sanction to borrow £505 for laying-out a new recreation ground.

The Brentford and Chiswick Urban District Council has agreed to contribute £5,000 towards the purchase of Chiswick House and grounds, extending to sixty-five acres, for an open space. The Middlesex County Council has offered to contribute seventy-five per cent. of the purchase price.

At St. Helens, Isle of Wight, the Ministry of Health held an enquiry into an application by the Urban District Council for sanction to borrow £4,000 for the purchase of property known as Puckpool Battery, for public walks and pleasure grounds.

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Fremontia californica.—What a delightful shrub this is! I recently saw—about the end of June—a fine specimen in full flower at Kew. It was about eight feet to ten feet high and half as much or more across, and was a distinct object some distance away. To the best of my recollection it was growing at the west end of one of the large glass structures. The Fremontia is but seldom seen in private gardens, perhaps because it is not too hardy, but if given some such protection as mentioned above, there is no other reason why it should not be grown successfully. *C. Turner.*

A Useful Crop.—The crop in question is of Mushrooms. I do not intend to go into the details of cultivation, for better exponents of it than myself have done so on many occasions, but my remarks merely illustrate the profitableness of their culture. From three bushels of spawn, we have picked 920 lbs. of Mushrooms to date, which have realised £107 14s. 7d. (gross). With the object of extending the season so much as possible, I made up a small bed in a cold frame, from which we are still picking. *D. Wilmshurst, Swanley.*

SOCIETIES.

ROYAL HORTICULTURAL.

The following awards have been made to the undermentioned flowers by the Committee of the Royal Horticultural Society, after trial at Wisley.

Awards of Merit.

Annual Lupins.—6, 8, *L. Hartwegi White*, sent by Messrs. Daehnfeldt and Jensen and Messrs. E. Webb and Sons; 10, 11, *L. luteus Romulus*, from Messrs. Benary and Messrs. Heinnemann; 14, *Rose*, from Messrs. Sluis and Groot; 21, *L. Hartwegi albus coccineus*, from Messrs. Watkins and Simpson.

Iceland Poppy.—*Moonbeam*, from Mr. Thorneley.

Hemerocallis—*Radiant*, from Mr. G. Yeld.

Delphinium.—*Monarch of Wales*, from Messrs. Hewitt and Sons.

Highly Commended.

Annual Lupins.—24, 25, L. nanus, from Messrs. Barr and Sons, and Messrs. Benary; 38, L. Hartwegi Dark Blue, from Messrs. Waller-Franklin; 41, L. Hartwegi superbus, from Messrs. Watkins and Simpson; and 43, L. mutabilis, from Messrs. Barr and Son.

ROYAL SCOTTISH ARBORICULTURAL.

The forestry exhibit organised by the Royal Scottish Arboricultural Society at the annual show of the Highland and Agricultural Society of Scotland, held in Aberdeen on July 24, 25, 26 and 27, was one of the finest the Society has arranged for a number of years, and formed a fine object lesson of what the Society has done and is doing in spreading a knowledge of scientific forestry, and in impressing on all concerned the importance of forestry as a national necessity. That the Society's propaganda is bearing good fruit may be inferred when it is stated the membership is now 1,720, composed of the leading landowners, factors, nurserymen and foresters in Scotland. One of the first things to impress the visitor was the striking evidence the exhibits afforded of the decided superiority of our home-grown broad-leaved timbers to the foreign product. The only respect in which the foreign timber is superior to the home-grown is in its straightness and greater length of scantling which may be obtained, but this is due to more scientific sylvicultural treatment, and not to any advantage in soil or climate. The reverse, however, is the case in Coniferous timber, where slow growth and narrow rings of wood make for superior quality, all of which was finely demonstrated by the exhibits.

Another interesting feature, also illustrating the superiority of our home-grown hardwoods, was the fine collection of tool handles, etc., of Ash, Oak and Elm. Nothing finer than these tool handles, either in quality and workmanship, could be produced anywhere, and if the cost of production is not too great there is no good reason why these handles should not supplant the American Hickory handles imported so largely into this country. The whole display gave a capital idea of the capabilities of the Scottish soil and climate for timber production.

Messrs. Smith and Sons and Messrs. Ben. Reid and Co. had superb collections of trees for garden use or plantation purposes which attracted great attention and were deservedly admired. Messrs. Bissett and Sons, timber merchants, Aberdeen, exhibited a wooden bungalow they have built to the order of H.M. Forestry Commission, and which, it is understood, is to form the home of the Commission's head forester now engaged in reclaiming, by afforestation, the famous Culbin sands in Morayshire. The bungalow was utilised to house a large and interesting collection of articles made from Scots Pine and other woods, and one room was devoted entirely to the scientific investigations of the Forestry Department of Aberdeen University. This proved an attraction to woodmen, many of whom spent a profitable time in examining the fine collections of plants, mosses, lichens, etc. There was also much to learn about tree analysis and the structure and quality of the different types of forest soil. The growth of trees was also finely illustrated, while practical experts gave demonstrations of transplanting and weed eradication, all of which gave unfeigned pleasure to the large number of visitors.

The competitive sections of the exhibition also proved attractive. Lady Forbes Leith of Fyvie, Fyvie Castle, Aberdeenshire, took premier honours for the best timber of Scots Pine, timber of Norway Spruce, timber of Elm, and timber of any three Coniferous trees, other than these mentioned above. The last-named consisted of Douglas Fir, Silver Fir and Abies magnifica. Lord Forbes, Castle Forbes, Aberdeenshire, and Lord Glentanar, Forest of Glentanar, Aberdeenshire, were runners up. For the best timber of European Larch, Lord Forbes beat Lady Forbes Leith, while Lord Glentanar led for the best timber of Oak, followed by Lord Forbes and Lady Forbes Leith. For farm gates made from home-grown timber, Mr. W. Low of Balmakewan, and Mr. Alex. Anderson, forester, Balmakewan, were the winners.

Silver-gilt medals were awarded to Mr. R. L. Scarlett, Inveresk, for a seed-sowing machine; to Mr. Johnston Edwards, head forester to the King, Balmoral Castle, for a "wireless" cabinet of home-grown Scots Pine; to Lord Glentanar for doors; while Messrs. John Bisset and Sons, timber merchants, Aberdeen, were highly commended for doors and panelling. Certificates of Merit were awarded to each of the following for non-competitive exhibits:—Duke of Richmond and Gordon, Gordon Castle (Mr. John Clark, head forester), for a collection of timber; Messrs. W. Smith and Sons, Ltd., Aberdeen, for a collection of shrubs and tools; Messrs. Ben Reid and Co., Aberdeen, for shrubs and tools; Mr. Johnston Edwards, forester, Balmoral Castle, for photographs; His Majesty The King, per Major Mackenzie, Commissioner, for panels, doors and window frames; Messrs. Bryant and May, Ballochmyle Forest, for Aspen; Mr. James Smith, forester, Glentanar, for field gate; Mr. John Edmond, forester, Carberry Tower, Musselburgh, for chair of Spanish Chestnut; Mr. George Anderson, Inverfarigaig, Inverness-shire, for inventions; Forestry Commission, Scotland, for various exhibits; University of Aberdeen, for illustrations of work on peat and sandy soils; Messrs. A and G. Paterson, timber merchants, Aberdeen, for trees in the round; and to the Forest Products Research Laboratory, for exhibits illustrating mechanical properties of timber.

GUILDFORD AND DISTRICT GARDENERS'.

On July 28, about sixty members of this Association visited the well-known gardens of F. C. Stoop, Esq., West Hall, Byfleet. They were conducted round the gardens by Mr. George Carpenter, the gardener.

Unlike many gardens in the hilly districts of Surrey, which owe part of their charm to situations affording views across far-stretching landscapes, the fascinaton of West Hall is in the place itself. It is situated in the lowlands, in a fertile vale amid rich meadows and pastoral scenes; and here, for some thirty-five years, with no stint of money, staff or water, Mr. Carpenter has been encouraged by his employer to maintain one of the most delightful gardens in west Surrey.

The River Wey flows through the estate, lapping the lawn and enriching the soil in which indigenous and exotic plants flourish on its banks, sheltered by many imposing trees. The lawn is noted for its velvety turf and perfect condition, but signs were not wanting that the long, hot spell of July was beginning to show its effects even here.

Every house had its numerous treasures; Grapes, Melons, Peaches, Tomatos and Plums, and flowers and exotic plants in profusion. Every border was a riot of colour, but the Dutch garden came in for most praise. In this extensive plot many flower beds were filled with Geraniums, Heliotropes, and Viola Maggie Mott, all producing a particularly striking effect. There is also a fountain and small pool containing cream and magenta Numphaeas; this garden is bordered on one side by the mansion and flower beds, and on three sides by clipped Yew hedges.

Another delightful spot is reached by following the herbaceous border which runs the entire length of the kitchen garden. This is a circular retreat surrounded by Rhododendrons and American Azaleas. In the centre is a costly carved marble well-head, imported from Italy, and a marble seat, while in the flower beds Begonias and Ageratums predominated. In another part of the garden is a Holly hedge on which trail masses of Tropaeolum speciosum, with bright, cherry-red flowers gleaming amid the dark green foliage.

When passing by a fine Strawberry bed, Mr. Carpenter expressed a hope that the difficulty with Strawberries, so common since 1921, is now on the wane, but as so often happens in life, one trouble is followed by another, and a walk through the orchard shows that while Apples were in abundance on some trees, capsid bug has been busy among others and has seriously reduced the crop.

After tea, Alderman W. T. Patrick expressed the thanks of the company to Mr. Stoop for permitting the visit, and to Mr. Carpenter for the many services he had rendered to the Association.

To this brief account, the writer would like to add his tribute to Mr. Carpenter, in whose charming personality is combined the experience of a man of years with the heart and outlook of a boy—"His eye was not dim, nor his natural force abated."

ROYAL LANCASHIRE.

The Royal Lancashire Annual Show was held at Oldham on August 2 and the following days, under ideal weather conditions, and the high position the show has held for so many years was well maintained.

In Class 1, for a group of miscellaneous plants, Messrs. J. Cypher and Sons occupied the premier position with one of their best efforts, which evoked a good deal of well deserved admiration for the tasteful manner in which they were arranged and for the high quality of the plants shown. Codiaeums, Dracaenas, Alocasias and other ornamental foliage plants were exceeding well coloured, while Odontoglossums, Cattleyas, Liliums, etc., were equally well shown. Mr. W. A. Holmes was placed second with an unusually light and pleasing arrangement of well-grown plants in similar variety.

In the class for a collection of Sweet Peas, Mr. A. Leigh, Stoke-on-Trent, was first; Mr. G. H. Brookaston, second; and Messrs. Herd Brothers, third; all with well arranged groups of fine quality blooms. Messrs. C. Engelmann, Ltd., had the best collection of cut perpetual-flowering Carnations of fine quality and in great variety.

Competition was exceedingly keen in the section for a collection of cut Roses, the blooms displayed being of very high quality and well arranged. Messrs. Bees, Ltd., were placed first; Messrs. W. Robinson, second, and Messrs. C. Gregory and Son, third. Messrs. Bees, Ltd., also staged the best collection of hardy perennials, with a marvellous group of hardy flowers in season, including many varieties of Kniphofias. Messrs. Harkness and Son were second; and Messrs. Gibson and Co., third; both with very fine groups.

Trade exhibits were again a great feature of the show. Gold Medals were awarded to Messrs. Allwood Brothers, for a magnificent group of Carnations and Allwoodii Dianthus; Messrs. S. McGredy and Son, for Roses; and to the Parks Committee, Chadderton, (gr. Mr. W. Holland), for an excellent exhibit of John Bright Stocks, Dahlias, etc. This exhibit was also awarded the Royal Botanical Society of Manchester's Gold Medal for the most meritorious non-competitive exhibit in the show. Silver-gilt Medals were awarded to Messrs. Daniels Brothers, Messrs. J. Forbes and Son and Messrs. G. Hale and Brooks. Silver Medals were gained by Messrs. Rich, Messrs. Bakers, Messrs. R. V. Rogers, Messrs. O. and R. Milne, Messrs. Maxwell and Beale, and Messrs. Wilson and Agar.

Obituary.

James Robertson.—We regret to announce the death, which took place suddenly at his home, Sydney Cottage, Bieldside (a suburb of Aberdeen), on Saturday, the 4th inst., of Mr. James Robertson, one of the best-known and highly esteemed seedsmen in Aberdeen and the north. A native of the Tarves district of Aberdeenshire, Mr. Robertson started his career as a message boy with the now defunct firm of Messrs. Cardno and Darling, seedsmen and nurserymen, Aberdeen, where, in course of time, he rose to the position of manager. Some twenty years ago he started business on his own account, and slowly but surely built up a wide connection in the northern counties of Scotland. Thoroughly equipped in his profession, Mr. Robertson's services were in great demand as a judge at seed and root shows in the north-east of Scotland. He was a great authority on all that pertained to apiculture, the imposing displays he staged at the annual shows held under the auspices of the Beekeepers' Association always attracting considerable attention. A man of the most kindly and sympathetic temperament, Mr. Robertson had hosts of friends who will learn with sincere regret of his sudden demise at the heyday of life—his sixtieth year. He is survived by his widow, a son and five daughters. The son has been associated in the business with his father for some time.

ANSWERS TO CORRESPONDENTS.

Celery Leaves Discoloured.—*F. J. B.* We have examined the Celery leaves which you sent us, but cannot find on them any trace of insect pest or fungus disease. It is possible that the trouble lies at the roots of your plants, and would advise you to lift one of them carefully and examine the root system, to determine whether it is in a healthy condition.

Grapes Failing to Swell.—*A. S.* It is difficult to account for your Alicante Grapes failing to swell, unless cultural conditions have been at fault. The wood and leaves of your vines are gross and soft, and appear to have been grown under dense shade. Alicante vines in good health set their fruits freely under proper conditions, and setting is generally effected naturally and without assistance. A temperature of 60° by night is high enough for the purpose of setting the fruits, always provided there is the decided rise in the temperature during the early part of the day, as the setting process takes place in the forenoon. The one great requirement is sunshine, with proper ventilation, so that fresh air may be admitted to the house. Keep the laterals pinched back to let in sun and air, give artificial heat in dull weather, and see that the border is well watered. It may be that the vines are over-cropped, but of this we have no evidence.

Tomatos Diseased.—*C. R.* Your Tomato plants seem to be attacked by the Wilt Disease, Verticillium albo-atrum, which would account for the appearance of the specimen you sent us. This may be caused through too low a temperature being maintained in the houses or through over-watering; raise the temperature of the house slightly and afford so little water as possible at the roots, while the plants may be encouraged to make fresh roots by top-dressing with fresh soil around the base of the plants.

Vine Leaves Discoloured.—*A. A.* The Vine leaves are free from disease, and no trace of any insect pest was found on the foliage. The trouble is probably due to unhealthy root action—unbalanced conditions between water absorption and transpiration. Attention should be paid to the conditions of the borders and ventilation during the high day temperatures at present being experienced.

Communications Received.—W. R. C.—W. S. G.—A. B. H.—J. B. H.—W. T. B.—L. G. C. A.—W. H. J.—M. C.—F. R. D.—N. E. B.—E. B.—A. T. J.—H. D. O.—H. W.—J. C.

THE
Gardeners' Chronicle

No. 2173.—*SATURDAY, AUGUST* 18, 1928.

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Melchet Court: The Terrace Garden.

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 60·9°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, August 15, 10 a.m. Bar. 30. Temp. 62°. Weather, Fine.

The Manuring of Gooseberries.

Mr. T. Wallace continues to give us valuable results of his experiments in the manuring of fruit-bearing plants grown under field conditions. His most recent experiments* concern Gooseberries, and although his report can only be regarded as an interim one, it nevertheless contains very useful information, which growers may put to good use. The experimental area, which covered about one acre, consisted of soil which passed gradually from a heavier to a lighter texture. The first and most notable conclusion to which the manurial experiments point is that Leaf Scorch, with its attendant precocious leaf fall, may be prevented by manuring, at all events in large measure, in all but the most unpropitious seasons. Thus, at the beginning of the experiment every bush was badly affected by Leaf Scorch; the malady being more conspicuous on the plots with light soil than in those in which the soil was heavier. In the last year of the experiment, severe Leaf Scorch was confined to the plants in the lighter soil which had received no manure and to those which had not been supplied with potash fertiliser. The second fact of practical importance is that the experiments confirm the opinion long held by growers that the Gooseberry is a greedy crop, and that therefore if there be a deficiency of nutrient material in the soil—as is apt to be the case of soils of light texture—the deficiency must be made good before satisfactory crops may be grown. This is well illustrated in the average return (1922–26). Whereas on the heavier ground the unmanured plot yielded as much fruit as did the plots which received dung (ten tons per acre) or complete organic manures (dried blood, steamed bone-flour and sulphate or muriate of potash), or complete inorganic fertilisers, yet in the lighter ground the use of dung increased the yield by forty per cent. as compared with that of the unmanured plot, while the application of organic and inorganic fertilisers brought about an increase of fifty-one per cent. and forty-six per cent. respectively. Nor were the effects of manures and fertilisers confined to fruit production. Dung, complete organic and complete inorganic fertilisers (sulphate of ammonia or nitrate of soda) superphosphate and sulphate of potash, increased to a notable degree the production of wood. The differences between the weight of prunings from unmanured bushes and from completely manured bushes were very great indeed, more particularly in the light soils. It would be interesting if results of actual yields were accompanied by computations of the cost of the manures and fertilisers which were applied to the different plots. Finally, the experiment makes it abundantly clear that although the best crops are obtained by complete fertilisers, the fertiliser the lack of which limits crop production, is potash; withhold potash and the yield falls very greatly, more so than it does when either nitrogenous or phosphatic fertilisers are withheld. Nevertheless, the fact remains that the Gooseberry responds very definitely and favourably to a complete fertiliser, that is, one which contains nitrogen, phosphorus and potash, either in the organic or inorganic form.

Our Supplement Plate.—With this issue of *The Gardeners' Chronicle* we have pleasure in presenting as our Supplement Plate a view of the beautiful Terrace Gardens of Melchet Court, the residence of Lord and Lady Melchett. A description of the gardens appears on p 130 and 131, together with an interesting series of illustrations.

Wisley Trials.—There will be a trial of dwarf French Beans for forcing under glass, at Wisley, during the coming season One packet of each variety for trial should be sent to The Director, R.H.S. Gardens, Wisley, Ripley, Surrey (goods via Horsley, Southern Railway), to reach him by August 31, 1928. The necessary forms will be sent on application to him.

Ashridge Park. — It has been announced officially that Mr. Urban H. Broughton. of 37, Park Street, Grosvenor Square, and of Park Close, Englefield Green, Surrey, is the donor of Ashridge Park, as a memorial to the late Mr. Bonar Law, to the Conservative Party. We learn that the general public will be admitted to the gardens once a week.

Floral Decorations for the Aonach Tailtéann.—Dublin is now celebrating Aonach Tailtéann, a revival of an ancient Irish athletic festival somewhat resembling the Olympic games in character. The city has a carnival-like appearance; the principal buildings are bedecked with flags and bunting, and there are original schemes of floral decoration. There are hanging baskets of natural flowers in many porches and there is almost a complete absence of artificiality. The monuments and the island in the centre of O'Connell Bridge have artistically arranged groups of foliage and flowering plants, while from the lamp standards are suspended baskets of Marguerites, and Paul Crampel and Ivy-leaved Pelargoniums. Asparagus Sprengeri is a dominant feature in the chief decorations, while Asters, Calceolarias, Marguerites, Chrysanthemums, Viscarias, Zonal Pelargoniums, Kochias, Golden Privet, Thuya Lobbi, Grevillea robusta and Acer Negundo variegata are conspicuous. At the National Banquet in the Mansion House on August 11, there was an extensive decorative scheme, arranged by Dublin's nurserymen.

Shrewsbury Flower Show.—The great annual exhibition of the Shropshire Horticultural Society was held on the 15th and 16th inst. in the famous Quarry Park, Shrewsbury. The show was excellent in extent and quality and as the opening day was favoured with fine weather, crowds of visitors attended and enjoyed the splendid display of groups, flowers, fruits and vegetables, the picturesque and beautiful Dingle Gardens, the shade of the trees, the music of the bands and the various entertainments provided. A report of the show will appear in our next issue. The President's prize offered for the best exhibit in the show was won by the Hon. Vicary Gibbs, Aldenham House, Elstree, with a wonderful display of vegetables; the judges sent a telegram of congratulation and good wishes for a speedy recovery to health, to Mr. Edwin Beckett, who, we understand, returned to Aldenham from a nursing home on Wednesday, after a long illness.

Maidstone Mote Park for Public Use.—The historic Mote Park at Maidstone has now been scheduled under the Town Planning Scheme, and so is preserved as a public open space. Originally, it was intended that the park should be reserved solely for recreation purposes, but the cost was found to be prohibitive, and now it seems that a portion will be used as a civil aviation ground.

A New Flora of Sussex.—In a recent issue of the *Sussex Daily News*, Mr. J. Gordon Dalgeish made a strong appeal for help towards the production of a new and up-to-date Flora of Sussex. He reminds lovers of the botany of Sussex that last year, at the annual meeting of the South-Eastern Union of Scientific Societies, Dr. Rendle, the Keeper of Botany in the British Museum, drew attention to the fact that the present Flora, published in 1907, is out-of-date on account of the many finds which have been made since that date.

The Canadian Harvests.—In a very short time the ten thousand men who were required under the harvesters' scheme have been enrolled, and the Canadian authorities state that no more can be accepted. The major portion have already sailed for Canada, where they will be distributed to assist in harvesting the grain crops. A large number of men applied, and only those who satisfactorily passed the civil and medical examinations were accepted. Judging from the several batches of the men we have seen, the examinations were conducted admirably, and a splendid class of men is being sent to the harvest fields of Canada.

Economic Entomological Research in Australia. — The Commonwealth Prime Minister, Mr. Bruce, has announced that the Empire Marketing Board proposes to make grants in aid of a Department of Economic Entomology on condition that the Commonwealth provides equivalent sums of money. Mr. Bruce stated that the offer has been accepted, and that his Government will do all possible to form the Department in the near future. The object of the scheme is to undertake entomological investigations which should be of immense importance, not only to Australia, but to the Empire generally. We understand that a Central Research Station will be formed in Canberra, with Dr. R. J. Tillyard, F.R.S., in charge. Dr. Tillyard, who for some time was at the Cawthorn Institute of New Zealand, was recently appointed Chief Entomologist to the Commonwealth. At first, attention will be paid to the sheep blow-fly, the buffalo-fly and the destruction of various noxious weeds. It is hoped to control the animal pests by means of parasites. The chief weeds to be treated are the St. John's Wort, the Saffron Thistle and the Hoary Cress, which will be infected by their natural insect enemies. The new Commonwealth Department will be associated with the Parasite

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* Field Experiments on the Manuring of Gooseberry Bushes, by T. Wallace. *Annual Report* of the Agricultural and Horticultural Research Station, Long Aston, Bristol, 1927.

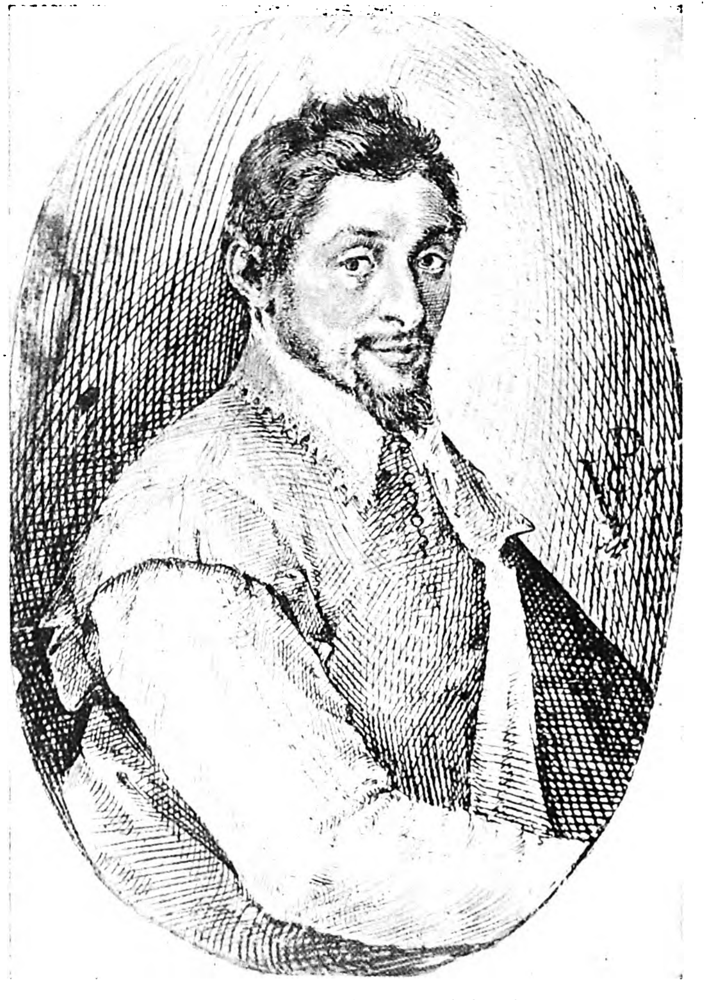
Laboratory at Farnham Royal, which was established by the Imperial Bureau of Entomology last year with a grant also from the Empire Marketing Board.

Weeds of Arable Land.—Among the weeds of arable land described by H. C. Long, B.Sc. (Edin.), in the *Journal* of the Ministry of Agriculture for August, 1928, are the Field Bindweed (Convolvulus arvensis), the Great Bindweed or Bearbine (Convolvulus sepium), Persicaria or Redshank (Polygonum persicaria), Knotgrass (Polygonum aviculare), Black Bindweed or Climbing Buckwheat (Polygonum convolvulus), and Crow Garlic or Wild Onion (Allium vineale). With the descriptions are given the best methods of eradicating the weeds, and there are excellent line drawings to illustrate each.

Areas under Fruits and Vegetables, etc., 1928.—According to the agricultural returns of England and Wales for 1928, the total acreage under all crops and grass is 25,504,000 acres, a decrease of 86,000 acres on 1927. There is a decrease of 25,400 acres, or nearly five per cent. in the area under Potatos, the acreage returned this this year being 488,500 acres against 513,900 acres in 1927; the greatest decreases are in Yorkshire, Lincolnshire, Cheshire, Lancashire, Staffordshire, Durham and Kent. There is also a heavy reduction in the acreage under Sugar Beet, the area this year being 175,400 acres, over twenty-one per cent. less than in 1927. On the other hand, the acreage under vegetables shows a considerable increase. Cabbages for human consumption cover an area of 27,900 acres, 1,900 acres more than in 1927; Brussels Sprouts, 30,400 acres, compared with 23,700 in 1927; Cauliflowers or Broccoli, 13,600 acres, in comparison to 11,700 acres in 1927; Carrots have increased in acreage from 8,700 acres to 10,100 acres, and Celery from 6,700 acres to 7,200 acres. Rhubarb has increased from 6,700 acres to 7,200 acres, but the area returned for Onions is the same as for last year, *i.e.*, 1,700 acres. The total acreage of orchards is approximately the same as last year, the area returned being 248,300 acres. Minor changes have taken place in almost every county. The greatest increases are in Kent and Worcester, of 610 acres and 560 acres respectively, while Gloucestershire shows a decrease of 450 acres, and Middlesex a decrease of 370 acres. A reduction of 4,500 acres in the acreage of small fruits is shown by the total area returned this year being 64,700 acres as compared with 69,200 acres last year, the decrease being mostly due to the reduction by 2,800 acres in the Strawberry acreage. The Raspberry acreage of 6,200 acres shows little change, while Currants and Gooseberries, on 34,600 acres, show no material variation from the returns for 1927. These figures are subject to revision.

Culture of Witloof Chicory in Belgium.—Our friend, M. O. F. Wuyts, an old Kewite, now engaged in the Belgian Pathological Service, at Ghent, contributes a lengthy, freely illustrated, instructive and interesting article on "Culture of Chicory (Witloof) in Belgium," to the August issue of the *Journal* of the Ministry of Agriculture. M. Wuyts points out that the two varieties of Chicory used in Belgium are "Chicory of Brunswick," which forms thick roots and has horizontally extending leaves with denticulate margins, red and median veins; and "Chicory of Magdeburg," characterised by erect, entire leaves with white midribs. By constant and rigorous selection, a special strain, suitable for culture as a vegetable, has been produced from the Chicory of Magdeburg, and this is the Witloof, *i.e.*, white leaf, now used so largely in salads and sold on the Continent as Barbe de Capucia. The forced, compact head is called a *chicon*. M. Wuyts gives in detail the method of sowing, cultivating, harvesting and storing Chicory and discusses various methods of forcing. Apparently, a considerable amount of forced Chicory is exported from Belgium to America, as M. Wuyts is careful to point out that only first grade produce should be packed for "long distance export to America," and it should be packed in rectangular baskets "so that no room be lost when packed one on top of the other in the ship's hold." The article concludes with a few notes on birds and insect pests, and half-a-dozen "Culinary uses and Recipes."

Anonymous Gift for Playing Fields.—We learn that the National Playing Fields Association has received from an anonymous donor, who recently contributed £10,000 towards the funds of the Association, another donation of a similar amount. The same person has also rendered other important assistance. This handsome gift is to be expended upon the acquiring of land, to be selected by the donor. Another valuable gift received by the Association is that of a recreation ground, four-and-a-half acres in extent, at Frome, a bequest of the late Mrs. Mary Baily.



CRISPIN VANDE PASS THE YOUNGER.

(see p. 132).

Legacies to Gardeners.—The late Mr. Ernest George Wragg, J.P., of Whitworth Road, Ranmoor, Sheffield, who died on May 16, left £50 to his gardener, Mr. Bell.—The late Mr. John Leigh Goldie-Taubman, of The Nunnery, Isle of Man, who died on April 29, bequeathed one year's wages to his gardener, Mr. Flack.

Royal Botanic Gardens, Regent's Park.—Following upon the announcement that it is the intention of the Government to take over, through the Office of Works, the Royal Botanic Gardens, and to throw them open to the general public, upon the expiration of the lease in 1932, a meeting of the Fellows of the Royal Botanic Society unanimously passed the resolution that: "The Fellows of the Royal Botanic Society express very great regret that His Majesty's Government have intimated to the Council that the existing lease expiring in 1932 will not be renewed, and they hope the question will be reconsidered." At the present time the Gardens are only open to the public on Mondays and Thursdays, the entrance fee being one shilling.

Weeds in Wisconsin.—One of the specialists of the Wisconsin Agricultural College has estimated that weeds cause a loss of 46,000,000 dollars to that State, and he advocates the creation of new laws for the purpose of enforcing measures for the control of weeds.

Insect Pests of Crops, 1925-1927.—The *Report* on the occurrence of insect pests on crops in England and Wales, for the years 1925, 1926 and 1927, issued by the Ministry of Agriculture and Fisheries, price 2s. net, contains much information of interest to farmers, fruit-growers and gardeners in general. The developments that have taken place in methods of insect pest control, including the use of poisoned bait in the control of leather jackets; the control of red spider in greenhouses with naphthalene; the methods of using calcium cyanide as a substitute for sodium cyanide in hydrocyanic gas fumigation; a new method of employing sodium cyanide for fumigation of Tomato houses, proposed by E. R. Speyer and O. Owen (*Ann. App. Biol.*, 1926, Vol. XIII, p. 144); and several other minor developments are described; while the list of foreign insect pest introductions, in which it is reported that several serious foreign pests have appeared in this country, emphasises the necessity for keeping a sharp watch on all imported plants and seed. A general account of the activities of various insect pests of cereal, Potato, rootcrop, pulse, pasture and forage, vegetable and fruit is given, while there is also a concise account of the activities of special pests, such as Aphides, the Hop Frog Fly (Euacanthus interruptus), Strig Maggot (Contarinia humuli), Flea Beetle (Psylliodes attenuata), Tortrix, and Red Spider (Tetranychus telarius) on Hops; Aphides, Willow Beetles (Phyllodecta vulgatissima and Galerucella lineola), Button-Top (Rhabdophaga heterobia and probably other species), and Pontania proxima, on Willows; White Fly (Aleurodes vaporariorum) and Tomato Moth (Hadena oleracea), Red Spider, Root Knot Eelworm and Millipedes, on Tomatos; Narcissus Flies, Aphides and Eelworms on bulbs; Chrysanthemum Midge (Diarthronomyia hypogaea), Chrysanthemum Leaf-miner (Phytomyza atricornis), Aphides, Lepidopterous larvae, and Chrysanthemum Eelworm (Aphelenchus ritzema-bosi) on Chrysanthemums; and Aphides, Tortrix-larvae, Thrips and Red Spider on other flowering plants. Appendix I, with an accompanying diagram, shows the annual fluctuations in the incidence of some typical pests from 1917 to 1927, and Appendix II is an useful list of the more important plant pests, excluding forestry ones.

Tree Growth and Climatic Cycles.—The correlation between the annual ring formation in trees and climatic cycles is described in a recently issued *News Bulletin* by the Carnegie Institute of Washington, the work being mainly due to the many years of patient investigation conducted by Professor H. E. Douglass, of the University of Arizona, who has examined numerous specimens of Yellow Pine from the arid region of north Arizona. The variation in the annual rings of individual trees over a large area showed such remarkable uniformity that the same rings could be identified in practically every tree, and the dates of their formation were definitely established. In dry climates it was discovered that the thicknesses of the rings are proportional to rainfall, with an accuracy, determined during recent years, of seventy per cent. During recent investigations of trees in the western United States and Europe, Professor Douglass has discovered many correlations in tree records of widely separated areas, which are likely to throw light on the climate of the world during the past. Dr. Huntington, of Yale, following the same lines of investigation, has, with his assistants, examined the stumps of 451 Sequoias, the dates of their cutting being known. Several of the trees were only a few hundred years old when felled; three were more than three thousand years old, and one, the oldest, had 3,210 rings. Dr. Huntington has, by the measurements so obtained, constructed a climatic curve back to a date before the commencement of the Christian era, which he considers as fairly reliable, and another going back several hundred years further, and considered as moderately reliable. Dr. Anteos, a Swede, has examined Dr. Huntington's Sequoia material relating to 1,000 B.C. to the present time, and has constructed climatic curves which correspond remarkably with Dr. Huntington's results.

Icones Plantarum Sinicarum.—This is the title of a folio publication which is being issued by the Department of Botany, College of Agriculture, National South-eastern University, Nanking, China, and edited by H. H. Hu and W. G. Chun. The publication is dedicated to Charles Sprague Sargent; it is well printed, the first facsimile comprising fifty plates from original drawings, many of them excellently executed. The accompanying descriptive notes are in English, with a Chinese translation beneath, and after each description the distribution of the species throughout China, so far as it is known, is given. The first fourteen subjects dealt with are Gymnosperms, and these are followed by Dicotyledenous trees and Monocotyledons. Plate 50 is devoted to a new species of Zephyranthes, described here for the first time, and found in the Province of Chekiang.

Peach Tree Pests in America.—A recently issued *Bulletin* by the United States Department of Agriculture, describes the various insect pests of the Peach in the southern States, and the methods employed for their eradication. There are numerous minor pests, but the three most important are the Plum curculio (Conotrachelus nemiphar), the San Jose scale (Aspidiotus perniciosus) and the Peach borer (Argeria exitiosa). Among the lesser pests are the lesser Peach borer, Peach twig borer, shot-hole borer or fruit-tree bark beetle, and the West Indian Peach scale. In 1920, the Plum curculi damaged the Peach crop in Georgia alone to the extent of over 2,000,000 dollars. Spraying or dusting the trees with lead arsenate, and collecting and destroying all fallen fruits, are given as the best methods of controlling the pest. The Peach borer is responsible for the death of large numbers of trees annually, but the problem of its control has now been largely solved by the discovery of the value of paradichlorobenzine, a white crystalline material which vaporises slowly, the fumes being deadly to insects confined in the vapour, but not harmful to man or domestic animals; the crystals are placed in circles on the ground around the trunks, the fumes rising and destroying the insects in the tree. The San Jose scale, which also attacks the Apple, Pear and Plum, is best dealt with by spraying with lubricating oil emulsion during the winter, when the scales are dormant.

Scottish Sweet Pea Trials.—The Scottish National Sweet Pea, Rose and Carnation Society has announced the following awards in connection with this year's trials of new varieties at Helensburgh:—A Gold Medal to a dark cerise variety, Lustre, raised by Mr. J. Stevenson, Wimborne; Silver Medals to Flamingo, orange-scarlet, raised by Messrs. Dobbie and Co.; and No. 1, blue, unnamed, raised by Messrs. Robert Bolton and Son, Halstead. The following were awarded a Certificate of Merit:—Idyle, deep cream-pink, raised by Messrs. Morse and Co., California; Flaming June, orange-scarlet, by Messrs. Andrew Ireland, Marks Tey; St. Mungo, creamy-pink, by Messrs. George Bowness, Busby; and Elizabeth Woodcock, pink, shaded lilac, raised by Mr. F. C. Woodcock, Walmer, Kent. A vase of each of the successful varieties was staged at the show of the Dumbartonshire Sweet Pea Society, held at Helensburgh on August 11.

Magnificent Bequest to a Nursery Salesman.—Under the will of the late Miss Anna Bateson, described as a nursery gardener, of New Milton, Hampshire, Mr. Charles R. Lane, Miss Bateson's salesman, is the recipient of the sum of £1,000, "in recognition of his faithful services," together with a further £1,000 in trust for life. Miss Bateson, who died in May last, was the daughter of the late Rev. Dr. Bateson, of St. John's College, Cambridge, and left estate valued at £10,181.

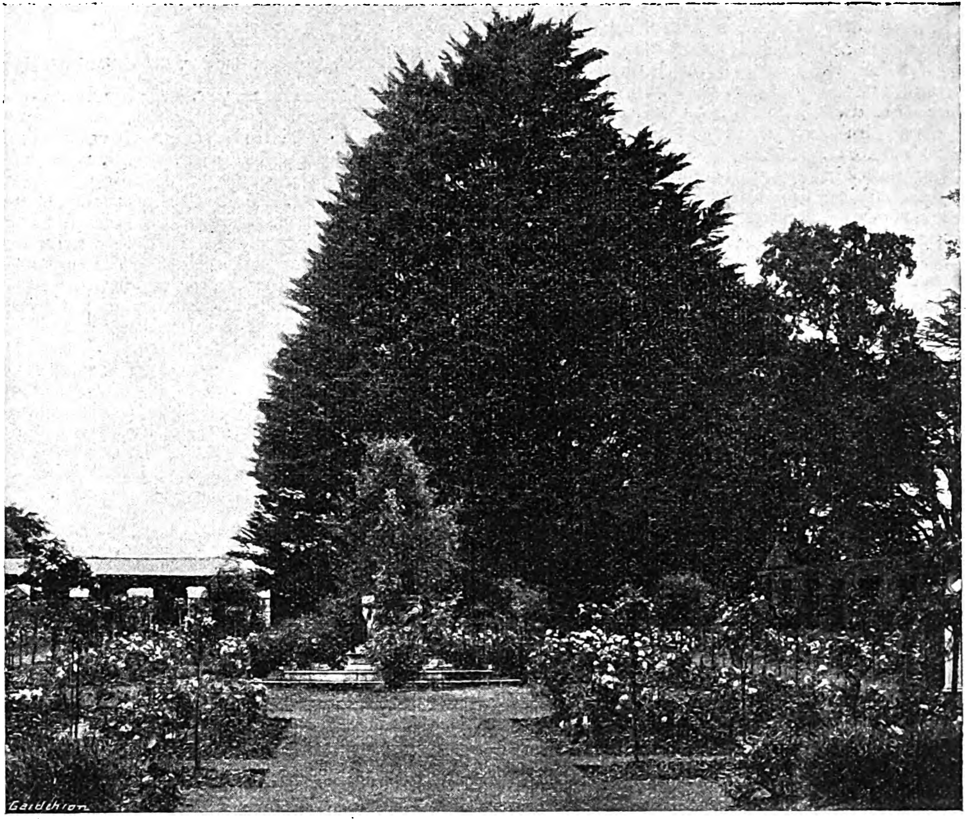


FIG. 50.—MELCHET COURT: ROSE GARDEN AND CUPRESSUS MACROCARPA.
(see p. 130).

Appointments for the Ensuing Week.—TUESDAY, AUGUST 21: Dundee Horticultural Society's outing. WEDNESDAY, AUGUST 22: Southport Flower Show (three days); Elgin Show (two days); Biggar Show; Perth Show (two days). THURSDAY, AUGUST 23: Appin Flower Show; Peebles Show. FRIDAY, AUGUST 24: Montrose Horticultural Society's exhibition (two days); Dunfermline Horticultural Society's exhibition (two days). SATURDAY, AUGUST 25: Harrogate Horticultural Association's exhibition; Alyth Flower Show; Knightswood Horticultural Society's show; Auchterarder Flower Show; Gartmore Show; Forth District Show; Falkirk Show; Comrie Show; Dailly Show; Coldstream Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Potato Disease in Ireland.*—Your prophecy that the Potato disease would probably soon show itself in Ireland, has been but too fully realised. For some time past, indeed, the disease has been making considerable progress in many places in the vicinity of Cork; it was distinctly observable in an eighteen-acre field at Summer's Town (famous for its magnificent Cork tree), in the first week of June; in the first week of July, the foliage and many of the tubers on four or five acres of the field were greatly injured, and on visiting this field a few days since, I found the whole of the foliage affected to an extent sufficient to put a stop to the further growth of the tubers. The kind is the pink-eye, and the crop having been planted in February, and early in March, the tubers have attained, as nearly as I can estimate, half the size they would have attained had they escaped the disease. Unfortunately, of this half-crop a large portion, between a third and a half are diseased. This field, which is now bearing the second crop of Potatos, having been broken up from an old pasture in spring 1852, and manured rather heavily each year, is in a worse state than any other in the neighbourhood; but I regret to have to state that every field is more or less affected, and that the decay of the foliage is progressing with great rapidity, so much so that the whole atmosphere, on calm evenings, is perceptibly charged, and in the vicinity of the Potato fields disgustingly so, with the peculiar effluvium which proceeds from the disease. Potatos in the Cork markets have for the last fortnight or three weeks been as fine as ever they were at this time of year, and the best are now selling for 6d. per stone of 14 lbs. Within the last few days, however, diseased Potatos are becoming more and more general in the markets, and from reports which have reached me, I fear that the hope which I for some time entertained that the disease might possibly be restricted to the comparatively highly manured environs of the city, is not likely to be realised. In the event of anything like a general failure of the Potato this year, it is earnestly to be hoped that our farmers will abandon the extensive culture of this faithless crop. In the vicinity of great towns, where early Potatos very commonly make a return of £30 or more per acre, the chance of success may be worth the hazard; everywhere else, with such substitutes for our cattle as Swedish Turnips, Mangold Wurzel, and White Carrots and for human food as Oatmeal and Indian Corn, to persevere in the culture of Potatos is altogether inexcusable. *Edmund Murphy, Queen's College, County Cork. Gard. Chron., August* 13, 1853.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

Coelogyne cristata.—C. cristata and its varieties are now growing freely and require ample supplies of water at the roots. Those specimens which were not repotted this season, provided they are well-rooted, may be watered occasionally with weak liquid manure, but feeding should be discontinued as the bulbs ripen. Arrange the plants so that they receive plenty of light, although shading is necessary from direct sunshine just now; they require all the available light as the bulbs ripen. Spray the plants overhead during hot weather, and allow a free circulation of air on all favourable occasions.

Sobralias.—Most members of this genus, such as S. macrantha and its beautiful white variety, Kienastiana; S. Lucasiana, S. leucoxantha and the hybrids S. Amesiae, S. dellensis and S. Veitchii, flower during the summer months, while the dwarf, autumn-flowering S. sessilis requires similar treatment to the summer-flowering sorts. Sobralias are very accommodating plants in regard to temperature, although they are subject to attacks of red spider if grown under too warm conditions; an intermediate temperature suits them best. With their Reed-like stems carrying a large quantity of beautiful green leaves, these subjects make fine decorative plants, even when not in flower, and although the large Cattleya-like flowers last only a short time, they appear in succession over a long period. They are robust growers, and when established require copious supplies of water at the roots during the growing season, with occasional waterings with weak liquid manure as the new growths are nearing completion. These Orchids do not require a decided rest and should not be kept dry at the roots at any season, although naturally they require less water during the winter months. Where specimens are overcrowded, it is advisable to remove some of the old growths to allow the young ones more light and freedom to develop. Any necessary repotting may be done after the flowering period. Small plants that are root-bound may be potted on into larger receptacles, and if large specimens require attention, care is necessary when dividing them to avoid injuring the fleshy roots. Use well-drained pots or deep pans, and a compost consisting of equal parts of fibrous loam, A.1. fibre and leaf-soil, adding crushed crocks and charcoal to keep it porous. Newly-potted plants require watering carefully until the roots are well established in the fresh compost. The surroundings should be kept moist by frequent syringing between the pots and the plants may be sprayed occasionally during favourable weather, and shaded from bright sunshine.

THE KITCHEN GARDEN.

By Allan Falconer, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

French Beans.—Those that were raised in frames during July should now require staking, tying and watering, to produce good crops to follow those outside; during bad weather it may be advisable to place the lights over them as they do not bear freely during wet weather, but plenty of air should be given on all suitable occasions.

Celery.—Special attention to this crop is necessary during the next few weeks. The roots should be kept well soaked with water and liquid manure. Remove all side growths and keep a sharp look-out for the maggots of the Celery fly, which should be destroyed by pressing the leaf between the finger and thumb to crush them. If neglected, the rows of Celery may soon look a sorry sight with the blister-like blobs caused by these maggots. Dustings of soot should do much to prevent the fly laying its eggs, and in some seasons it is very noticeable what depredations among Celery plants this fly causes quite late in the season; therefore, as a precaution, dustings of soot should be continued throughout the summer.

Lettuce.—Prick out batches of Lettuce and Endive in the open garden in cold districts, to produce plants for lifting into frames before frosts occur, when they may be lifted with good balls of soil, and being fully-grown, should be useful for immediate use. Another batch may also be pricked out a fortnight later to follow the earlier ones. At the same time, sow seeds to provide plants in frames ready for use at the end of November and December.

Runner Beans.—In cold districts this crop is very late, and every inducement should be given the plants to produce pods, by supplying them with plenty of clear water and liquid manure. The laterals should be pinched regularly, for if these are allowed to grow freely much of the plant nourishment is wasted, and it has been proved that the small amount of time taken up in pinching is amply repaid by the weight of the crop.

PLANTS UNDER GLASS.

By J. Coutts, Assistant Curator, Royal Gardens, Kew.

Panax fruticosum var. Guilfoylei.—The form variegatum of this Panax, and the finer foliaged variety Victoriae, are both very graceful plants for decorative work, small, well-grown specimens being very useful for filling vases and other receptacles. Young plants which were rooted early in the season, if transferred to five-inch pots, should prove useful for decorative work during the autumn and winter. If the tops of old and leggy plants are used as cuttings at the present time, they should root readily in a warm propagating case and provide a stock of young, healthy plants to stand the winter. If potted on early next year they should make useful plants for next season. Many plants of this character may be treated in this manner, as in most cases young, healthy plants winter better than old ones, and there is also a considerable saving of space, which is always a consideration during the winter months.

Richardia africana.—If the plants have been retained in pots during the summer it is now necessary to shake them out and repot them into pots of suitable size, according to the class of work they are required for. A single strong crown in a six- or seven-inch pot, should prove useful for general decorative work; on the other hand, if quantities of cut flowers or large specimens for conservatory decoration are required, the best results are obtained by placing several strong plants in ten- or twelve-inch pots. When grown solely for a supply of cut flowers, it is a good plan to grow them in boxes. Richardias are gross feeders and require a rich compost, which may contain a proportion of dried or well-decayed cow manure. After potting, a portion of the stock may be placed in a house with a temperature of 50° to 60°, the remainder may be safely left out-of-doors at the foot of a sheltered wall until the end of September. Where the stock has been planted out-of-doors for the summer, the plants should be lifted and potted about the middle of September. When well-rooted and growing freely, Richardias enjoy liberal feeding.

Leea amabilis.—This beautiful foliage plant is very attractive, either in a small state or as a large specimen. Young, recently-rooted plants should be potted on as they require it; if any cuttings are available they should be secured and inserted singly in small pots, for they root readily in a close case with plenty of bottom heat. The beauty of this plant depends on its well-developed foliage, and this is best attained by confining the growth to a single stem. Well-grown plants, two to three feet in height, are very beautiful. Leea macropus, although lacking the colour and elegance of the former species, is a more robust plant and may be used for general decorative work. Both species require a temperature of 60° to 65°, and moist atmospheric conditions, while they thrive in a compost consisting of three parts loam, and one part fibrous peat, with enough sand to keep the whole open and porous

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Late Grapes.—The weather experienced during the month of July was very much in favour of this crop, but with the present unsettled conditions a sharp watch should be kept on all late Grapes, especially those just starting to colour. It may be wise during dull, unsettled weather to keep the hot-water pipes just warm, and to allow a free circulation of air at all times. The sudden bursts of sunshine cause the temperature to rise rapidly, a condition which may result in the berries splitting, therefore a little air should be admitted through the top ventilators at night to prevent condensation of moisture. Gradually increase the air supply in the early morning and when conditions call for more ventilation. Grapes that are intended to hang through the winter should be well thinned. Generous supplies of liquid manure should prove very beneficial, but failing this, some fertiliser should be applied to the roots; when colouring is well advanced clear water may be substituted for the fertiliser. Choose fine days for the application of water to the borders so that the atmosphere may become dry before nightfall.

Cucumbers.—The weather during the last month has been very favourable for Cucumbers growing in cold frames, and where they have received ordinary attention they may be expected to produce good fruits for some time to come. Continue to apply light top-dressings of rich soil, and the plants should receive frequent applications of liquid manure. Discretion should be used in admitting air to the frames, and if the nights are unusually cold, the lights may be covered at night. Another batch of plants may be raised for supplying fruits during late autumn and early winter. The seeds should be sown singly in sixty-sized pots, and the soil should be sufficiently moist to ensure germination without the further application of water. When sown, they may be placed in a warm house, and a sheet of glass placed over the receptacle should assist germination. When the seedlings appear they should be placed near the roof-glass in a minimum temperature of 65°, and when the plants have advanced sufficiently in growth they should be planted out in a suitable compost, which should be prepared several days in advance, to allow it to become thoroughly warmed. Keep the young plants growing in a moist atmosphere, and syringe them twice a day with tepid water. Red spider is very partial to these plants and should it be allowed to establish itself on the young plants it is difficult to dislodge. Although it is necessary to keep the plants growing in a brisk temperature, it may be wise to reduce the amount of fire-heat to a minimum; the house should be closed early on all bright days.

HARDY FRUIT GARDEN.

By T. E. Tomalin, Gardener to the Earl of Bessborough, Stansted Park, Emsworth, Sussex.

Spring Plantations and Established Beds of Strawberries.—Continue to remove all runners from the plants in the spring plantations, and the surface soil stirred frequently with the Dutch hoe. Any plants which have failed should be replaced immediately from the reserve of plants kept for this purpose. Beds which have fruited and are to be retained for another season should now be cleaned. The plants should first be cut around to clear off all dead foliage and runners, after which a sharp spade may be run lightly over the surface soil to clear off all weeds and old mulching material, which may then be burnt. After hoeing the beds a mulching of short manure or half-decayed leaf-soil, applied now, should do much to assist the plants in building up good fruiting crowns for next season.

Planting Strawberries.—If the ground for these was thoroughly prepared in early spring, and has been cropped with early Potatos, it should now be in excellent condition to receive the young Strawberry plants. Where the soil is naturally heavy it may benefit by a good dressing of half-decayed leaves, which should be well mixed with the top six inches of soil. The roots of the young plants should be carefully disengaged from the ball of soil, and the hole should be made wide enough to receive them when spread out. Plant them firmly, with the crown of the plant on a level with the surface of the soil. The rows should be two feet apart, and the plants may be set out at one foot apart in the rows for the first season, at the end of which every alternate plant may either be chopped out, or lifted to form another plantation. The young plants should be well watered in immediately after planting, and a few days later the Dutch hoe should be used to stir the surface soil. This operation should be repeated at fortnightly intervals during the autumn, whenever the ground is in suitable condition. Strawberries prefer a firm soil, therefore cultivation after planting should be confined to hoeing the surface soil frequently, a practice which greatly encourages growth in addition to keeping the beds free from weeds.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to the Duke of Devonshire, Chatsworth, Bakewell, Derbyshire.

The Water Garden.—Look over Nymphaeas and other water plants, and remove all decayed flowers and foliage at frequent intervals, or the water garden may soon have a decidedly unkempt appearance. Where strong-growing plants, such as the Flag Iris, Acoris Calamus, or Cyperus longus are growing in association with the smaller Nymphaeas, care should be taken that they do not encroach on their weaker neighbours. The summer-flowering Pampas, Cortaderia conspicua, is a delightful subject for this garden, and should be planted freely by the side of the water where space permits, as it gives a fine effect before the ordinary Pampas Grass commences to flower. Where these grasses are planted in informal groups, Kniphofias may with great advantage be used in the foreground, the plants associating excellently. Gunnera manicata and G. scabra are two excellent plants for use by the side of water. The fine massive foliage invariably attracting considerable attention when the plants are thriving and in good condition. These should always be planted in good soil, and if possible, where the roots may reach the water; if planted in drier situations, copious supplies of water may be necessary in hot weather to keep the foliage in good condition. Renew the mulch at intervals after watering.

Propagating Bedding Pelargoniums.—Although not used nearly so much as in former years, in certain situations these are still found one of the most satisfactory bedding plants, especially in a hot and dry border; under such conditions they flourish when many plants would be decidedly miserable. Where a number are required, a start should now be made with the propagation of them for next season. Many gardeners have their own peculiar method of propagation and wintering, adapting the methods successfully to the circumstances in which they are placed. A very convenient practice is to use boxes of fair size, which will accommodate about fifty cuttings; they are particularly handy for moving about. These boxes should be filled with a good, fairly sandy soil, and the cuttings may be dibbled in, making the soil firm about them. If the weather continues fine they should strike exceedingly well out-of-doors, but if a continuation of damp weather is experienced, it may be advisable to place them under glass—the stages of an empty fruit house should be quite a good place for the present. Care should be taken when removing cuttings from specimens in flower beds not to make the plants unduly bare. The ideal plan is to have a sufficient number of plants in the reserve garden, but this is not always practicable. After the cuttings have been taken, remove all decaying leaves from the plants in the bed, dress the soil with a good fertiliser, and hoe the beds over. If the weather is dry, a good watering should assist the plants in making rapid growth to fill up the gaps.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener at Jordanhill Training Centre, Glasgow.

Autumn Sowing of Brassicas.—It is a commonplace to say that during the month of August more seeds of Cabbages, etc., are sown in northern districts than at any other season, and large areas are devoted to this crop for the purpose of producing young plants ready for planting out during March and April next year. Ground which has produced an early crop of Potatos should be in good condition, requiring a minimum amount of preparation, as the soil for these seedlings should not be too rich, and should also be well consolidated, by treading or rolling. Where trouble has been, or is likely to be experienced from any of the soil insects, such as the grub of the Cabbage fly (Anthomyia brassicae), the soil should be given a dressing of freshly burnt lime a few days previous to sowing. This pest is capable of destroying large numbers of the young plants, and precautions taken to eradicate it are well worth while. Cauliflowers sown at this time should be ready towards the end of September to transplant into frames, where they may pass the winter and provide good sturdy plants to set out early next year. Brussels Sprouts and Borecole (Kale) are also sown in large quantities in many districts, and while a proportion of the former may run to seed at an early date, if at planting time they are given a check the majority produce supplies of good sprouts much earlier than spring-sown plants. If Lettuce seeds are sown now the resultant plants should, in the milder districts, stand unprotected through the winter, in a moderately sheltered border, and come in at a time when good Lettuces are none too plentiful next spring, while the thinnings may be pricked into cold frames, at suitable distances apart, to provide useful salad material as required.

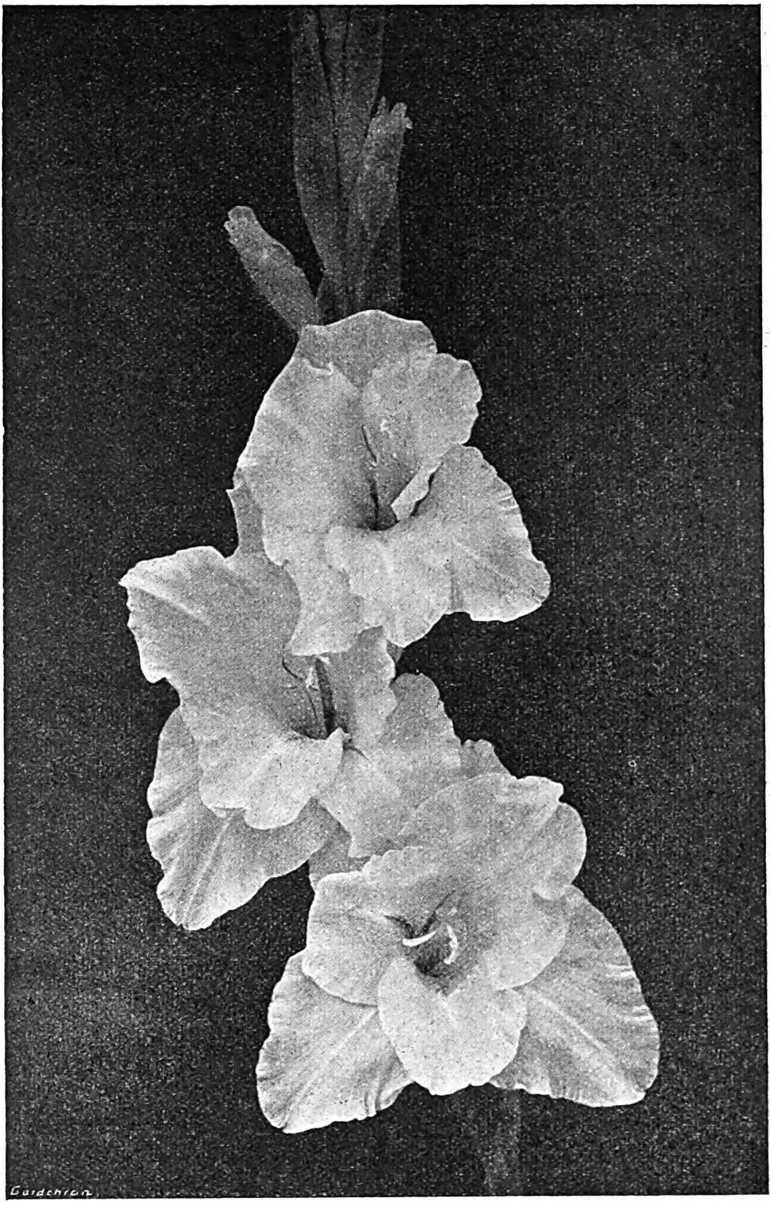


FIG. 51.—GLADIOLUS RUFUS.

British Gladiolus Society Award of Merit, August 10. Flowers large, glowing salmon, rose-vermilion and cream. Shown by Captain G. M. Churcher, Blackdown.

(see p. 139.)

Spinach.—The main sowing of winter Spinach should be made at the present time, and where this valuable vegetable is much in demand, a well sheltered site should be selected, and the seeds, which should be of a prickly variety, sown rather more thickly than is recommended for the round-seeded sorts sown for summer supplies. In addition to the real Spinach, a further sowing of Spinach Beet may be made; from the resultant plants it is possible to gather large quantities of succulent leaves which will assist in the maintenance of a good supply of greenstuff during the early months of next year.

INDOOR PLANTS.

TIBOUCHINA SEMIDECANDRA.

Sometimes known as Lasiandra macrantha, this magnificent plant is worth growing for the rich, deep violet-purple colouring of its flowers, which are produced in clusters from the axils of the leaves and from the points of the young growths, in succession, for several weeks during autumn and winter. The form known as T. s. floribunda is more suitable for pot culture than is the type, for in habit it is more compact, and the plant flowers when quite young, its very large flowers being characterised by a purity and depth of colouring which is both uncommon and beautiful. T. semidecandra was introduced from Brazil in 1864, and is figured in the *Bot. Mag.*, t. 5,721; the beautiful variety hails from St. Catherine's, Brazil, whence it came in 1870.

The type is excellent for furnishing the trellises and walls of a warm greenhouse. It may be set out in a border, or grown in a large pot or tub, and succeeds in either loam or peat, or a mixture of both, rendered porous by the use of a fair quantity of sharp sand. T. semidecandra is naturally of a straggling habit of growth and is most successful when allowed to grow naturally, but, on the other hand, T. s. floribunda breaks satisfactorily after being stopped, and eventually forms a shapely specimen. After flowering, the plants should be pruned and kept rather dry at the roots for a time, but never sufficiently so as to damage the wood or foliage. A minimum winter temperature of 50°F. is conducive to successful culture.

Propagation is effected by cuttings of the young shoots inserted during spring, or of half-ripened growths taken during summer and early autumn.

HOYA BELLA.

This beautiful subject succeeds in an intermediate or warm house, and is well adapted for culture in suspended baskets, although equally attractive when grown in moderately small pots. It thrives in good fibrous loam or in sandy peat and dislikes root disturbance.

Many cultivators prefer to graft H. bella on to a stronger-growing species, but this practice is not essential to success; careful watering at all seasons, and a partial winter rest, are matters of chief importance. Cuttings and layers afford means of propagation.

This attractive Hoya is of dwarf, shrubby, slender and drooping or partially procumbent habit, quite different to the better-known H. carnosa, while the waxy-white flowers, each with a rosy-lilac centre, are extremely beautiful. The plants should only be lightly shaded during hot weather, and a close, stuffy atmosphere should be avoided. *A.*

AMPHICOME EMODI.

A beautiful cool greenhouse subject, this plant seems to have become somewhat scarce, and specimens of it are now seldom seen. Where stocks of it exist, seeds should be secured as these form a ready means of increasing it, but to secure them it may be necessary to pollenate the flowers by artificial methods. It may also be increased readily by means of the young shoots, which it throws up from the base. This is an excellent plant for an unheated greenhouse, and in favoured situations should prove hardy at the foot of a warm wall. Amphicome arguta, although not so choice, is also well worth growing for its elegant foliage and deep rose-coloured flowers, which are produced freely. This species is more or less hardy in warm, dry situations. *J. C.*

DIANELLA TASMANICA.

This Tasmanian plant remains decorative over a very long period, the drooping, pale blue flowers being carried on large, branched panicles; they are numerous and gracefully disposed. The somewhat rigid, grass-like leaves are broadly uniform, with resolute margins armed with sharp, spine-like teeth, and coloured deep green, forming an effective foil to the pretty flowers and to the succeeding deep blue berries. These latter are, perhaps, the chief feature of the plant. The shade of blue is particularly bright, and the berries droop on hair-like pedicels, remaining beautiful for many weeks; indeed, this plant seems to be always in flower or fruit, and this alone should prove sufficient incentive for its general cultivation.

D. tasmanica thrives in a cool house, either planted out or in pots, and requires a rooting medium of three parts peat to one part loam and sand. It dislikes frequent disturbance and should be shaded from strong sunlight. Propagation is easily effected by division or seeds. *Ralph E. Arnold.*

TREES AND SHRUBS.

COPROSMA PETRIEI.

I am much interested in *M. W.'s* note on this plant in the issue of July 26, p. 46, and, like him, have looked in vain for the berries of this attractive rock shrub. Cheeseman, in his *Flora of New Zealand*, states that this Coprosma ascends in the South Island up to 4,000 feet, and there may be no doubt about its hardiness. I am pleased to find, too, that here the rabbits do not touch it, although they regularly prune back the long, trailing shoots of Coprosma acerosa in my garden.

Having been much intrigued with the description of the rich purple berries which this plant bears in New Zealand, I have often searched for them among the dense tangle of short, wiry and interlacing branches, but always in vain. But I did find the flowers, small and greenish-yellow, and well hidden in the dense mats of greenery, with long, protruding anthers, curved up in a semi-circle, and tried to obtain berries by hand fertilisation, but I never could find pronounced stigmas or definitely female flowers, and after much enquiry among other possessors of good specimens of this plant, have come to the conclusion that we have only the male form in cultivation, and I should be glad if any reader could put me in the way of obtaining a female plant that will give me the longed-for fruits. *W. E. Th. I.*

AESCULUS FLAVA.

The Yellow Chestnut does not seem to be very well known in this country, yet it well deserves a place among our garden trees. Although not so showy as the white and red-flowered Horse Chestnuts, its curious greenish-yellow spikes always attract attention. As a tree it is, perhaps, superior for many present day gardens to the larger Horse Chestnuts which grow so rapidly and take up so much room, for its shapeliness and refinement commend it as an ideal tree for the lawn, and an added attraction is the beautiful and almost unique brown tint of its leaves before they fall, which occurs almost first among trees, even before the Lime.

Aesculus flava forms a small tree twenty feet to thirty feet tall, of a very symmetrical shape, and is by no means coarse-growing. In the form of the leaves and the arrangement of flowers it closely resembles the ordinary types, although in the case of the leaves, five leaflets is the normal number, and the surface is smooth and slightly shining; they are seldom more than one-third the size of the ordinary Horse Chestnut leaves. The flower spike is also much smaller, being usually about five inches in length, and the individual blooms are more tubular in shape.

Of three trees here, two have obviously been grafted on to the ordinary Horse Chestnut, but the other seems to be on its own roots. Curiously, only one tree fruits—one of the grafted specimens—and this only very sparingly, for seldom more than twenty may be counted. The fruits are very small replicas of those of the ordinary Horse Chestnut, but they are contained singly in spineless husks. Until recently, I have not been able to germinate the seeds, which were obviously infertile, but from seeds sown in February last year I have secured half-a-dozen seedlings which are now growing strongly.

A point of interest is that hive bees do not seem to visit the flowers, although I have now and then watched one of the larger humble bees working among them.

Aesculus flava is not difficult to grow, and succeeds under the same conditions as the Horse Chestnut. It seems perfectly hardy and is fairly long-lived. *E. Surrey.*

DRIMYS WINTERI.

Although by no means a new plant, for it was introduced from South America, I believe, so long ago as 1827, Drimys Winteri is not common in gardens, and yet it is an exceedingly handsome evergreen shrub, and although reputed rather tender, it resists severe weather better than many shrubs credited with a stronger constitution. During last winter it was quite happy against south and south-west walls in Gloucestershire. The ivory-white flowers are fragrant and attractive, and the glaucous leaves and red stems invest the plant with beauty and interest throughout the year. D. Winteri thrives in well-drained, sandy loam, and is a good wall plant for the London district. The species is synonymous with Wintera granatensis.

Another attractive shrub is D. aromatica, a Tasmanian species of slow growth, introduced in 1843. It is of dwarf habit, and forms a rounded or dome-like bush; it is therefore an ideal shrub for a sheltered pocket on the rock garden. The branches are red-coloured as in D. Winteri, but much more flexible, with smaller leaves. The small white flowers appear in spring, and every part of the plant is highly aromatic. The species has been referred to Tasmannia aromatica, and is figured in the *Botanical Register*, t. 43, under that name. It is a very effective plant against a low wall with a south or south-west exposure, and is better so placed in other than mild localities. *R. E. A.*

FLOWER GARDEN.

HARDY CYPRIPEDIUMS.

These fascinating Orchids are scarcely utilised to the extent that they deserve, and especially does this apply to the North American species, for many of these associate well with dwarf Rhododendrons and other peat-loving subjects. I recently saw a very pleasing combination of dwarf Rhododendrons, Meconopsis Baileyi, and some fine healthy clumps of Cypripedium pubescens in full flower, C. spectabile (syn. C. Reginae) in bud, and occasional plants of C. montanum.

The Cypripediums mentioned enjoy a moist, peaty or woodland soil, and if the situation is exposed, it may be well, in winter, to cover the crowns with some moss or other available material, removing it not later than the end of March; frequent disturbance is inimical to success, and an annual surface dressing of fresh soil should serve the plants well for several years. C. parviflorum, C. californicum, C. humile, C. arietinum, and the quaintly spotted C. guttatum, all thrive under similar conditions, the last-named requiring rather drier conditions during winter.

Our native C. Calceolus thrives in a limey soil, and may be grown easily on the rock garden, in half-shade, planted in good loam.

In rich woodland soil may be successfully grown that very quaint and somewhat inconspicuous C. debile, from Japan, which has small, dull green flowers, together with the handsome, large-flowered C. japonicum, and the very beautiful C. ventricosum, probably a variety of the Siberian C. macranthum—and perhaps, too, identical with the plant known as C. tibeticum, but of this I am not quite sure. C. ventricosum has lovely flowers which are carried on a leafy stem some eighteen inches high, with the prevailing colour a variable rose-pink, mottled and suffused over an ivory-white ground. This plant was somewhat difficult to procure, the old C. macranthum often passing for it, but although rather rare, it is, I believe, still procurable. C. spectabile is superb—it is the queen of hardy Cypripediums; I must also confess to a strong regard for that other fine old plant, C. pubescens, with its large, showy, yellow pouches and brown sepals and petals—there is something fascinating in the thrustful, almost defiant labellum, guarded by the long, narrow and spirally twisted petals.

Many a moist woodland clearing, a peat bed or suitable corner of the rock garden, may be rendered unusually interesting by the presence of these beautiful Orchids. *Ralph E. Arnold.*

CAMPANULA SPECIOSA (POURR.).

In March, 1927, I collected this very beautiful species of Bellflower on Montserrat, that amazing, isolated mountain which lies between Barcelona and the eastern end of the Pyrenees. I found the plant growing on cliffs of conglomerate limestone (Fig. 53), about two-thirds of the way up the mountain and a little below the monastery. The plant was not, of course, in flower, but several of last-year's flower stems carrying spent seed vessels, still remained, the inflorescence resembling a dwarf Canterbury Bell. Yet the plant was clearly and obviously a perennial, and I was a good deal puzzled as to what species it could be. I could find no description in any book in my library which agreed with my find. I collected a few roots and successfully established them at Stevenage, where they flowered that same summer, 1927, and, moreover, set seeds which have since given a crop of hearty young plants. I sent a flowering specimen to Professor Wright Smith, at Edinburgh, who was able to name it for me, Campanula speciosa, of Pourr. As a cliff-dweller the plant had a curious habit. It hung and dangled down the perpendicular rock faces with ancient thumb-thick stems, raggedly clothed in remnants of the dead leaves of long dead summers. These stems were often a foot or eighteen inches long, terminating in a rosette of young, sprouting leaves for the coming season, and sometimes the dead skeleton seed-capsules of last season.

Campanula speciosa has done exceedingly well planted out in ordinary loam on the rock garden here. It came through last winter and proved itself absolutely hardy, and our plant has this summer carried ten glorious spikes of blossom, each about eighteen inches tall and smothered with the large, cup-shaped bells, a full two inches in diameter. The colour is that beautiful pale, luminous violet of the lighter coloured Canterbury Bells. On seeing this species flowering in the garden, nine people out of ten would—without a close examination—say that it was a biennial. It bears such a strong family likeness to the Canterbury Bell that there is every excuse for the mistake. I showed one of my original collected plants, flowering in a pot (Fig. 52) before the Floral Committee at the R.H.S. meeting of July 31, when it received an Award of Merit. Several experts at the show remarked to me what a pretty plant it was—"but, of course, biennial." Some at least, I felt, did not really believe my statement that it was a true perennial. Yet when I collected it on Montserrat the specimen was carrying a dead flower spike of the previous summer, it flowered the same season, 1927, and here it was flowering again for the third time to my certain knowledge.

There is, of course, another Campanula speciosa in cultivation, quite distinct from the present species, and which *is* a biennial. I have grown it for several years, and quite a pretty thing it is, like a small Canterbury Bell, but having the superior C. speciosa, of Pourr., which is perennial and, moreover, a handsomer plant in every way, I shall discard the other.

I cannot help feeling that Montserrat may be very well worth re-visiting some day—a little later in the summer than my last visit. Both the flora, and I believe the fauna, are enormously rich. It is readily reached from Barcelona, and Barcelona is an easy run from Paris. There is an enormous monastery not far from the summit, where one may occupy a pilgrim's cell and make use of a simple refectory and a well-equipped bar. A little lower down is an hotel—which had not opened for the season at the time of my visit. It is a vast, isolated mountain, a solitary outlier from the main chain of the Pyrenees, and from its flanks you look down upon the plain as from an aeroplane, and see it like a delicately coloured, ever-changing contour map. The upper portion of the mountain is wildly fantastic, being rent into a series of great, finger-like pinnacles which look like a rather untidy bundle of gigantic Asparagus.

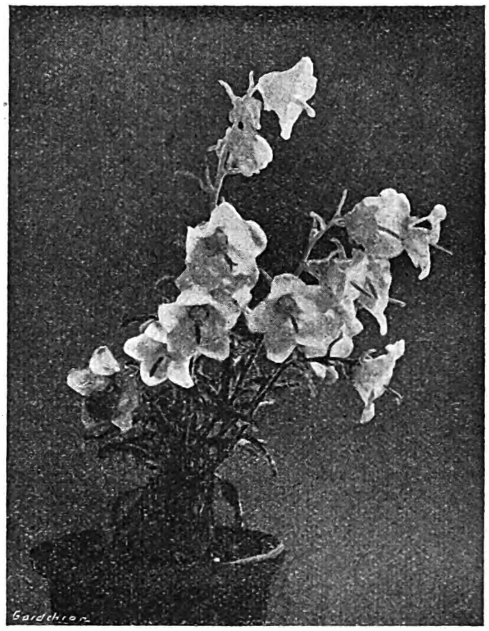


FIG. 52.—CAMPANULA SPECIOSA, POURR.

Among other good plants which I found on Montserrat were the rare Aphyllanthes monspeliensis, with its Rush-like leaves, tipped with terminal blue, Lily-like flowers; Saxifraga catalaunica, a remarkably fine "silver," near S. lingulata, which haunts the limey cliffs, usually just out of reach; Coris monspeliensis, and Globularia Alypum, a charming two-foot bush with button flowers—not quite hardy here, but a first-rate alpine house plant. Ramondia pyrenaica grows in wild profusion and magnificent form. The Rush-leaved Jonquil, brilliant gold, dainty, and intensely fragrant, grows freely, and there are jungles of Arbutus, Myrtle, and Viburnum Tinus. But the best plant of all that I found in a two days' visit was Campanula speciosa, Pourr., which I regard as a first-rate garden plant, and which I believe has come to stay. *Clarence Elliott, Stevenage.*

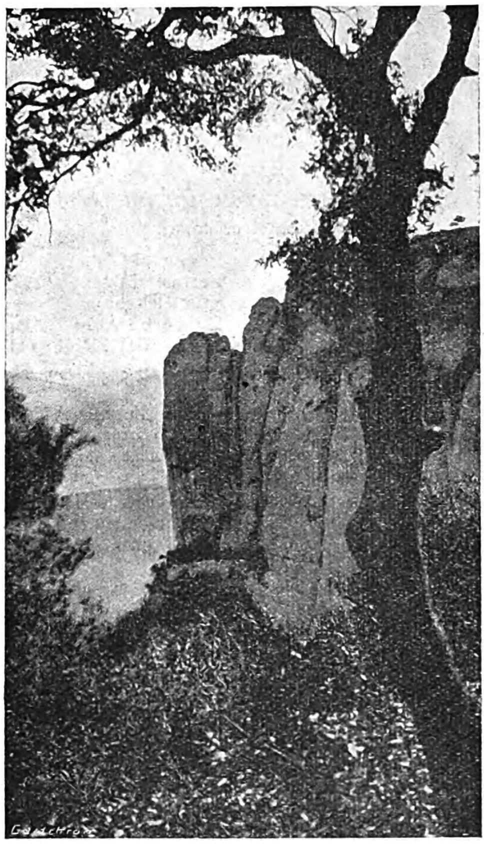


FIG. 53.—MONTSERRAT: THE HOME OF CAMPANULA SPECIOSA, POURR.

ALPINE GARDEN.

VERBENA RADICANS.

During recent years this dwarf, creeping Verbena from South America has become quite popular, and is now not an uncommon feature on rock gardens, although it is not always seen in that condition of floriferousness which portrays its real charm. To secure the best results, it should be planted in a hot, in fact, one might say a sun-baked, position, but in soil of good texture; I have found that the addition of a considerable quantity of lime or mortar-rubble has a marked effect upon its flowering propensities. In shaded positions it grows luxuriantly, producing long, trailing growths, clothed with deeply cut, rich green leaves, but it only produces a minimum number of flower heads; whereas, when planted under the conditions described above, it forms close mats of growths and foliage and produces hundreds of heads of its pale, lavender-coloured flowers, borne on slender stalks six inches or more in height, during the latter part of summer.

It survives mild winters quite well, but is often killed outright if severe weather is experienced, and therefore a stock of plants should be propagated each year. When the plant is in active growth roots are produced from the axils of almost every pair of leaves, so that if the stems are cut into portions and each potted singly, during the summer, an abundant supply of useful plants may be secured.

PAPAVER ALPINUM.

At the time of writing this beautiful alpine Poppy is providing a bright display on the rock garden, a large bed which occupies a prominent, sunny position being a mass of flowers of varying shades of orange, pink and white. The attractions of this Poppy are not limited to the flowers, for the foliage is extremely beautiful, the leaves being very finely cut and light, greyish-green in colour. From the tufts of leaves the slender flower stems rise to a height of about six inches, sometimes more; they are naked and are terminated by single blooms, each an inch or more in diameter. In its native haunts, P. alpinum is more or less perennial, but in this country it seldom survives the winter, although it produces seeds so freely that the loss of the parent plants need not be lamented. These seeds, if sown early in the spring, give rise to strong flowering plants which produce a succession of blooms from the middle of June inwards. This Poppy should always be grown in the warmest position possible, and in light, well-drained soil, preferably containing a little lime, for it is found on the limestone mountainous ranges of Europe.

Farrer, in the *English Rock Garden*, gives this species as divided into two main types in nature. The first is represented by P. Burseri, which has large white flowers, the bases of the petals being yellow, and which is found in Savoy and the southern Valais. The other type is given as P. Kerneri, which is similar to P. Burseri in all respects except that the flowers are yellow and slightly larger. This form is found in the eastern ranges on the high limestone rocks of the Karawanken and Julian Alps, among other places. Possibly it is the inter-breeding of these two types which has given rise to the various colour forms now met with frequently in cultivation, and which all have the typical P. alpinum foliage and tufted habit of growth. *M. W.*

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

If one were restricted to the choice of a single plant from New Zealand, which should it be? That is one of the silly questions which I put to myself sometimes, and which it is not easy to answer. In fact, I have arrived at a deadlock regarding this one, finding it impossible to decide in favour of either of a pair—to wit, Clianthus puniceus and Gaya (Plagianthus) Lyallii. It is not a case of—

> "How happy I could be with either
> Were the other dear charmer away"—

for March would be reft of one of its chief glories if the decision were in favour of Gaya; whereas if Clianthus were preferred we should sadly miss the cloud of cool, milky blossom with which Gaya tempers the heat of July.

Slugs have a craving for Clianthus puniceus, and it is hopeless to succeed with it unless it is carefully protected after planting out until it is several feet high against a wall. Gaya Lyallii, on the other hand, seems immune from all trouble, both in the glabrous form and in that with smaller, downy leaves, distinguished as the variety ribifolia. The foliage of both varieties is so soft as to incline one to pronounce it a most unlikely subject for exposure to violent winds; but, strange to say, it has proved one of the best wind-resisting trees we have. The long leaf-stalks are flattened like those of a Poplar, which seems to enable the tree to withstand, without the slightest damage or blemish, summer storms that strew the ground thickly with leaves of Horse Chestnut, Oak and Beech. To display Gaya Lyallii at its best, let it be planted against a dark background of woodland, where its cool cloud of blossom may present a refreshing sight in the dog days. Mr. Bean, in *Trees and Shrubs Hardy in the British Isles*, has reported that this tree sometimes succumbs to frost at Kew; but it has never suffered the slightest check on our west coast.

The huge genus Inula contains but a few species which are deserving of a place in the border or flower garden, and some considerable confusion has arisen in identifying those few. In my humble opinion there is none equal to the handsome I. Royleana, of which there is a fine coloured plate in *Flora and Sylva*, Vol. I, p. 310, with a paper by that well-known amateur, the late Mr. C. Wolley Dod, upon some species worth growing. In that paper he gives the palm to I. grandiflora as the most ornamental of the genus; but the defect of that species, at least, in the humid atmosphere of the west, is that the stems are not strong enough to carry the flowers erect, but allow them to flop; whereas those of I. Royleana are stiff and strong, holding the great solitary blossoms aloft to a height of three feet in all weathers. Here again our experience here does not tally with that of Mr. Wolley Dod, who says that "the stalk (of I. Royleana) is not more than a foot, or at most eighteen inches high, very stout and slightly curved." This morning I have measured the stems on a plant carrying eleven flowers and found them to vary from two-and-a-half to three feet high. Again, the plate in *Flora and Sylva* shows three flowers on a stem, whereas in the course of twenty years our plants have never carried other than solitary flowers.

Will any reader of *The Gardeners' Chronicle* enlighten me about a couple of plants which appear here labelled Anemone demissa? Whence they came, I know not; but they are thoroughly welcome guests, producing during early summer, from a flat rosette of deeply-divided leaves, nine-inch stems carrying shining, white flowers, each with a cluster of golden anthers. It is a beautiful and distinct species, resembling a Ranunculus rather than an Anemone, which the Kew *Hand List* assigns to a Himalayan origin.

Does Mr. Grant White correctly describe the flowers of Lobelia Tupa at Wisley as "scarlet" (p. 92)? If so, we have had an inferior variety here, for the flowers on our plants were of a dull crimson hue, and the plants were uprooted to make way for something more cheerful. *Herbert Maxwell, Monreith.*

MESEMBRYANTHEMUM.

(*Continued from p. 35.*)

17.—CRYOPHYTUM, N. E. Br.

Annual or biennial herbs, one species perhaps perennial, covered with watery and often glittering papulae. Stems and branches with distinct internodes, often prostrate. Leaves alternate on the flowering branches and opposite at the base, or all opposite, sessile or petiolate, flat or sub-terete. Flowers solitary and opposite; the leaves scattered along the branches, or axillary, or in cymes. Calyx produced above its union with the ovary into a short, distinct tube and 4-5-lobed above, or lobed nearly or quite down to its union with the ovary; two of the lobes often large and leafy. Petals numerous, slender, linear or linear-filiform, united at the base into a short, distinct tube and arising around the top of the ovary. Stamens numerous, erect, arising from the corolla-tube; filaments several times as long as the anthers. Stigmas usually 5, rarely 4, erect, filiform. Ovary partly or more than half-superior, usually 5-, rarely 4-celled; placentas axile. Capsule with 5, rarely 4, valves and cells; valves with the expanding-keels contiguous, forming a central and often acute keel, with a broad inflexed or erect sub-membranous flap or wing on each side; cells open, without cell-wings or tubercles. Seeds numerous in each cell, small, compressed, somewhat D-shaped, very minutely tuberculate or smooth.—N. E. Br. in *The Gardeners' Chronicle*, 1925, Vol. LXXVIII, p. 412, and in Phillips, *Gen. of S. Afr. Fl. Pl.*, p. 245.

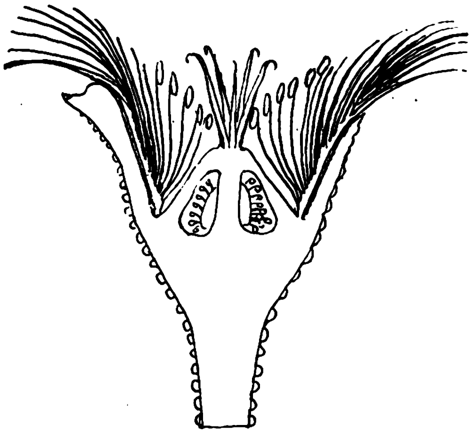


FIG. 54.—CRYPHYTUM GRANDIFLORUM.
Diagram of flower.

Species several, natives of South Africa, the Mediterranean region, Arabia, Persia, Baluchistan, Kurdistan and Atlantic islands, and naturalised in California.

The generic name is derived from the Greek, *kryos*, ice, and *phyton*, a plant, because the well-known "Ice-plant" (C. crystallinum, N. E. Br.) is the type of the genus.

The illustration of the generic structure (Fig. 54) is drawn from a flower of C. grandiflorum, N. E. Br., which is nearly allied to the type.

It would appear that the broad, wing-like margins of the valves of the capsule in this genus (as in others of similar structure) develop so as to enfold some of the seeds between themselves and the expanding keel of the valve, and when the rain soaks in so as to wet the expanding-keels and cause the valves to open, these wings clasp some of the seeds so that they are torn from their funicles (stalks) and may then be easily washed out of the capsule by the rain. A very ingenious and effective arrangement, ensuring the easy dispersal of the seeds, and widely different from the structure of the capsules and mode of dispersal of the seeds in such genera as Carpanthea and Glottiphyllum, where every precaution seems to exist to prevent the seeds from getting out of the cells of the capsule, although they certainly do become dispersed, but I have failed to discover how!

Few species are in cultivation, as most are not showy plants, and those that are, being annuals or biennials (although C. Barklyi appears to be of longer duration), require to be renewed from seeds, which does not always ripen in the British Isles. On the Continent they might do better. Therefore, as I am unable to make a key to all the species from living material, I merely give a list of the species with descriptions of some that are incompletely described, and the new ones that I place under this genus, grouped according to the shape of the leaves and colour of the flowers. As in previous genera, the letter M in the synonymy stands for Mesembryanthemum.

I.—Leaves broad, flat or undulated, sometimes very large.

A.—Flowers White.

1.—C. Aitonis, N. E. Br.—M. Aitonis, Jacq., *Hort. Vind.* Vol. III, p. 3, t. 7; Haw. *Misc. Nat.*, p. 48, *Synop.* 247, and *Rev.* 158; Berger, *Mes. und Port.*, p. 38. M. angulatum, Thumb. *Prod.* 91, and *Fl. Cap.* ed Schult. 426; Berger, *Mes. und Port.*, 36; N. E. Br. in *Bothalia*, Vol. I., p. 145; Schoenl, in *Trans. S. Afr. Phil. Soc.*, Vol. IX., p. 37, t. 2, f. D. M. Volckameri, Haw. *Obs.*, p. 426, and *Rev.* 159. M. lanceolatum, Haw. *Misc. Nat.*, p. 45, *Synop.*, 245, and *Rev.* 15, including varieties; Berger, *Mes. und Port.*, p. 35. M. crystallophanes, Eckl. and Zeyh. *Enum.*, p. 322; Salm Dyck, *Mes.*, §60, f. 2.

South Africa: Uitenhage Division; Zwartkops River, Zeyher 1078, 2623, 2625. Albany Division; near Grahamstown, Mac Owan, Herb. Austr. Afr., 1873. Cradock Division; near Mortimer, Kensit in Herb. Bolus 9305.

Introduced into cultivation by Masson in 1795.

2.—C. Burchellii, N. E. Br.—Haworth gives the following description of this plant, which is at present unknown:—Root sub-biennial. Branches suberectly decumbent, paniculate, with the branchlets scarcely spreading and rather somewhat decumbent-ascending. Leaves ovate, petiolate, the uppermost subalternate, lanceolate, glittering-papillate, especially beneath. Flowers paniculate, small, sessile, white. Described from a plant raised by the traveller W. Burchell from seeds he collected in South Africa.

Mesemb. sessiliflorum var. album, Haw., *Suppl. Pl. Succ.*, p. 93, and *Rev.*, p. 158; N. E. Br. in *Journ. Linn. Soc.*, Vol. XLV, p. 134.

Graaff Reinet Division: by the Sundays River, near Monkey Ford, Burchell.

No specimen or drawing of this plant appears to have been preserved. Berger (*Mes. und Port.*, p. 34) places it as a synonym of M. clandestinum, but it is obviously quite distinct from that species, which has distinctly pedicillate flowers and different leaves.

3.—C. clandestinum, N. E. Br., not of L. Bolus.—This small and rather insignificant species is well described and figured by Salm Dyck and copied by Berger as quoted below, but the fruit has not been described, so I add the following details concerning it.

Capsule 2–2½ lines in diameter when closed, sub-globosely pear-shaped, half-superior, with 5 valves and cells; when expanded about 3½ lines in diameter, with horizontally spreading valves, entirely pallid within, the structure as for the genus, with the membranous flaps transparent. Seeds less than ½-line long, ovoidly D-shaped, very minutely sub-tuberculate, brown.

M. clandestinum, Haw. in *Phil. Mag.*, 1926, p. 129; Salm Dyck, *Mes.* § 60, f. 4.; Berger *Mes. und Port.*, p. 34, f. 3. M. alsinifolium, Don in Lond. *Hort. Brit.* ed. 1830, p. 480.

South Africa, precise locality unknown. I have only seen cultivated specimens of this plant. *N. E. Brown.*

(*To be continued.*)

THE GENUS PRIMULA.

(*Continued from p.* 111).

COERULEA (Forrest). Blue-flowered P.
(Petiolares-Davidii.)

A TUFTED perennial species allied to P. bullata, with a non-woody root-stock and ovate or ovate-elliptic leaves, two to four inches long, with rounded tips and sinuately, broadly toothed margins furnished with a fringe of fine hairs; upper surface smooth and deeply wrinkled, underside hairy; blade tapering into a narrow stalk, clothed with brown or grey hairs. Flower stem one to three inches tall, more or less hairy, bearing one or sometimes two, rich purplish or violet-blue flowers, one to one-and-a-quarter inch across, with a greenish-yellow eye. Corolla divided into five broadly egg-shaped, entire or slightly notched, spreading lobes; tube funnel-shaped, half-an-inch long.

Flowers in October. Grows in exposed situations on rocks on the eastern flanks of the Tali range in Yunnan, western China, at 11,000 to 12,000 feet above sea level.

Culture: As for P. bullata.

COGNATA (Duthie). Cognate P.
(Farinosae.)

This pretty perennial species produces a rosette of numerous, obovate or spathulate, blunt leaves, one-and-a-half to three inches long, tapering into a narrow stalk; margins coarsely toothed; upper surface minutely downy, underside mealy. Flower stem four to nine inches tall, mealy, bearing an umbel of pale violet-purple or sometimes white, sweetly-scented blossoms, on slender stalks, one inch to two inches long. Corolla about one inch across, somewhat bell-shaped, divided into five broadly wedge-shaped, deeply notched lobes; tube cylindrical, longer than the calyx.

Grows on moist, loamy banks and on humus-covered boulders and rocks, in north-western Szechuan, at 10,000 to 12,000 feet above sea-level. Introduced in 1906 and given as P. stenocalyx by Messrs. W. Wright Smith and G. Forrest in their recent classification.

Culture: Good moist calcareous loam and leaf-soil in a moist, half-shady spot in the rock garden, is indicated. *Gard. Chron.*, 1906, Vol. XXXIX, p. 358.

COLUMNAE (Tenore). Columna's Cowslip.
(Vernales.)

This plant is considered to be a microform of the Cowslip (P. veris) by most botanists. The foliage is oval, or rarely oblong or ovate-cordate, abruptly contracted into a narrowly-winged or wingless stalk, the under surface being densely covered with white hairs. The yellow blossoms are borne in the same manner as, and resemble those of, the Cowslip, except that the corolla, which is about three-quarters-of-an-inch across, is usually somewhat flatter.

The plant is found in moist places on the mountains of southern Europe, from the Pyrenees to southern Switzerland.

Culture: Rich, somewhat heavy, loam, in a sheltered moist spot, should suit it.

COMPSANTHA (Balf. f.). Evenly-flowered P.
(Nivales.)

A pretty, somewhat dwarf sub-species of P. pulchella, with a short rhizome and thin foliage, smooth and green above, covered with yellow meal below. Leaves one-and-a-half inch to two inches long, oblong-spathulate, blunt, coarsely toothed on the margins and tapering at the base into a winged stalk. Flower stem three to eight inches tall, sparsely covered with yellow meal upwards. Flowers fragrant, rose-coloured, with a yellow eye, in a loose umbel of two to four. Corolla three-quarters-of-an-inch to one inch across, divided into five oblong, notched lobes; tube somewhat funnel-shaped, about a quarter-of-an-inch long, usually densely downy inside.

This species is found in open stony pastures on the mountains of north-eastern Yunnan, at 10,000 to 11,000 feet above sea-level.

Culture: A rich, gritty fibrous loam, in a moist, half-shady spot, is indicated.

CONCINNA (Watt.). Comely P.
(Farinosae.)

A minute, deciduous perennial species of densely tufted habit. Leaves a quarter-of-an-inch to half-an-inch long, lance-shaped, broad at the tip, pointed or blunt; margins entire or very slightly scalloped, revolute; blade tapering to a short stalk, more or less smooth above, densely covered with sulphur-coloured meal below. Flower stem about half-an-inch tall, bearing an umbel of two to five rose-pink or white blossoms, each a quarter-of-an-inch across, with flat, broadly heart-shaped lobes.

Grows in damp, rocky soil on the Tibetan Passes in the Sikkim Himalayas, at 15,000 to 17,000 feet above sea-level.

Culture: Peat, loam and limestone chippings, in a fairly damp, open spot, is indicated; or possibly moraine treatment would suit this tiny plant.

CONICA (Balf. f.). Cone-flowered P.
(Muscarioides.)

A deciduous perennial, but not long-lived, of compact, tufted habit. Leaves four to seven inches long, spatula-shaped, oblong or broadly lance-shaped, tapering to a narrowly winged stalk and covered with minute white hairs on both surfaces; margins toothed, rolled outwards. Flower stem six to twelve inches long, stout, erect or slightly curved, covered with short, white hairs. Flowers drooping, Cowslip-like, in a short, crowded spike of fifty or more. Corolla lavender-purple outside, paler within, bell-shaped, three-quarters-of-an-inch across, shallowly divided into five small, nearly square, notched lobes, or with rounded lobes; tube cylindrical, three-quarters-of-an-inch long.

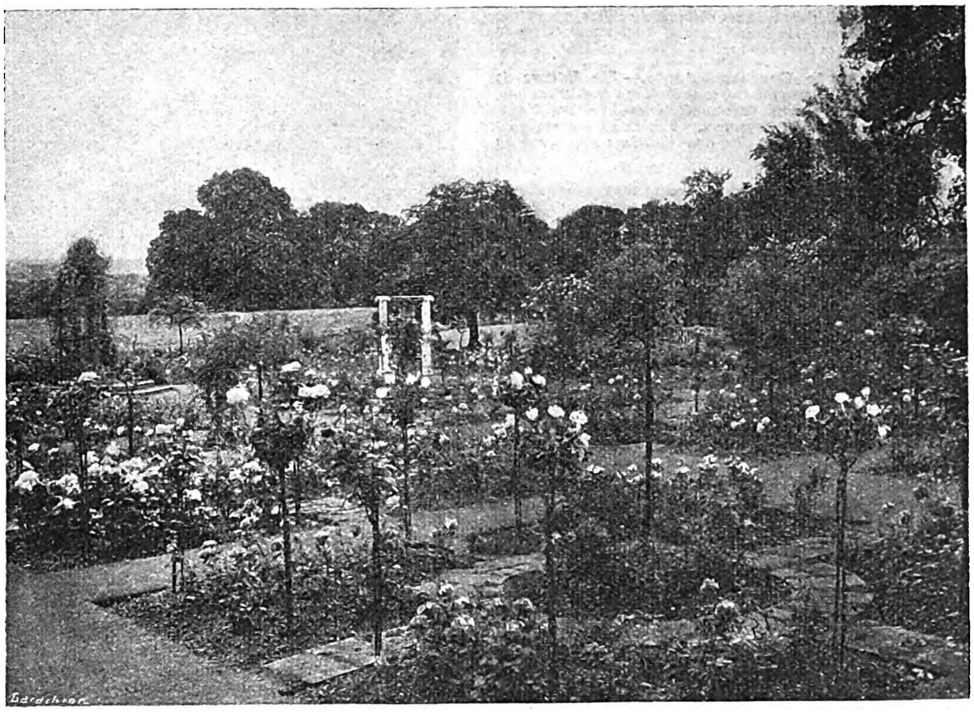


FIG. 55.—MELCHET COURT: THE ROSE GARDEN.
(see p. 130.)

Flowers in July. Grows in moist, open pastures and near the banks of streams on the Chungtien Plateau, in Yunnan, at 11,000 feet above sea-level. Introduced in 1916. *Gard. Chron.*, 1916, p. 247, Fig. 104.

Culture: This plant is quite hardy; it may be grown easily in a damp spot in fibrous loam.

CONSPERSA (Balf. f.). Embellished P.
(Farinosae.)

A tufted, perennial species with a rosette of broadly oblong, lanceolate or ovate-linear, leathery leaves, about two to six inches long, tapering to a fairly narrow stalk; margins furnished with widely separated teeth; upper surface smooth, under side covered with white meal. Flower stem twelve to fifteen inches tall, slender, more or less covered with white meal, bearing from one to three superposed umbels of about twelve rose-pink or pale lilac blossoms, each about five-eighths-of-an-inch across, with an orange eye. Corolla divided into five wedge-shaped, bifid, broadly toothed lobes; tube about a quarter-of-an-inch long, sparsely covered with white meal outside, ringed at the mouth.

Flowers in May. This species is found in damp situations among short herbage on the mountains of western Yunnan, western China. *Gard. Chron.*, 1912, p. 286, Fig. 119.

Culture: Fibrous loam and sand, in a damp, slightly shady spot, is indicated.

COOPERI (Balf. f.). Cooper's P.
(Candelabra.)

This deciduous perennial has thin, green, aromatic foliage in a loose rosette. Leaves elongated, oblong, blunt or pointed, tapering to a long, winged stalk; margins irregularly toothed; five to seven inches long at flowering time, ten to twelve inches long when mature. Flower stems nine to twelve inches tall, smooth, with one or more many-flowered umbels of rich yellow blossoms on slender stalks. Corolla five-eighths-of-an-inch to seven-eighths-of-an-inch across, divided into five rounded or oblong lobes, truncate, with a tiny tooth in the centre; tube funnel-shaped, constricted at the mouth, three-eighths-of-an-inch long.

Flowers from July to September. Found on the sandy banks of streams near Abore Toong, in Sikkim, eastern Himalayas, at about 10,000 feet above sea-level.

Culture: As for P. aurantiaca.

CORDATA (Balf. f.). Kidney-leaved P.
(Rotundifolia).

A perennial with non-mealy, thin, papery foliage. Leaves with blades from one-and-a-half inch to two-and-a-half inches across, kidney-shaped, heart-shaped at the base, very blunt; margins toothed, teeth ending in a sharp point; leaf-stalks slender, rounded, two to three inches long. Flower stem four to five inches long, bearing a loose umbel of about five purple blossoms. Corolla funnel-shaped, about half-an-inch across, with square, blunt, entire lobes; tube cylindrical, about twice as long as the calyx.

This plant grows in moist, half-shady places among short herbage at Singhalila, in the Sikkim Himalayas, at from 9,000 to 12,000 feet above sea-level.

Culture: Good loam, leaf-soil and sand, in a moist, half-shady spot, with protection in winter, is indicated. *A. W. Darnell.*

(*To be continued.*)

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MELCHET COURT.

A garden is undoubtedly a very intimate and personal affair. It unfolds itself in harmony with the character of the composer, unconsciously perhaps, but none the less inevitably; and through the years its ultimate destiny is to reflect the personality of the artist who composed it. Even when a man—God help him—orders a garden complete, in later years it must, in the end, although stiffly and grudgingly, mould itself somewhat to his fads (they will be fads, not tastes) in alterations and repairs, as his pot-bound soul finds scope to stretch itself a trifle; although the result may only be that hybrid style called "transitional."

The main setting of a big garden, its contours and surroundings, are beyond the wit of man to alter in a generation. We number the years of our famous country seats in centuries rather than decades, and in their general outline they alter but slowly from generation to generation as great trees grow up, stand for awhile, and pass away to be replaced by others. Who shall say for how many centuries the great Cedars have flung the barred shadows across the broad terraces of Melchet? How many children have climbed up to heaven through the darkling branches of the huge Cupressus macrocarpa, which looks over the Lavender border into the Rose garden? The arched Yew hedges, twelve feet high and six feet through may have stood their ground since English yeomen first cut long bows! These things are fixed. But these, and the ample view from the south terrace over the Italian garden, and across the curving meadows to the distant fringe of the New Forest, harsh against the opal sky, are part of the eternal order of England. This is the foundation of the garden, not the garden itself—this and the rippling woods which form a crescent barrage to the north. Neither do we acclaim the several plants, having regard to their rarity or otherwise, or to their variety, as the garden. They are but the notes of the symphony, not the symphony itself. The beauty of the garden lies in the choice and combination of flowers, in their arrangement and design, and in their succession, both in the present and, since they will continue to grow and to enlarge, for the future; in the contrast and combination of colour; and in the design of parts to form a harmonious whole.

Therein lies the generous beauty of Melchet, Lord Melchett's beautiful Hampshire estate, where Lady Melchet takes so much personal interest in the fine gardens. No sooner are you inside the long winding drive than you feel yourself in a new atmosphere, a kindly, warm, and generous atmosphere. The spacious south terrace, unbroken by kickshaw beds, but flanked by stately trees, and with a cool, temple garden surrounding a deep, clean bath at the far end; the balustrade piled with sweetly-scented Roses which tumble down to the next terrace, where is the dignified Italian garden; and the tree-girt lake in the lap of the meadows beyond, whence the formal passes into the wild, stand for sincerity and nobility.

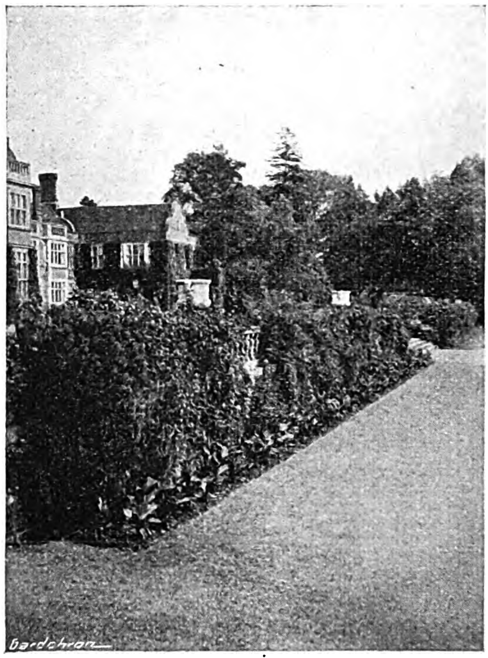

FIG. 56.—MELCHET COURT: THE TERRACE WALK.

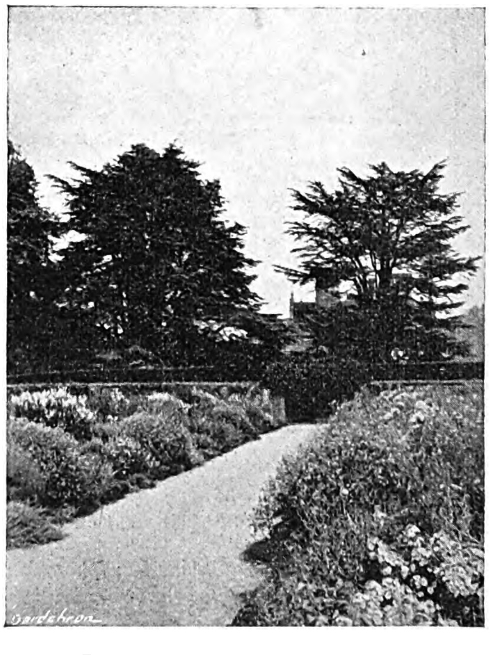

FIG. 57.—MELCHET COURT: BLUE BORDER AND CEDARS.

The magnificent house itself (Fig. 58) is all softened outside with a deep belt of Ampelopsis, besides other plants, such as Magnolia grandiflora, Jasmine, Rose, Wistaria and Acacia; and the Morning Glory is climbing up hand over hand to peep through the mullioned window.

To the right of the broad terrace, as you look out towards the distant Solent, is the Rose garden (Figs. 50, 55), and the giant Cupressus macrocarpa already referred to (Fig. 50). On the left is the Temple garden, shaded on three sides with Lime and Birch and Sycamore trees, with a fine Mediterranean Pine in the background, one of the original trees raised from seeds brought home by one of Nelson's admirals. A group of pylons around the temple serve to support the straying ropes of Honeysuckle, Vine, Wistaria, Clematis and Aristolochia.

At the foot of the wall, coloured Cannas flare beneath a cascade of Roses, and the neat Italian garden fills the whole of the second terrace. The Water Lily ponds on either side are surrounded by clipped Box hedges, surmounted by toadstools of Bay and Yew, and in the severe beds laid out on the lawn are Heliotropes, Lobelias and Petunias, with Box edgings.

Below the Italian garden the lawn slopes gently down between meadows aslant (in spring saffron with thousands of Daffodils) to a charming water garden. A bend in the slope lets out a stream from the base of the hill; it wanders down by the edge of the wood, past a small rock garden, and joins the lake, a long, dark ribbon of water, overshadowed by trees. The stream is girt with Irises and Primulas, and on the rock garden grow such plants as Erodium chamaedryoides roseum, Prunella grandiflora Webbiana, Oxalis enneaphylla, Phlox subulata, Acaena microphylla, Chrysogonum virginianum (a golden-flowered Composite which looks like a Ranunculus), Gentiana septemfida, Primula capitata and P. frondosa, Sisyrinchium bermudianum, Saxifraga muscoides, Androsace sarmentosa, Dianthus squarrosus, Lychnis Viscaria, Vinca herbacea alba, Geranium argenteum, and many other jewels.

A clump of Japanese Irises and Primula helodoxa stands at the head of the lake, and at one side are massed the yellow moons of St. John's Wort, and on the other the reddened spikes of Polygonum. At the lower end a grass band divides the lake from the woodland, which is a wild garden of Bamboos, Lilies, Irises and Foxgloves; but in the spring it is carpeted with English Bluebells, Primroses and Anemones.

Returning to the terrace, we see the great Yew hedge beyond the Cedars and the Lime trees; there are really two hedges at right angles to each other (Fig. 59), and the view of one, viewed through the archway of the other is particularly fascinating. Passing beneath, we enter the walled garden, and find ourselves by the blue border (Fig 57)—the general effect is a soft twilight blue rather than sheer blue, owing to a skilful mixture of tints which, without being aggressive, tone down the cold, ruthless gleam of the more dynamic blues, just as the gloaming softens the harsh high-lights of day.

In the ocean of flowers which flow before the wind over a choppy green sea, one notices Flax, Cornflower, Lupin, Anchusa and Delphinium, all acutely blue; Love-in-the-Mist, dainty and bewitching; Spiderwort, blue, spangled with gold; buttony Scabious; stout clumps of violet Catmint; towering Campanulas all a-flutter with flowers; Gypsophila snowstorms; and Opium Poppies with sea-green leaves and fat, nodding, amethyst flowers. Besides these, there are the Asters and Salvias, Veronicas and Thrift, all worked harmoniously in, until the blue border is more like the inconstant sea on a showery day than one would have thought possible.

Passing beneath an arch of Rosa Moyesii, we find ourselves looking down the long vista of the Apple blossom pergola, a hundred yards of virginal whiteness in the first fleeting warmth of spring, and beyond is the tumble border, spilling fountains of pink and white Roses into a heaving sea of Campanulas and Hollyhocks, yellow Inulas, Zinnias and Snapdragons, and silvery-spined Eryngiums.

In the beds beneath the fruit-encrusted walls are Dahlias and other flowers, and Sweet Peas twelve feet high, together with salmon and flame-coloured Gladioli; and in the corner, hard by, is a Tulip Tree.

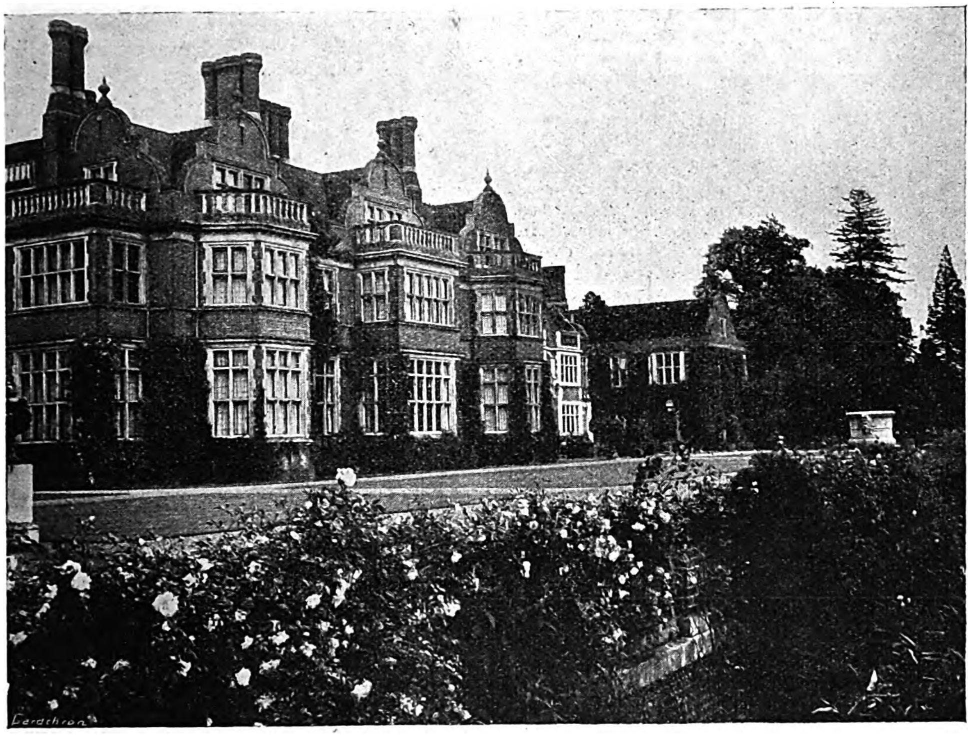

FIG. 58.—MELCHET COURT: MANSION AND TERRACE.

Before leaving the walled garden, we must pay a visit to the houses. The famous Grape Vine, one of the original Black Hamburg variety, introduced one-hundred-and-eighty years ago, is thirty-eight yards long and carries over six-hundred-and-fifty branches; thus, it is bigger than the Hampton Court Vine.

In the tropical house are numerous Orchids, Begonias, Gloxinias, Streptosolen Jamesonii, Bougainvilleas, and a wonderful sapphire-blue Tillandsia. Under glass also are raised hundreds of perpetual-flowering Carnations, including new breeds, the rosy, wine-coloured variety named Melchet Beauty being one of the best; and great numbers of seedling Rhododendrons and other hardy plants, for the further beautifying of the garden.

But perhaps the chief attractions of the garden are the dell, and the dingle. A long grass slope shelves from the wooded platform surrounding the walled garden to the dell. Towards the top of the slope are specimen trees of Lawson Cypress, Picea excelsa, Cedrus atlantica glauca and others, and looking across the burn one sees the further slope billowy with Birch, backed by Oak forest; and there are glimpses down the dell of the distant hills, through an alleyway in the near forest. But the best way into the dell is to follow the stream through the belt of trees and Rhododendrons, where the splintered sunlight filters through, illuminating the Primulas and touching up the clumps of Bamboo. Suddenly the dell opens out, although still shut in by shelving grass banks, surrounded by trees as described. Here the burn is lined with Irises and Primulas, and at the lower end of the dell it flows into a fan-shaped lake, whose sides are decorated with a variety of plants, including Primula helodoxa, called the Glory of the Bog, giant Rheums, Spiraeas, Caltha palustris, Iris Kaempferi and I. sibirica, Sagittaria sagittifolia, Rodgersias, Phormium tenax and Gunneras.

On the slope above, Azaleas are massed along the edge of the wood, with Heaths and Lilies giving a wonderful effect; and the wood itself, of Birch, Lime, Ash, and especially Oak, with an undergrowth of Bracken five feet high, in spring stands for the glory of English flowers, all the wood around Melchet being filled with Primroses and Anemones.

Ascending the grass slope above the lake, we pass again into the belt of trees, where stands an enormous neat footstool of the queer Picea excelsa pygmaea, three feet high; there is an undergrowth of Hypericum patulum here, and in the spring the banks are glistening with Daffodils. And so to the dingle, a sheltered glen surrounded by high bushes and trees, where clumps of Bamboos and Rhododendrons grow, the latter including both species and hybrids. Among the species may be noted R. Falconeri, R. Augustinii, R. oreodoxa, R. campylocarpum, R. pterospernum, R. niveum, R. adenogynum, R. triflorum, R. rubiginosum, and R. micranthum; and among the numerous hybrids are Loderi, Cornish Cross, Gomer Waterer and Penjerrick. There is a fine specimen of Sequoia sempervirens here, and also one or two plants of the hardy Palm, Chamaerops Fortunei.

Ascending from the dingle past the tennis court and beds of Barberry, we reach the path which leads to the terrace, passing an immense dome-shaped bush of Rhododendron obtusum amoenum, and a fine old Pine tree beneath which the lawn in earliest spring is gilded and shadowed with the clasped cups of Crocus.

But who shall say that one season of the year deals more kindly with Melchet than another, when the gentle spirit from which it derives both its beauty and inspiration is constant through the ages! *F. K. W.*

NOTICE OF BOOK.

The Hortus Floridus in Facsimile.

There is but little doubt that this book* will rank high among facsimiles of early botanic works. By a process, the nature of which is unstated—but probably one of the offset photolithographic processes—a part of the line-engravings of the *Hortus Floridus*, in their charm and beauty, now lies before us on clean, Dutch paper, cream in colour and good in quality. As by a magic wand, three centuries of wear and tear have been eliminated, and we are enabled to see these fine engravings almost as when they came glistening from the press of vande Pass at Utrecht, in or about the year 1614. Although it is true that the plate-impressions are absent, so well as the delicate tone given by the impression of the slightly inked "ground" of the copper-plate (which in some instances was enhanced by rubbing the surface of the copper-plate with finely-powdered charcoal), the true lines of the engravings are reproduced with wonderful fidelity. To these excellent facsimiles has been added a text written throughout by Miss Margaret Shipton in a very beautiful formal hand-writing, and facsimiled by the same process. This has given a pleasing artistic unity to the book, and makes it a striking example of book-production entirely independent of ordinary type-setting.

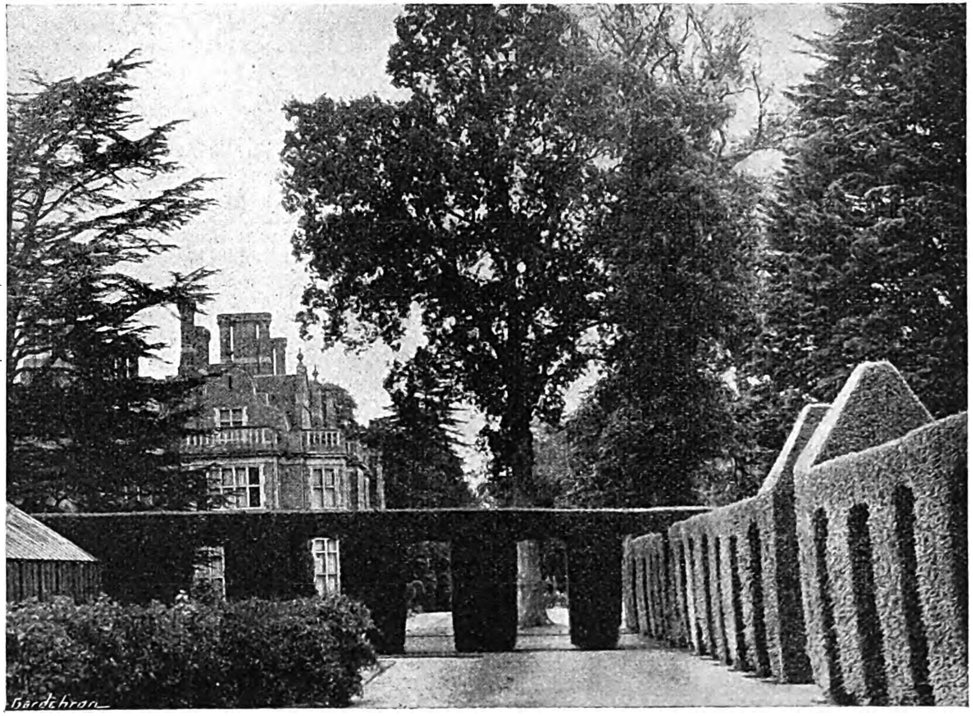

FIG. 59.—MELCHET COURT: CLIPPED YEW HEDGES.

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* *Hortus Floridus*: The first book, contayninge a very lively and true description of the Flowers of the Springe. By Crispin vande Pass. With a preface by Eleanour Sinclair Rohde and calligraphy by Margaret Shipton. London: (The Cresset Press, Ltd., 1928. Obl. 4to (11 × 7½. Limited to 500 copies on mould-made paper, 30s. net; and 30 copies on Arnold hand-made paper.

The Spring section only of the *Hortus Floridus* has been reproduced in the book now under consideration; the flowers of summer, autumn and winter, and the "altera pars," being omitted. The engravings have been reproduced from one of the earliest-issued copies of the book (those of 1614); but do not represent the earliest impressions from the plates. In 1615-16 the first brilliant impressions of the bulk of the *Hortus Floridus* plates were issued with a separate text in Dutch, French or English, giving instructions how to colour the engravings. The Latin texts, which appeared on the versos of the plates in the first and last issues of the book, and of which Miss Rohde gives an English translation, have no relation to the above-mentioned instructional texts.

From the standpoint of horticultural interest, it is well that these latter texts have not been reprinted; especially the English translation by Thomas Wood, which, in spite of its quaintness, was a very poor piece of work. These translations of the Latin texts are to a certain extent interpretative, where, for examples, "apices" is rendered anthers, and "folia" petals; but such renderings may scarcely be called into question when they help to convince us how truthfully vande Pass wrote his descriptions.

Although this facsimile is limited to the Spring Section of the *Hortus Floridus*, the selection has been a happy one, as some of the best plates are there included. Nevertheless, one cannot but regret the absence of the twelve additional plates of Tulips added to Spring in copies of the book issued in 1615-16; the more so on account of the fact that the plate numbered 54 was omitted from all the later issues, and is so seldom met with. This plate pictured Tulipa lutea oris rubri, and, although the Latin description of it was included in the final issues of the book, the plate was omitted owing to a confusion in numbers of descriptions and plates. However, enough Tulips are included in this facsimile to witness how much vande Pass admired them, and to show his skill in depicting them. Had he devoted himself further to the engraving of flowers, it seems highly probable that he would have given us a whole book of Tulips; but his services were in demand elsewhere. In one of his descriptions he says: "So great is the variety of Tulips year by year as very often to mock or surpass the desires of the growers, and so it is very difficult even for one who is expert to express them in words."

Miss Rohde's interesting preface to this facsimile deals largely with the introduction of the Tulip, the Primula and the Narcissus. It is worthy of note that, upon the authority of Richard Hakluyt, Tulips were introduced into cultivation in England before the year 1582. At that early date their cultivation must have been a somewhat restricted one, as several authors, who would have done so had they been of common occurrence in gardens, failed to mention them. A few men, such as "James Garret, a curious searcher of Simples, and learned Apothecarie in London," mentioned by Gerard, no doubt received specimens from the Continent many years before Gerard published his *Catalogus* in 1596 containing the entry "Tulipæ infinitæ." From 1554 when Busbecq, ambassador of the Emperor Ferdinand I, saw the Tulip growing in profusion at Constantinople, no doubt there were sundry persons in western Europe who were quietly cultivating it. The celebrated Clusius appears to have been mainly instrumental in its general introduction, and it was certainly due to him that before the third decade of the seventeenth century Holland had become the centre of the Tulip-culture in Europe. From 1573 to 1587 Clusius lived in the imperial city of Vienna, then one of the important gateways to the east, and through his hands would pass many rarities, some of which would find their way to his friends. From 1593 until his death in 1609, he was a professor at Leiden, where he had a garden in which he cultivated Tulips and other rare plants.

To return to the *Hortus Floridus*, it may not be uninteresting to note that somewhere about 1590, Adrian Collaert the younger published his *Florilegium* at Antwerp; a small book of about twenty-five leaves, small quarto in size. This collection, held to be the earliest attempt to engrave flowers on copper-plates, is more like a sketch book than anything else. Three of its plates contain engravings of Tulips, and are interesting in view of the fact that the book antedates the *Hortus Floridus* by about twenty-four years. When it is remembered that the "altera pars" of the *Hortus Floridus*, which certainly antedates the main work by many years, contains no engraving of the Tulip, it may only be concluded that that part was a juvenile task executed by Crispin and his brothers from a painted collection older than the general cultivation of the Tulip in western Europe.

For more than three centuries, the *Hortus Floridus* has made an irresistible appeal to flower lovers. It is a celebrated book, and in Europe copies of it are becoming rarer every year on account of the demand for it in the United States of America. The present facsimile is, therefore, a very welcome one, as it may enable those who cannot afford to pay the price of an original copy of the book to obtain a generous portion of it in facsimile at a moderate price.

In conclusion, it may be interesting to consider what really constitutes the appeal of the *Hortus Floridus*. A contemporary of vande Pass, Pierre Camus, in his *Les Diversitez*, Paris, 1613, asked a question which may be translated as follows: "How comes it then that the greater number of men admire art rather than nature—who does not love better a flower neatly done in a picture, or well represented in embroidery, than all the natural ones?" While there may be something to be said for this kind of argument, it scarcely meets the case. On the other hand, Pascal, in his *Pensées*, shows the reverse of the medal when he exclaims: "What a vain thing the art of painting is, which attracts our admiration on account of the resemblances of the things we do not admire in the original!" Again, this fails to explain why this little Dutchman, early in the seventeenth century, was able to achieve so beautiful a series of plant illustrations. The truth is, that, although a highly skilled artist, he did admire very greatly his originals. Consider the following excerpts from his descriptions: The Anemone "lovely in its wondrous beauty and variety of colour, is wont to delight beyond measure, to attract and as it were to hold the eyes of those who see it"; of one of the Tulips "less yellow but stands out more brightly with rays of a whitish colour, and observers reluctantly withdraw their eyes from it"; another Tulip has "a scarlet colour here and there around the edges, tastefully and variously splashed along the centre with glistening white flames, a wonderful marvel of nature." The essential appeal of vande Pass' work, apart from its high technical excellence, lies in the fact that it is a record of the intense objective interest which he took in flowers. Unlike the superior person who murmurs "Oh, that's obvious!" he found delight in depicting the "obvious" beauties of garden flowers. He must have been a very happy man while portraying his subjects direct from the living plants. The quaint, low "skyline" in many of the engravings was, I believe, entirely due to the method he must have employed. To draw and colour the plant before him in the most friendly and intimate way, it would be necessary for him to work with his eyes on a level with the top of the plant. Some kind of window-boxes were no doubt used; and his "skyline" in some cases would be the nearest ridge of mould in the box; and in other cases, where he depicts only the upper portions of plants, perhaps the distant edge of his garden, or even his window-sill, sufficed. His first intention was to engrave the plants only; but he was no doubt induced to change his mind, when he had completed the plates for spring and summer, by the bees and other insects which would come sailing into the picture. So at length he had to include some of them in the engravings, thus giving them an added charm.

The self-portrait of vande Pass, reproduced on p. 122, is from a pen and bistre drawing preserved at Vienna. *S. Savage.*

INVESTIGATIONS ON INTERVARIETAL DIFFERENCES OF A CHEMICAL NATURE IN THE MATURE POTATO TUBER.[*]

While precise identification may always be made from the growing plant during the summer months, there is great difficulty in identifying Potato tubers in winter. During this season the number of visible characters is few, and not all of these have an absolute, or even relative value. The characters used hitherto by the writer are: (1) the colour of skin; (2) the colour of flesh; (3) the location of pigment in the skin; (4) sprout colour; (5) rapidity of sprouting and (6) condition of sprout hairs. Tuber shape and depth of eyes are valuable characters, but in small samples too much importance should not be given to them. Among the shapes already enumerated, the round (spherical) type is the most constant; the deep- and fleet-eyed types are also very constant, but intermediate forms are difficult to distinguish.

This paucity of constant morphological characters renders it desirable to explore the possibilities of physiological and chemical differences.

That there are definite and marked differences in the rapidity of sprouting among the healthy, mature tubers of Potato varieties has already been noted.[†] The reaction of varieties to Wart Disease may be determined in winter by laboratory tests ("Wart Disease: Immunity Tests" *Sc. Jn. Agric.*, Vol. X, p. 3, 1927). Under favourable conditions the time involved need not exceed a month, and thus varieties may be grouped during winter into two clearly defined groups, immune and non-immune. The method, however, is laborious and not suited to extensive tests.

Chemical differences between the mature tubers of varieties have long been recognised. The commoner methods have been attempts to differentiate by moisture, dry matter, starch, proteid or ash, but these have not been successful because environment influences each constituent considerably. There are, however other substances in tubers which do not fluctuate so much as the above. Thus Artschwager[‡] has investigated differences in solanin content, but substantial variations were not found.

Some preliminary observations gave promise of a possible grouping according to "flavone" reaction and detailed investigations were made, the results of which are now presented. Complex analyses, involving the preparation of expressed juice, have been avoided as simpler tests would have a wider value for commercial purposes. It was considered better also in this preliminary work to restrict observations to a few varieties and to test a large number of samples from as many districts as possible. In this way the influence of environment could be ascertained and the limitations of the methods fixed.

In the following descriptions it has not been deemed expedient to give more than a very brief and simple account of the chemistry of the various reactions.

(A). The Alkali Test.

Almost universally distributed in plants are substances known as "flavones." In bulk "flavones" are yellow, but they exist in the cell-sap in such minute quantities as to be practically invisible; on the other hand, when they are treated with alkalies an intense yellow colour is developed. The tubers of Potato varieties differ in the amounts of "flavones" they possess and the approximate relative quantities may be determined by a colorimetric test.

Method.—Sections of Potato tubers, about one-eighth-inch thick—taken from the middle of the long axis of the tuber and avoiding

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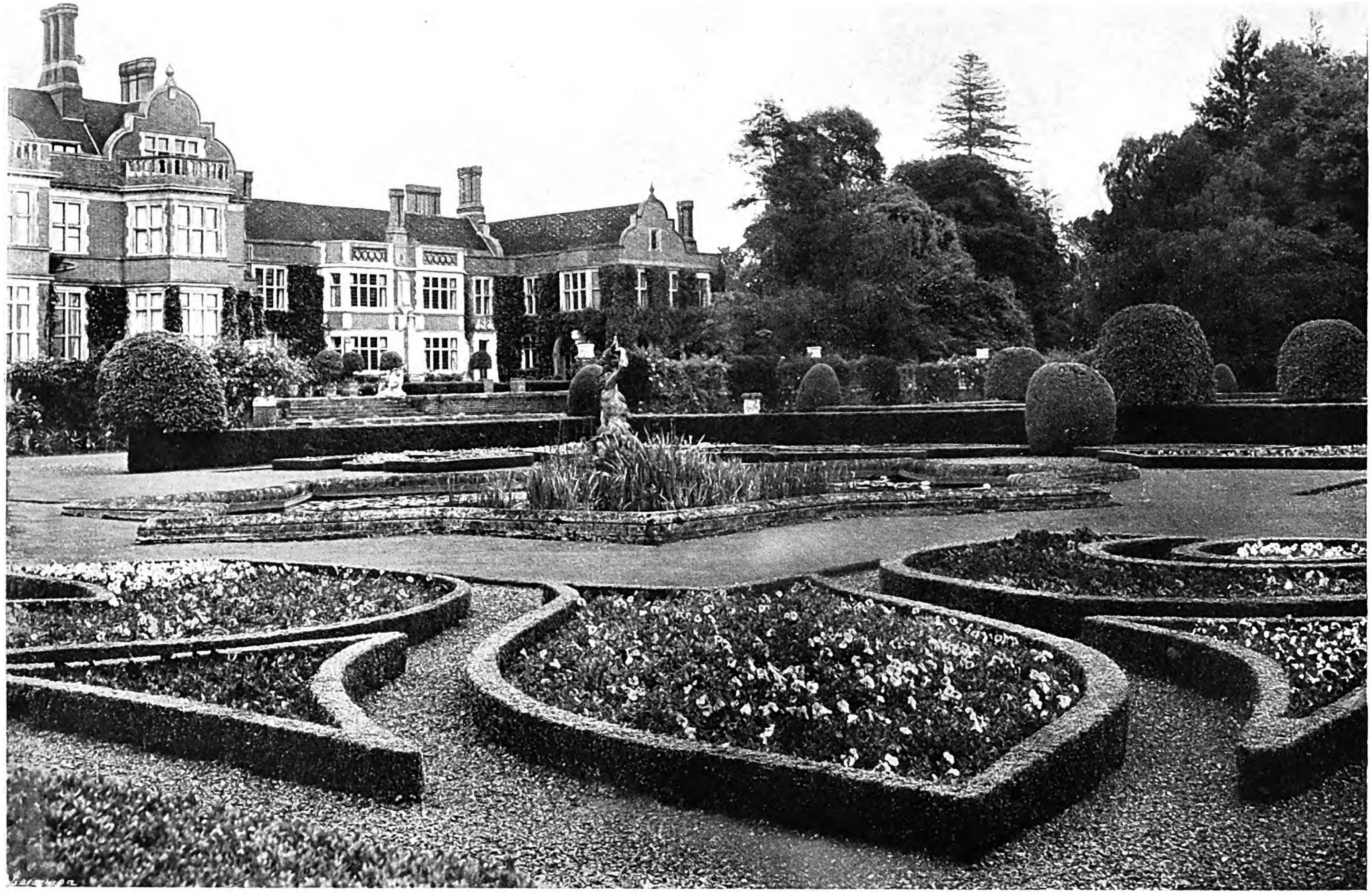
[*] By T. P. McIntosh, B.Sc., reproduced by permission from *The Scottish Journal of Agriculture*, July, 1928.

[†] See McIntosh, T. P., *The Potato*, 1927.

[‡] Artschwager, E., "Studies on the Potato Tuber," *Journ. Agric. Res.*, March, 1924.



MELCHET COURT: THE TERRACE GARDEN.

wounds, where the flavones appear to concentrate—were immersed for several seconds in a normal solution of caustic potash and then laid out on petri dishes. The yellow colour continued to develop in intensity for approximately five minutes after the removal of the slices from the solution, but thereafter the colour remained constant, or almost so, for at least twenty minutes.

The results obtained are shown in Table I.—

Table I.—The Alkali Test.

1. Very faintly Yellow.	2. Faint Yellow	3. Yellow	4. Deep Yellow.
Eclipse	Bishop	Abundance	Champion
Edzell Blue	British Queen	Ally	
Puritan	Catriona	Arran Chief	
Witchhill	Crusader	Arran Comrade	
	Duke of York	Arran Consul	
	Di Vernon	Arran Victory	
	Epicure*	Dargill Early	
	Field Marshal	Great Scot	
	Golden Wonder	Immune Ashleaf	
	Katie Glover*	King George	
	Kerr's Pink	Lochar	
	King Edward	Majestic	
	May Queen	Northern Star	
	Ninety-fold*	Tinwald Perfection	
	President		
	Rhoderick Dhu		
	Sharpe's Express		

Comparisons were made between these discs of tissue and the colour obtained with the crude extract and expressed juice, and similar intensity of colour was obtained. The colour of each variety fluctuates slightly about a mean, but on the whole remains relatively constant. Thus, samples of Kerr's Pink derived from ten Scottish sources, one Dutch and one French source gave approximately the same results; similarly, no substantial variations were noted in samples derived from acid and alkaline soils. The tests were continued throughout the whole storage period, November to March, with constant results.

The method is thus applicable to tubers drawn from many sources and throughout the entire storage season. Moreover, from a limited number of tests it appears that the reaction holds in the case of tubers affected with virus diseases, and also in the case of the two common variations, bolters and wildings. Nor does the manuring of the crop affect the result: tubers from plants manured in the following way showed no substantial deviation from the normal, viz., (1) no manure; (2) nitrogen and phosphates; and (3) nitrogen, phosphates and potash. That maturity at lifting time was without substantial influence was determined for the variety, Golden Wonder, which gave similar reactions for tubers taken from plants treated thus: (*a*) sprouted and planted on March 1; ripe when lifted, very mealy when boiled; and (*b*) unsprouted and planted on June 16; foliage dead before maturity; soft and soapy when boiled.

Application of the Test.

Four groups have been made. With regard to all groups it may be stated that there is a tendency to deeper pigmentation in the tissue outside the vascular cylinder. In Group 2 the tissue within the cylinder is frequently coloured to the same extent as that in Group 1, but the external tissue is always darker. The range of variation of individual varieties is such that the positive variation of a variety in one group may overlap the negative variation of a variety in an adjacent group, hence, although, especially with large samples, each group may be compared with its neighbour, determinations may be made with certainty only by omitting adjacent groups, *i.e.*, by comparing 1 with 3 and 4; 2 with 4; 3 with 1; and 4 with 1 and 2. Similarly, if in any sample a tuber gives the reaction of an alternate group, it must be regarded as a rogue.

(b).—The Oxidase Test.

The Potato tuber contains what is known as an oxidase system. The presence of such a system may be demonstrated by the use of certain substances, known as "acceptors." All varieties, however, do not react to the same degree when treated with these substances.

Method.—The procedure finally adopted in these experiments was as follows: To the surfaces of slices cut as in the preceding test—avoiding injuries and eyes—were added, or brushed on, a few drops of a ·5 per cent. solution of Benzidine in fifty per cent. alcohol.§ These slices were allowed to lie in petri dishes for sixty minutes in a laboratory, the average temperature of which was 40°F. The colour which develops in some varieties is a rich brown-purple; in other varieties only faint colouring is noticeable, and in others again an intermediate tone is reached. Table II gives the results.

Table II.—The Oxidase Test.

1. Dark.	2. Intermediate.	3. Light.
Abundance	Ally	Eclipse*
Bishop	Arran Chief	Edinburgh Castle
British Queen	Arran Comrade	Epicure*
Edzell Blue*	Great Scot	Dunottar Castle
King George	May Queen	Harbinger
Lochar*	Ninetyfold	King Edward*
Majestic	Rhoderick Dhu	Puritan
Village Blacksmith*	Sharpe's Express	
	Tinwald Perfection	
	Up-to-Date	
	Witchhill	

These tests were continued throughout January, February and March, 1928. Limited tests with bolters and wildings, and with tubers affected with virus diseases showed that no substantial variation of the varietal reaction appeared to be caused by these conditions.

Application of the Test.

The reaction of any variety fluctuates about a mean. Three groups have been made. All tubers of all varieties in Group 1 may be compared with all tubers of all varieties in Group 3 subject to this qualification, viz., a small percentage of tubers of those varieties in Group 3 denoted by asterisks show an intermediate reaction which is difficult to distinguish from the lightest variations of Group 1 varieties; even so, however, the asterisked varieties of Groups 1 and 3 may always be compared with certainty.

As with the previous test, a white tuber in a Group 1 variety or a brown tuber in a Group 3 variety may be considered a rogue. All tables in addition furnish useful information concerning the identity of any variety. *S. Savage.*

(*To be continued.*)

MARKET FRUIT GARDEN.

The July drought lasted for eighteen days in my district, the heat being intense during the greater part of the time. On the whole, fruit trees withstood the trying conditions well. A few Red and Black Currants, where fully exposed to the scorching sun, shrivelled up on the bushes; and Plums, in a steeply-sloping plantation, became so dry that they lost many leaves from the tops of the trees, and a number of the fruits dropped. Apples evidently appreciated the warmth, and managed to make growth and to improve in appearance in spite of the drought. The fruits of early varieties, particularly Beauty of Bath, are smaller than they would have been under moister conditions, but later varieties give promise of swelling to normal size.

The total rainfall for the month of July was only 1·52 inch, which is considerably more than an inch under the average. Of this, 1·19 inch fell during the last five days of the month, effectually ending the drought. Even then, however, it was found to be impossible to drive in stakes for fruit trees, the ground still being hard and dry nine inches below the surface. The drought was naturally a great time for killing weeds, every stroke of the hoe or cultivator leaving a clean track.

Fruit Prospects.

For the first time this year, I am beginning to find some pleasure in looking at my trees. During the early part of the season they appeared unaccountably sickly, the leaves being poor in colour. Now, under the influence of warmth and moisture, they improve with each succeeding day. In the case of Apples, fruits appear where there appeared to be none, the increasing size and colour bringing them into prominence. They are still far from being a full crop, but the yield is quite a useful one for what was expected to be an "off" year. There is a decided shortage of late cooking Apples; but three of the most valuable dessert varieties, Worcester Pearmain, Cox's Orange Pippin and Blenheim Orange, are likely to yield fair crops of beautifully clean fruits. Beauty of Bath is a moderate crop, but the fruits are small in size.

It is also the only variety seriously disfigured by scab, the reason being that it was sprayed with lime-sulphur before flowering instead of with Bordeaux mixture, which was used for all other varieties. This is proved by the fact that stray trees of Beauty of Bath, standing among other varieties and therefore receiving the Bordeaux mixture, are carrying much cleaner fruits. I now regard lime-sulphur as definitely inferior to Bordeaux mixture for the pre-blossom spraying in my conditions.

Plums are a decidedly light crop. Fruits of Rivers' Early Prolific, the only kind picked so far, were very sound and of remarkable size. If the other varieties follow suit, and sell at equally satisfactory prices, the result should not be altogether depressing. Pond's Seedling and Monarch should give the pickers most work. Black Currants turned out rather better than was expected, the yield being almost exactly the same as last year's, while prices were slightly higher.

Lime in Grass Orchards.

It has sometimes been suggested to me that my system of grassing down Apple plantations, mowing the grass twice yearly and allowing it to rot into the ground, is likely to make the soil sour. My soil is naturally very deficient in lime; but all the plantations received heavy dressings of chalk when possession of the place was obtained. Most of them have been more lightly chalked once since; but one plantation, which has been under grass longest, did not receive this second dressing, and has not been chalked for more than twenty years. The soil might be expected to be sour here if anywhere. I have invested in one of the little outfits for testing soil for acidity mentioned in a recent editorial article in *The Gardeners' Chronicle*, Vol. LXXXIII, p. 443. The soil in question turns out to be neutral, the colour reaction corresponding to pH.7, which is the ideal condition. Lime is not required, therefore, and I am saved the expense of applying any. The same result was obtained in several other plantations—in fact, I have not yet found a soil showing the slightest suspicion of acidity. Apparently, therefore, the "sod mulch" system does not rapidly induce sourness. It should be mentioned that I make a point of avoiding acid fertilisers so far as possible.

The popular but old-fashioned method of testing soils for the presence of lime by applying dilute hydrochloric acid is too crude to be of much value. There is no effervescence when this test is used on my soil.

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* Varieties thus marked differ only very slightly from those in Group 1.

§ In this and the tyrosinase test a little practice is necessary before the operation can be successfully performed; the same quantity of solution is necessary for the same area of tuber surface.

Grading Apples.

I am having my first experience of packing Apples with the help of a power-driven Cutler grader, and it is very pleasing. The machine solves all grading problems. As the Apples pass before the eyes on the mechanical sorting table, turning over and over as they move slowly forward, culls are picked out and the fruits divided into two grades for quality, which really means with regard to the degree of disfigurement by scab and other skin blemishes. Both grades are sized at the same time by the machine, one on each side of the grader. This sizing is very exact, being done by weight; and the sizes may be readily adjusted to suit any sample of fruits. By a little organisation of the packing staff, all may be kept occupied, and any variety dealt with. If the general sample is large and clean, the fruits pass quickly over the grader, and most of the hands are engaged in packing. If, on the other hand, the sample is small, including many blemished specimens, and therefore difficult to grade, more hands may be engaged at the sorting table, leaving only one or two to pack. I shall gain in several ways over the hand grading method employed previously. In the first place, the work is got through much more rapidly, a matter of importance when there is a heavy crop. This means that Apples do not stand about for long, getting stale, occupying space, and holding up hundreds of orchard boxes which are urgently required by the pickers. In the case of early varieties, too, it is important to place them on the market so quickly as possible, for prices generally fall rapidly. Apart from speed, there is the great advantage of accurate sizing, an essential for the box packing which is becoming more and more necessary. Lastly, I expect to gain by the sizing of the lower-grade Apples. These go to low-class markets, and hitherto, for want of time to size them, have simply been tumbled into bushel baskets and labelled "Rough." They look quite respectable when sized and properly packed, and cannot fail to realise higher prices. Low-class markets do not object to a few skin blemishes, but they appreciate size. No machine is perfect; but so far I have discovered only one fault with this grader. It makes some mistakes in sizing if many of the Apples are very small. Now and then two get into the same carrier cup, and, since sizing is done by weight, they naturally fall into the wrong bin. Such mistakes are obvious to the packers, who set aside these Apples; but it is easy to prevent them by picking out all fruits under a certain size on the sorting table. It is possible to obtain an eliminating section to do this work; but the machine occupies quite enough space as it is.

Summer Pruning.

Mr. R. R. H. Moore (p. 97) asks: "Why is it the usual custom to do the greater part of the pruning in winter?" So far as commercial plantations are concerned, this is largely a matter of convenience. During the summer all hands are engaged in other work, such as hoeing, picking and packing. It is, in fact, a time of rush and strenuous work. If pruning had to be done in summer, more hands would have to be engaged, and there would be little for them to do during the winter. Pruning on a fruit farm is a very long job, and generally occupies all available opportunities from the fall of the leaves until the end of March, or even later. In the case of a recently-planted fruit farm it is different. Marketing is then not a serious matter, and there is time for summer pruning. It used to be done on my place; and I think it did help to bring young vigorous trees into bearing. It works by checking the root extension which follows shoot growth, and therefore reducing vigour. For this reason it does not help older trees, which, under commercial conditions, are apt to be lacking in vigour rather than the reverse. In order to carry out the Lorette system on a large scale, and get the different operations completed at the correct times, a very large staff would be required, and they would have to be intelligent people. Even for bringing young trees into bearing, I doubt whether it is more effective than a system of winter pruning which is reduced to very light tipping of leaders and very long spurring of laterals. *Market Grower.*

WORKMAN'S COMPENSATION.

There is an old saying that accidents will happen even in the best regulated of families and they may happen, too, even in the best regulated gardens, and the best thing we may do is to be prepared for them. One way to prepare is obviously to be acquainted with the provisions of the law with regard to workman's compensation.

The Workman's Compensation Act of 1925 is now the most important statutory provision on the subject, and governs all workman's compensation cases, where the accident happened since January 1, 1924.

The first section of the Act provides that if in any employment, personal injury by accident arising out of and in the course of the employment is caused to a workman, his employer shall "subject as hereinafter mentioned," be liable to pay compensation in accordance with the provisions of the Act.

The first question to which we must direct attention is, What construction does the Court put on the word "accident"? It is, of course, a question which will have to be decided on the particular circumstances of each case, but for a general definition, Viscount Haldane, L.C., has given us "accident includes any injury which is not expected or designed by the workman himself."

Next, we must find what is meant by arising out of and in the course of the employment. First, it must be mentioned that in the absence of evidence as to how an accident occurred, it is presumed to have arisen in the course of his employment if the workman is injured during the time of his work and on his employer's premises. But he need not necessarily be on his employer's premises, for the accident is equally within the provisions of the Act if it happens while the workman is on a public highway carrying out some errand for the employer. Nor need he be actually engaged on any work at the time, for it has been held that a workman who is injured during the dinner hour is entitled to claim compensation for his injuries.

Another and very important question which awaits an answer is "Who is a workman within the meaning of these Acts"? Section three of the Act of 1925 defines him as any person who has entered into or works under a contract of service or apprenticeship with an employer, whether by way of manual labour, clerical work or otherwise.

This definition is subject to certain exceptions, and sub-section (2) contains a list of people who are not to come within the definition. These are: (i) any person employed otherwise than by the way of manual labour whose remuneration exceeds £350 a year; (ii) a person whose employment is of a casual nature, and who is employed otherwise than for the purposes of his employer's trade or business, not being a person employed for the purpose of any game or recreation and engaged or paid through a club, or (iii) members of the Police force, or (iv) an out-worker; or (v) a member of the employer's family living in his house.

The exception with which we are most concerned seems to be that of casual employment—exception (ii)—and the test here appears to be whether or not there is any agreement for permanent or periodical employment. To take a decided case, it has been held that a charwoman employed on fixed days each week was within the provisions of the Act and not a "casual," but a window cleaner who was only sent for when the windows needed cleaning was not within the provisions of the Act, his employment being of a casual nature.

It should be remembered, too, that even a "casual worker" comes within the provisions of the Act if his work is for the purpose of his employer's trade or business, so that a casual labourer employed by a market gardener or nurseryman for the purpose of his business is entitled to claim, although if he is employed in a private garden he is not entitled to.

The next thing for consideration is, supposing that the workman (or his dependants) is entitled to compensation under the Act, how and within what time must he make his claim?

Section 14, (i), provides that proceedings for the recovery of compensation for an injury shall not be maintainable unless notice of the accident has been given so soon as practicable after it happens, and before the workman has voluntarily left the employment in which he was injured. And, unless the claim for compensation with respect to such accident has been made within six months from the occurrence of the accident causing the injury, or in the case of death, within six months from the time of death.

With regard first to the notice, this may either be written or oral, and should, for all practical purposes, be given so soon as the injured man realised that he has an injury of such a nature as to give rise to a claim for compensation. Even if he fails to give notice, this does not necessarily prevent him taking proceedings, as, for example, if the employer has not been prejudiced in his defence by the failure.

With regard to the claim being made within six months after the occurrence of the accident, failure to make the claim will not be a bar to proceedings if it is due to mistake, absence from the United Kingdom or other reasonable cause. It has been held that, where the employer's conduct amounts to a tacit agreement to pay compensation when occasion arises, this is a reasonable cause.

Such, in outline, are the steps which have to be taken before an action may be brought to recover compensation.

While on the subject, some mention may be made of the provisions of the Act with regard to a medical examination of the injured workman. Section 17 of the Act provides that where a workman has given notice of an accident he must, if required to do so by his employer, submit himself to an examination, and if he refuses to do so, his right to compensation will be suspended until the examination has taken place.

Lastly, there are two restrictions on the right to claim compensation which should not be omitted. The first is that the employer is not liable under the Act in respect of an injury which does not disable the workman for a period of at least three days from earning full wages at the work at which he is employed. The second—a provision which has given rise to many cases and no little confusion as to its real meaning—is that if it is proved that the injury to the workman is attributable to his own serious and wilful misconduct he shall not be entitled to compensation, unless the accident results in his death or serious and permanent disablement. With regard to the amount of compensation, this depends on the circumstances of each particular case to a great extent, although there is a scale provided by the Act, and need not be dealt with here. *H. A. S.*

PUBLIC PARKS AND GARDENS.

The Criccieth Urban District Council has received an offer of land adjoining the esplanade to be laid out as public gardens, and has decided to consider a scheme for its development.

The Middlesex County Council has agreed to contribute a sum not exceeding £1,771 15s. towards the acquisition, by the Finchley Council, of a portion of Glebe Land for a sports ground. The land is about thirty-nine-and-a-half acres in extent, and cost £7,087.

The Molesey Urban District Council has received sanction from the Ministry of Health to borrow £400 for the purchase of land at the corner of Walton Road and New Road, West Molesey, for a new recreation ground.

At St. Helens, Isle of Wight, the Ministry of Health has held an inquiry into an application by the Urban District Council for sanction to borrow £3,700 for the purchase of the Buckpool Battery from the War Office, to be utilised for public walks and pleasure grounds.

The Audenshaw Urban District Council has approved the laying-out of the ground off Bye Street and Guide Lane as an open space, at a cost of £200.

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante. pp. 112-118.)

SCOTLAND, N.

SUTHERLANDSHIRE.—At Dunrobin we had a fairly mild winter, but a very cold spring. The gardens are fully exposed to easterly and south-easterly winds, which blow from the open sea, and as these are the prevailing spring winds, the effect on the early spring tree growth has been very severe. Pears, however, were in bloom at a period when the weather had taken a slight turn for the better, and the fruits set freely, but the Apple blossom experienced one of the worst spells of weather, and therefore suffered severely. Plums and Cherries, being sheltered on the walls, set very well, and show promise of an excellent crop. Gooseberries are scarce, but Currants, both Black and Red, promise super crops, as do Loganberries, Raspberries, and the Veitchberry. Strawberries, of the Elton Pine variety, are showing promise of an exceedingly heavy crop. We have over 4,000 plants of this variety, and they passed out of flower on July 15. This variety has been grown here for a number of years, and the plants are perfectly healthy. The soil here at Dunrobin is light and sandy, overlying a bed of pure sand. *W. F. Game, Dunrobin Castle Gardens, Golspie.*

SCOTLAND, S.E.

BERWICKSHIRE.—Black Currants are looking very well and Cherries are a good crop, and early where sheltered, but most of the fruit trees are suffering from the effects of cold winds, which may have a bad effect on them later. *Walter Richardson, Milne Graden Gardens, Coldstream.*

ROXBURGHSHIRE.—Apples are a heavy crop. The Pear crop was spoiled by late frosts and cold winds, as also was the Plum crop. Green fly has been very plentiful on fruit bushes. The soil here is a heavy clay. *Alexander Black, Ancrum House Gardens, Ancrum.*

SCOTLAND, E.

ABERDEENSHIRE.—The soil here is a friable loam, free from clay, and the gardens are situated three hundred feet above sea-level. Bush and small fruits have done very well, although very subject to both early and late frosts, being situated near water. Stone fruits are unprofitable, except on walls. The Gooseberry crop was seriously affected by mildew, and on the Black Currant bushes big bud seems to be prevalent throughout the district, with occasional instances of reversion. *Andrew McLeod, Cluny Castle Gardens, Monymusk.*

——In this district bush fruits in general have produced the heaviest crops since 1920. The soil is light in nature, over a pan of clay. *Wm. Smith, Dunecht House Gardens, Dunecht.*

BANFFSHIRE.—The crop of small fruits in this district is the heaviest for several years. Apples and Pears, on the whole, are disappointing considering the amount of blossom that was produced. Some varieties of Apple are carrying average crops, but a good many have few if any fruits. The weather during May and June was practically a repetition of March and April, and this fact no doubt accounts for the lack of fruits. The soil is mostly of a light nature, on a shingly or sandy subsoil. The district is not favourable for Nectarines, Peaches or Apricots out-of-doors. *Archibald Cathie, Aberlour House Gardens, Aberlour.*

FIFESHIRE.—In the early part of the season there were indications of a record fruit crop here, but the cold winds and general lack of sunshine have had a bad effect, especially on Plums, which have not set well and have been badly attacked by green fly. Strawberries are a good crop where the plants are healthy, but many plants are dying out from what appears to be the so-called Lanarkshire disease. Gooseberries, Currants and Raspberries have produced very heavy crops. The soil here is a good, deep, medium loam, inclined to be heavy, and overlying boulder clay. *William Grieve, Balfour House Gardens, Markinch.*

——In this district the soil is of a light nature, over a sandy subsoil. A very promising fruit year in early spring, the prospects were lessened by high winds and late frosts which occurred during May and June. Apples are plentiful, but the foliage looks unhealthy, the result of attacks by insect pests and fungous diseases, and this may affect the size and quality of the fruits. Pears are a complete failure. Plums are an average crop, with poor foliage; Cherries are average; Gooseberries good, although affected in places with American mildew; and Strawberries are average, but damaged in some instances by flooding. Raspberries and Currants are very good. *Patrick Hunt, Falkland Palace Gardens, Falkland.*

FORFARSHIRE.—The crops of fruits in this district are better than they have been for some years, with the exception of Cherries, which have set poorly. Aphis has been very prevalent, and Apple mildew is troublesome and on the increase. Raspberries are very late and the crop is irregular. *J. Burnside Peffers, Panmure Gardens, Carnoustie.*

——The fruit crops this year are, on the whole, very satisfactory, much better than was expected after the cold and wet weather experienced last season, when one would not have expected the wood to have ripened well. Black Currants and Red Currants have produced extremely fine crops, and Gooseberries are also very good. An extremely high wind on July 2 did considerable damage to small fruits by breaking the branches of those which were in exposed positions. *Gavin Brown, Craigo House Gardens, Hillside, Montrose.*

KINCARDINESHIRE.—The extremely low temperatures experienced during June had a very bad effect on fruit tree blossom, but after all, crops look very promising, with the exception of Black Currants. Strawberries are of good quality. *William Thomson, Ury House Gardens, Stonehaven.*

MIDLOTHIAN.—Apple trees bearing good crops are Lord Grosvenor, Golden Spire, Irish Peach, Irish Reinette, James Grieve and Warner's King. Williams's Bon Chrêtien Pears, trained against a west wall, have branches well laden with fruits, as also have some other varieties of Pears. It may be recorded that some of the Pear trees now in fruit have also flowers expanded. The branches of an old Plum tree are bending under a heavy crop. An old Peach tree, which was carefully lifted from indoors and set out on a south wall in December of last year, is very healthy and bearing quite a number of fruits. The Gooseberry bushes are very prolific. Small fruits in general compare very favourably with former years, except Strawberries, which are not so plentiful. The soil is moderately heavy, overlying clay. *David Armstrong, The Drum Gardens, Gilmerton.*

PERTHSHIRE.—Apples are satisfactory, old bush trees carrying good crops. Pears are moderate as the blossom was affected by the sudden atmospheric changes experienced during the flowering period. Plums are a fair crop and promise well, considering the cold east winds which prevailed here during April and May. Small fruits, on the average, are good. Strawberries are a week or so late in ripening, but the first flowers were destroyed during a severe spell of cold weather about the beginning of June. The soil here is a good loam over a gravelly subsoil. *John S. Brownlee, Scone Palace Gardens.*

SCOTLAND, W.

ARGYLESHIRE.—The soil here is very heavy and inclined to remain wet. Strawberries have been a failure this season owing to the wet weather. Plums are very good, as also are Raspberries, Black Currants and Apples. *Evan Ferguson, Appin House Gardens, Appin.*

AYRSHIRE.—The fruit crop in general is very satisfactory. Bush fruits, especially Black Currants and Gooseberries, have given good yields of first-rate fruits. Strawberries were a good crop, but continual wet weather rather spoilt the quality of the fruits. Morello Cherries on a north wall flowered extremely well and have set heavy crops. Apples, Pears and Plums are carrying good crops and promise a rich harvest. *William James Orr, Culzean Castle Gardens, Maybole.*

——Apples are very good and show promise of a very heavy crop. Pears are moderate but of excellent quality; small fruits are very good, all with the exception of Black Currants, carrying heavy crops. Strawberries are very moderate owing to the very dry May and wet June. *A. F. Lewingdon, Bargany, Dailly.*

BUTESHIRE.—Owing to cold conditions early in the season, Pears and Plums suffered somewhat when in flower. Apples, flowering later, escaped the cold winds and are a heavier crop than I have seen here for a number of years, although somewhat late owing to the cold, wet season. As in other parts of the country, Strawberries are suffering from various causes; the excessive wet here seems to be their chief enemy. Bush fruits are plentiful and of good quality, although, like other fruits, late. The soil is a heavy loam, on marl rock, and plants suffer greatly in wet seasons. *John J. Davidson, Ardencraig Gardens, Rothesay.*

DUMBARTONSHIRE.—The prospects of a really good fruit crop have been marred by an uncongenial season. A late spring was succeeded by a very wet, sunless period. Except for the first three weeks in May, rain and cloud persisted until July 16. The hot, sunny weather experienced further south has been totally lacking here. In consequence, soft fruits and Strawberries in particular, which promised well, have suffered severely. Apples and Plums are a good crop, and given favourable weather should be of good quality. Raspberries, Currants and Gooseberries are also plentiful and of good quality. The soil of the district is, for the most part, of a shallow, peaty nature, over rock, although in some cases it is deeper and more gravelly in nature, and in consequence drier and warmer. Where these latter conditions prevail there are naturally better prospects of a good fruit season. *Frederick A. Bush, Arddarroch Gardens, Garelochhead.*

DUMFRIESSHIRE.—Fine weather favoured us here during the flowering period of fruit trees and bushes, being mostly dry and sunny throughout the day, with but little frost at night. Although some varieties of Apple have dropped their fruits, the trees in most cases promise to develop clean fruits of good quality. Plums on walls are good, especially Victoria, and the same may be said of Morello Cherries. Among small fruits, Black Currants and Raspberries are the best, both in quality and quantity. Climatic conditions have been bad, so far, for the ripening of Strawberries. The soil is of a heavy texture, with a subsoil of mostly clay and gravel. *D. McIntosh, Castlemilk Gardens, Lockerbie.*

——Small fruits are a little above the average. Black Currants are exceptionally good this year, Red Currants and Raspberries are in abundance, and Strawberries are moderately good. The soil is a light and sandy loam, with a porous subsoil. *James McDonald, Muirhousehead, Lockerbie.*

ENGLAND, N.E.

DURHAM.—All fruit trees gave promise of heavy crops, for there was an abundance of blossom, but the cold, north-easterly winds which were experienced when they were in full flower affected them badly, and the fruits did not set at all well. Bush fruits and Strawberries have been very good and above the average for the last few seasons. Only two varieties of Apples are carrying anything like crops, namely, Lane's Prince Albert and Bramley's Seedling. The soil here is a cold clay. *J. H. Yarrow, Wynyard Park Gardens, Stockton-on-Tees.*

Northumberland.—The fruit crop varies considerably. Prospects at flowering time and after were good, but cold, wet, sunless weather, with occasional sharp frosts, ruined what would have been a splendid fruit year. Gooseberries were good, but other bush fruits were not up to expectations. The soil here is fairly light, on a gravelly subsoil. *James Winder, Howden Dene Gardens, Corbridge-on-Tyne.*

Yorkshire.—In this neighbourhood most tree fruits are scarce, for during the flowering period rain, sleet and cold winds prevailed. Red and Black Currants and Raspberries have produced good crops, as also have Gooseberries and Strawberries. Our best varieties of Apples are Maltster, Allington Pippin, Bramley's Seedling, Lord Grosvenor, Edward VII and Newton Wonder. The soil is a thin loam, overlying chalk, and the gardens are situated seventy feet above sea-level. *J. Turton, Sowerby Hall Gardens, Bridlington.*

——The effect of the heavy rainfall of last year on this year's blossom and crops was noted carefully. The subsoil being clay of great depth, drainage is greatly hampered in this flat section of Yorkshire, and despite good drains and pumping stations, water, considerably in excess, remained permanently in the soil all through the winter months. Fruit trees, generally, were slow in starting into growth, therefore after the chilling effects of excessive moisture at the roots, blossom was late and irregular. Well established trees flowered first on the sheltered branches near the ground, and about two weeks later the topmost branches were seen in bloom. May was a cold and sunless month and accounted, no doubt, for part of the trouble, but June was bright, sunny and dry, and a levelling up of crops took place. At the time of writing, Apples, Pears and small fruits are wonderfully even and well up to average. Plums, however, have failed completely. *W. H. Bolton, 8, Ash Grove, Beverley Road, Hull.*

——The fruit crops at Dalton are the best we have had during the past four years, with the exception of Apples and Nuts, both of which are carrying light crops. Apples looked very promising until shortly after the buds burst, when a severe frost crippled most of the trusses of bloom. From then onwards, over a long period, we experienced cold north-easterly winds, and frequent frosts, so that not only did the remaining blossom fail to set, but the foliage was badly damaged and is still very unhealthy in appearance. Pears are mostly grown on walls here, which explains an average crop of these fruits, the foliage, however, as with the Apples, shows signs of the inclement weather, growth being very restricted. Varieties of Apples which are carrying fair crops, and which have been outstanding during the past four bad seasons, are James Grieve, Worcester Pearmain, Warner's King and Newton Wonder. Small fruits are abundant and good. The soil here is a medium loam, over clay, the whole overlying chalk. *J. S. Coates, Dalton Hall Gardens, Beverley.*

——Apples are a very good crop in general, but a few orchards suffered from late frosts. Plums are the best crop for some years, while bush fruits are also very good, particularly Black Currants. *James E. Hathaway, Baldersby Park Gardens, Thirsk.*

——The season opened with plenty of blossom, which was, alas! destroyed by keen frosts. Plums suffered most, late-flowering Apples escaping the frosts fairly well, and James Grieve and Warner's King, as usual, are carrying crops of good fruits. The Strawberry season was short, owing to lack of rain. Fruit trees and bushes are very free from pests this year. *J. G. Wilson, New Millerdam, Wakefield.*

(*To be continued.*)

VEGETABLE GARDEN.

LETTUCES.

Most gardeners realise how difficult it is to maintain a supply of good crisp Lettuces during the summer months, as when the weather is hot and dry they "bolt," or if they do not do that they often become tough or bitter, the result of slow growth. What affects summer Lettuces injuriously, more than anything else, is the loss of the tap-root, caused by pulling up the plants and transplanting; this is a bad practice, as the plants are not only checked at the time, but they are never able to provide and take care of themselves so well afterwards.

Instead of sowing the seeds in beds, as is generally done, the best method is to sow them in shallow drills, and when the seedlings are of sufficient size, to thin them to about ten inches or one foot apart, when, if kept well watered or soaked occasionally with liquid manure, their progress should be rapid, and solid and firm hearts should be formed. To have them large and succulent, the ground should be rich and deeply dug, and as Lettuces like a little shade, it is a good plan at this season of the year to sow the seeds on a north-east or west border, or between rows of Peas that are wide apart, but a little later on the best place for Lettuces is between Celery trenches, as there they are fully exposed to the air during the autumn, and the soil being deep, they should do well.

The finest kinds of Lettuce for summer and early autumn use are All the Year Round and Superb White Cos, which are both good flavoured sorts. For winter and spring there are none equal to the Black-seeded Bath Cos and Winter White, which withstand frosts without injury, and make fine salad material. These last-named may be sown on beds about the middle of August, and when germinated the most forward plants should be planted in well manured ground in a warm, sunny spot, to grow on for lifting and placing into cold frames at the end of October or middle of November; the remainder should be planted in a south border at the foot of a wall, where they should stand the winter and be ready for use early in the spring. *James A. Paice.*

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for the opinions expressed by correspondents.*]

Plants for Low Hedges.—A writer in *Die Gartenwelt*, July 27, 1928, recommends the Himalayan Lonicera Myrtillus as a valuable plant for forming a low hedge. Although not evergreen like L. nitida, it bears yellowish-white, fragrant flowers, and berries prolifically in autumn. Another Lonicera useful for this purpose is L. tomentella, with reddish-white flowers and blue-black berries. *F. K.*

Tradescantia virginiana var. James C. Weguelin.—Referring back to Mr. Arnott's note on this plant on page 46, I feel I must give honour where honour is due and disclaim any implied suggestion that I am the raiser or introducer of this very handsome addition to our border plants. I have no definite information as to its origin, but I obtained a stock of this plant from Messrs. Prichard and Sons, of Riverslea, Christchurch, Hampshire, and have been much pleased with my purchase. I have passed plants of it on to various fellow plant-lovers, Mr. Arnott included. It may interest Mr. Arnott and other readers who have a liking for these sadly neglected, old-fashioned plants, to know that we have raised here a pure white counterpart to T. v. James C. Weguelin with really astonishingly large flowers, which leaves the old white form as far behind as the large soft, azure flowers of T. v. James C. Weguelin outstrip the form known as T. v. Delicata, good plant as that is. I have been trying for some years to get together all the known variations of these Spiderworts, and have both the old double blue and the old double red forms here, but find that these need to be firmly established before they produce double flowers, a change to fresh soil seems to cause a partial reversion to type and only as the soil around them becomes somewhat exhausted are double flowers produced. Interesting as these old forms are, they cannot compare with either James C. Weguelin or our beautiful large, snow-white seedling, and both have been in bloom continuously since mid-May, and should continue yet for many weeks; they withstood nearly four weeks of complete drought without showing the least distress. *W. E. Th. I.*

Rosa Moyesii—The praises which your correspondent *M. W.* (*Gard. Chron.*, August 11, 1928, p. 108) lavishes on Rosa Moyesii are well bestowed. No Rose is more attractive, and none is a better doer. It deserves, and in a garden known to me has, a pergola all to itself. But is *M. W.* sure that it should be increased by seeds? I seem to remember that seedlings by no means always reproduce the beauty and form of this wonderful Rose. *K. W. F.*

Rose Roulettii.—I was interested to see in *The Gardeners' Chronicle* of August 4, p. 89, a reference to Rosa Roulettii, and can heartily endorse the remarks made about it. I rather think that *The Gardeners' Chronicle* of December 9, 1922, contains an article upon it by Mons. H. Correvon, of Geneva, in which he relates how it came to get its name. The writer of the paragraph in last week's issue might be interested to read what Mons. Correvon has to say about it. *A. S. Hamilton, York.*

[The article which Mr. Hamilton mentions appeared on p. 342 of the issue referred to. Mons. Correvon states that it has been grown "for centuries" in the village of Mauborget, Switzerland.—Eds.]

New Moon Sowings.—In reply to Mr. Nicholson's letter in the August 4 issue of *The Gardeners' Chronicle*, I agree with Mr. Townsend, and am most decidedly in favour of sowing seeds and taking cuttings during the first phase of the moon, and make a point of using that period for the purpose, having frequently proved the advantage gained thereby, not, I fancy, because of the "waxing light," but on account of the drawing power of the moon, in contradiction to its force of retraction when on the wane—so obviously proved by the sea-tides. I have more than once tested the theory with cuttings of Daphne Cneorum, those taken during the rise of the moon surpassing the others very considerably, both in percentage of "taking" and in root growth. *Helen A. Milford, Cheltenham.*

Antirrhinum Diseases.—In your issue of *The Gardeners' Chronicle* of August 4, you reply, on page 100, to a correspondent who is in trouble with his Antirrhinums. His misfortune arises through his plants being attacked by some soil pest. This trouble is not akin to the very serious one which spells disaster to Antirrhinums nearly every season in California. The Californian disease is a rust of some kind which overtakes the plants when in full bloom, and in a few days destroys them. It is so fatal that the large seed-growers suggest they may have to give up growing Antirrhinums. In the summer of 1926, I saw twenty acres which had been planted for seed, and nearly all the plants—stems, leaves and flower spikes—were a snuff-coloured shade and hopelessly gone. Instead of several tons of seeds the growers said their crop would be a few pounds only. I write to suggest to all growers of Antirrhinums in this country to look out for this disease, as it may be brought here by imported seeds. Discussing the problem with Mr. Fred Howard, of Los Angeles, who has recently been visiting this country, he expressed the opinion that "the climatic conditions of southern California must be most congenial to the disease, and he doubts if it will ever become established in Britain, but it behoves us all to be on the look-out and ready to report any suspected case at once to Kew or the R.H.S. I have seen occasionally diseased plants in Britain, but never to an epidemic extent. *Wm. Cuthbertson.*

SOCIETIES.

ROYAL HORTICULTURAL.

August 14.—There was rather a small show on the occasion of this fortnightly meeting of the Society at Vincent Square, Westminster. There were a few small collections of Orchids and the Orchid Committee recommended one First Class Certificate and six Awards of Merit. The Floral exhibits were of varied character, and included seasonable border flowers, Gladioli, Roses and Carnations. The Floral Committee recommended two Awards of Merit to novelties and selected a new Gladiolus for trial at Wisley. The Joint Dahlia Committee met for the first time this season and selected seven new seedlings for trial. There was an attractive collection of seasonable fruits and the Committee recommended a new Pear for trial as a market variety. The Foremarke Cup for Gladiolus was won by W. E. Phillips, Esq., of Wood Green.

Orchid Committee.

Present : Mr. Fred. J. Hanbury (in the chair), Mr. Gurney Wilson (Hon. Secretary), Mr. Lionel de Rothschild, Mr. S. W. Flory, Mr. A. Dye, Mr. F. K. Sander, Mr. H. G. Alexander, Mr. J. E. Shill, Mr. J. C. Cowan, Mr. A. A. McBean and Mr. E. R. Ashton.

First Class Certificate.

Odontioda Colinge var. The Baroness (*Odontioda Coronation* × *Odontoglossum crispum*).—A fine specimen of this Orchid was shown, with well-shaped flowers closely packed in a graceful, arching spike. The petals and sepals are edged and flushed rose-purple on a white ground, and are blotched and marked with red; the small hood is of similar colouring, the throat being yellow. Shown by J. J. Bolton, Esq. (gr. Mr. S. Lyne), Claygate Lodge, Claygate, Surrey.

Awards of Merit.

Acacallis cyanea.—This charming species has flowers about two inches in diameter, the sepals and petals being pale lavender in colour; the large, concave lip is white at the throat, pale plum-coloured, edged with biscuit colour, while the small crest has two rose-purple lobes. Shown by Messrs. Charlesworth and Co.

Sophro-Cattleya Purple Monarch (*Cattleya Dowiana* × *Sophro-Cattleya Faboris*).—A striking variety of distinct colouring, the petals and sepals being of a rich, glowing purple; the large, fringed lip is rich rose-purple, veined with gold. The blooms are well-shaped and of good size. Exhibited by Messrs. J. and A. McBean.

Cattleya Lorna, Brockhurst var. (*Cattleya Enid alba* × *Cattleya gigas Melaine Beyrodt*).—This charming variety has large blooms, the long petals and sepals being pure white; the white lip is heavily marked with purple and the throat is primrose-yellow, striped purple. Shown by Fred. J. Hanbury, Esq. (gr. Mr. Farnes), Brockhurst, East Grinstead.

Brasso-Laelio-Cattleya Flavida (*Brasso-Laelio-Cattleya Amoir* × *Laelio-Cattleya Golden Queen*).—A beautiful variety, which would be almost perfect if the pale plum shading of the frilled lip was a little less lifeless. The petals and sepals, perfectly shaped, are clear yellow in colour, the lip being primrose-yellow on the outer surface, with a rich yellow, purplish lined throat. Shown by Baron Schröder (gr. Mr. Shill), Dell Park, Englefield Green.

Laelio-Cattleya Navajo (*Cattleya Ballantiniana* × *Laelio-Cattleya callistoglossis*).—The specimen exhibited had three large flowers, borne in one truss. The narrow sepals and broad petals are pale rose-lavender in colour, the fringed lip being of a rich, glowing purple, while the throat, of a lighter shade, has a large primrose-coloured blotch on each side. Exhibited by Messrs. Stuart Low and Co.

Cymbidium sauvissimum.—This Orchid is stated to be a new species, and a very well-grown specimen of it was exhibited. The foliage is attractive, being glossy green, rather narrow and gracefully arched, while the flowers, on the plant shown, were borne in a stout spike fifteen inches or so in length, consisting of more than four dozen blooms. The individual flowers are small, with narrow, chocolate-coloured petals and sepals which are recurved at the margins; the small hood is rich chocolate, tipped with creamy-yellow, while the white lip is blotched and spotted with rose-purple. Shown by Messrs. Sanders.

Cultural Commendation.

Lionel de Rothschild, Esq. (gr. Mr. B. Hills), Exbury House, Southampton, received the above award for a remarkably fine specimen of Vanda coerulea, bearing six large sprays of flowers in perfect condition.

Groups.

Messrs. Stuart Low and Co. staged a small collection of Orchids, consisting of good specimens of Laelio-Cattleya Soulange, L.-C. Jacquinitia, L.-C. Herald, L.-C. General Maud and L.-C. Locarno; Cattleya Andromacque, Coelogyne Mooreana, Oncidium Lanceanum and Odontoglossum L'Aiglon, the last-named being exceptionally good.

Another small group was set up by Messrs. Black and Flory, who had choice examples of Laelio-Cattleya Peter, L.-C. Vivid, Cattleya Rubicund, C. Lorna, C. Lysandra, all very beautiful; and Miltonia Sanderiana.

Cattleya Hardyana albanensis, Odontioda Princess Bibesco, a quaint Orchid thought to be Bifrenaria aureo-fulva; Laelio-Cattleya Black Prince, Cattleya Venus, Knowle var., and Catasetum Bungerothii were included in the group staged by Messrs. Sanders.

Floral Committee.

Present : Section A.—Mr. Henry B. May (in the chair), Mr. Arthur Turner, Mrs. Ethel M. Wightman, Mr. C. F. Langdon, Mr. J. M. Bridgeford, Mr. R. Findlay, Mr. James B. Riding, Mr. J. T. West, Mr. W. B. Gingall, Mr. D. B. Crane, Mrs. Helen Lindsay Smith, Mr. Charles E. Pearson, Mr. E. R. Janes and Mr. W. D. Cartwright (Secretary).

Section B.—Mr. Charles T. Musgrave (in the chair), Mr. E. A. Bowles, Mr. G. Reuthe, Mr. G. Harrow, Mr. Eric M. Marsden-Jones, Lady Beatrix Stanley, Mr. E. H. Wilding, Mr. Amos Perry, Mr. F. G. Preston, Mr. L. R. Russell, Mr. W. G. Baker and Mr. N. K. Gould (Secretary).

Awards of Merit.

Nepenthes Russellii.—This stove Pitcher Plant was stated to have been raised from N. Curtisii superba × N. mixta. In shape and size this new variety is very like N. mixta, and it has a similar wide, frilled, polished reddish-chestnut rim. The pitcher is evenly marked with red on a pale yellow ground. A coloured illustration of N. mixta, which is considered to be one of the finest of the hybrid Nepenthes, was given with *The Gardeners' Chronicle* for March 3, 1923.

Zauschneria californica var. latifolia.—The note which accompanies the illustration in *Bot. Mag.*, t. 4493, refers to mention of the plant forty-five years previously, so it has been long known to botanists, although now a rare plant. It is a variable variety, and the plant now shown differs from the illustration in a few details. It is a graceful, erect little shrubby plant with downy, alternate, ovate, entire leaves. The axillary, solitary flowers are pendulous, of bright scarlet colour and very like one of the tubular Achimenes. Shown by Mr. T. Hay, Hyde Park, London.

For Trial at Wisley.

Gladiolus T. S. Hope-Simpson.—This is a handsome, large-flowered variety. The flowers are of rose-scarlet colour, with a narrow white line along each segment and a rosy-carmine blotch. Shown by Messrs. Kelway and Son.

Dahlias for Trial.

The Joint Dahlia Committee met, for the first time this season, and selected the following varieties for trial at Wisley.

D. Campbell.—A magnificent Decorative variety. The very large, shapely flowers are borne erect on stout stems. The colour is bright yellow, lightly flushed with peach-pink.

Erecta.—Amedium sized, Decorative variety, producing rounded, lilac-flushed flowers on long stalks.

Miss Annie Lile.—An attractive, large Decorative variety. The florets are curled and of deep mauve colour.

Fantasy.—A large Decorative variety of good form. The broad florets are of rich scarlet colour, tipped with white.

Autumn.—This is a large Cactus variety, apparently of distinct garden value. The substantial, rolled florets are yellow with faint orange lines.

Carmania.—A large Decorative variety which has broad, shining yellow florets.

Mrs. A. W. Piper.—A medium-sized Decorative variety, somewhat of garden Cactus appearance. The centre florets are of pale yellow colour and become white when fully developed. All the Dahlias were shown by Messrs. J. Stredwick and Son.

Other Novelties.

A number of new Gladioli and Dahlias were submitted by the raisers, but only those mentioned above received recognition. The Hon. Mrs. Ryder, Durns, Beaulieu, Brockenhurst, Hampshire, sent an interesting collection of Gazania seedlings. These were mostly of G. splendens type, and had large flowers of various shades of yellow and orange, with and without a definite dark zone. Mr. Robert Bolton, Birdbrook, Halstead, Essex, showed a magnificent Scolopendrium vulgare var. crispum. The broad, glossy, deep green fronds were very evenly and attractively waved, and were much larger than those of the type. This handsome variety has distinct garden value. Messrs. L. R. Russell, Ltd., submitted a plant of Jatropa multifida, a South American shrub. It was a well-grown little specimen, well-furnished with large, palmately eleven-lobed leaves.

Groups.

A good collection of Roses was set up by Mr. J. H. Pemberton, who included vases of Lord Charlemont, Mrs. Henry Morse, Etoile d'Hollande, Souvenir de Claudius Pernet, Paul's Scarlet Climber, and, in Robin Hood, a floriferous hybrid Musk Rose. Messrs. B. R. Cant and Sons had beautiful stands of Madame Butterfly, Ophelia, Betty Uprichard, Lady Inchiquin and Shot Silk in their attractive collection of Roses.

Many useful Violas were well shown in pans of wet sand by Mr. W. Yandell. His varieties included Mrs. Chichester, Mrs. Robinson, Elsie, Edina, Blue Gown, Bronze Kintore, Klondyke, Lizzie Stevenson and Canary Queen.

Near the entrance, Mr. Amos Perry arranged an attractive group of Liliums and other uncommon plants among hardy Ferns. The Liliums included L. tigrinum and L. sulphureum. He also included plants of Pardanthus sinensis, Amaryllis formosissimus, Allium ascalonicum and a rich orange-coloured Haemanthus. On the opposite side of the gangway, Messrs. L. R. Russell, Ltd., grouped graceful plants of Clematis, well-flowered Cannas, several varieties of Hisbiscus Rosa-sinensis and other flowering plants.

A good collection of seedling Sidalceas was again staged by Mr. W. Hemsley. His many choice varieties included Dr. Fiske, rose-pink with paler centre; Gloriosa, deep rose-pink; and John Fraser, blush-lilac. He also included several attractive unnamed seedlings. Mr. S. J. Goodliffe displayed herbaceous Phloxes, Heleniums, Dahlias and sprays of Colutea arborescens bearing both flowers and its interesting, inflated fruits. Herbaceous Phloxes in good varieties were also staged by Messrs. E. J. Redgrove and Son, who associated them with equally good herbaceous Lupins and Nepeta Mussinii.

A long stretch of tabling was filled by Messrs. M. Prichard and Sons with a well disposed collection of alpines. This exhibit included many dwarf, free-flowering Campanulas, such as C. garganica erinus, C. mollis, C. turbinata and C. Norman Grove. The dwarf Gaultheria procumbens and Scutellaria indica were also displayed. Mr. George E. P. Wood has a pleasant rock garden in which he placed batches of Papaver alpina, Gentiana Farreri, dwarf, compact Conifers and Ericas. The Misses Hopkins also contributed a rock garden exhibit.

Many vases of fresh Carnations were staged by Messrs. C. Engelmann, Ltd., whose chief varieties included Katja, Betty, Circe, Laddie, Betty Low and Enchantress Supreme. Messrs. Allwood Brothers also showed good Carnations, and included vases of their Dianthus Allwoodii. The chief Carnations were Mary Allwood, Wivelsfield Apricot, Jazz, Topsy and Laddie.

There were four attractive exhibits of twenty spikes of Gladioli in competition for the Foremarke Cup. This competition, which is open to amateurs and to trade members, requires not fewer than ten named varieties in not more than two spikes of any one variety. The Cup was won by W. E. Phillips, Esq., Wood Green, who was a very successful exhibitor at the show of the British Gladiolus Society on the previous Friday. His excellent collection included particularly good spikes of Berty Snow, Pink Perfection, Gertrude, Queen Mary, Dryad, Mrs. Leon Phillips, Yvonne and Frau Dr. Hauff. Mr. H. Prins, who was second, included very good spikes of Heliosa, Brunhilde, Emma and Rose Ash. Mr. A. E. Amos, Colchester, was third. Messrs. Kelway and Sons, Messrs. R. H. Bath, Ltd., and Mr. H. Prins had large collections of Gladioli similar to those we noted on the previous Friday, and Messrs. W. and G. Cuthbert also showed good spikes of blooms.

Fruit and Vegetable Committee.

Present: Mr. J. Cheal (in the chair), Mr. H. S. Rivers, Mr. G. Tinley, Mr. A. C. Smith, Mr. W. F. Giles, Mr. A. Bullock, Mr. F. Jordan, Mr. W. H. Divers, Mr. E. A. Bunyard and Mr. A. N. Rawes (Secretary).

Pear Laxton's Early Market was shown by Messrs. Laxton Brothers, and was recommended for inclusion in the commercial fruit trials now being conducted at the R.H.S. Gardens, Wisley. The fruit is rather on the small size, but it colours well; this variety is one of the earliest to ripen its fruits, and it should prove of value as a market variety.

Groups.

Messrs. S. Spooner and Sons were the exhibitors of a collection of seasonable fruits, including several varieties of Apple. There were large baskets of Worcester Pearmain and Lady Sudeley, both richly coloured, and dishes of Lord Suffield, Red Victoria, Maidstone Favourite, Hunt's Early, Grenadier, White Transparent, Red Victoria, Early Julyan, Langley Pippin and several others, while fruits of a good strain of Blackberry, and the richly coloured fruits of what was stated to be a hybrid of the Strawberry and Raspberry, were also displayed.

DUBLIN SHOWS.

On July 28, both the newly-formed North Dublin, and the Terenure and District Horticultural Societies held their annual shows. Weather conditions were very unfavourable, but the attendances were very fair. At Terenure the entries totalled three hundred, while at the North Dublin show there were over two hundred.

The North Dublin show, held in the beautiful grounds of St. Patrick's College, Drumcondra, afforded ample evidence of the greatly increased interest being taken in horticulture in a district which is rapidly developing and has great possibilities, and the judges reported favourably on the quality of the exhibits.

The Terenure and District show was held in the spacious grounds of Mr. E. Clive Brooks, Ashfield, Rathfarnham; as this area includes some of the best suburban gardens the standard was comparatively high.

The South Co. Dublin Horticultural Society's second annual show was held in the People's Park, Kingstown, on August 1 and 2, under ideal conditions. In declaring the show open, His Excellency the Governor-General, a patron of the Society, complimented the Council on the marked progress which had been made. The exhibits were varied and of much interest, showing a very high standard of culture, while a tent devoted to exhibits by school-children attracted a good deal of attention. Among the trade exhibits Messrs. Ramsay and Son, Ballsbridge, had a group of foliage and flowering plants arranged with graceful effect, and Messrs. Watson and Son, Killiney, had a magnificent display of Roses, including several new varieties, which attracted considerable attention. Messrs. Alex. Dickson and Sons, Ltd., showed Jolly Gnomes for rockeries, etc., and Messrs Simpson and Son, Monkstown, had an effective display of Gladioli and Lilium longiflorum.

SCOTTISH NATIONAL SWEET PEA, ROSE AND CARNATION.

The ninth annual two days' exhibition of this Society, held at Kelvin Hall, Glasgow, on August 1 and 2, established a new record in respect of the entries in each section and the attendance of the public, while the extra space available permitted of a larger representation of non-competitive exhibits.

While there was a brilliant and extensive display of Sweet Peas, the exhibits generally were below the standard of quality seen in previous years, and the influences of recent unfavourable weather conditions were reflected in many of the individual blooms. Mr. John A. Grigor, Banff, secured several first prizes; also the Burpee Cup for eighteen vases, and the Bowl presented by Messrs. Morse and Co., California, for the best vase of Pinkie in the show. His fine record included seven first prizes in the single vase classes, his vase of Gleneagles being the best in the show, and the best vase of any 1927-28 variety.

Mr. W. Smith, Dunecht, Aberdeen, excelled over Messrs. Torrance and Hopkins with a collection occupying a space of fifteen feet by eleven feet, and Mr. E. Thomson, Larbert, secured the premier awards for nine and six vases in the Gardeners' classes. The principal prize-winners in the amateurs' section were Mr. J. Paul, Killearn; Mr. Logan, Cumnock; Mr. W. C. Turner, Chryston; Mr. R. Wardrop, Bridge of Allan; and Mr. A. Sommerville, Barrhead. The Allan Cup, for six vases, was awarded to Mr. J. B. Campbell, Newport.

Competition was particularly keen in the open classes for Roses, the blooms exhibited being in fine condition and representing a high standard of cultivation. Messrs. Thomas Smith and Son and Messrs. James Fairley and Co. experienced no opposition in the respective collections, twenty feet and ten feet in length. The former firm were successful with twelve baskets, and they also excelled in the classes for forty-eight and twelve blooms. In the classes for six baskets and twenty-four blooms, Messrs. D. and W. Croall were placed first. They also concentrated their efforts in the distinctive coloured classes, their blooms of Mrs. Barraclough securing the first prize for the best pink Rose; while they were also successful with Marcia Stanhope, white, and Lady Inchiquin. Messrs. Adam and Craigmyle showed prize-winning blooms of Earl Haig and Mabel Morse, and their bloom of Shot Silk was selected as the best Rose in the open classes.

The seedling Roses attracted much attention, and the competition resulted in Messrs. Dobbie and Co. securing the first prize with Caledonia.

The Gardeners' classes were unusually strong, Mr. William Smith, Dunecht, being the most successful exhibitor, while in the amateurs' section the Arthur Cup for the best entry of twelve Roses was gained by Mr. William Short Falkirk, with a meritorious exhibit of uniform quality. Mr. John Richardson, Garston, won the Turner Cup for the best vase of five Rose blooms.

Such a fine display of Carnations has seldom if ever been seen at a Glasgow Show, and an interesting feature of the exhibits was the number of novelties staged in the open classes.

Messrs. Torrance and Hopkins were successful with a collection which included recent introductions, such as St. Joan, Harmony, Lettice and Lady Bower; they also staged Snowflake, with which they secured the leading honours in the class for white Carnations. Mr. H. Woolman, Shirley, Birmingham, secured seven first prizes.

The gardeners' and amateurs' classes for Carnations were noteworthy on account of the success of Mr. John Macfarlane, junr., Airdrie, who excelled over several older and more experienced growers. He won the Carlaw Cup for six vases, and two Gold Medals, one for six vases of Carnations and Picotees, and the other for the best vase in the show. Mr. Allan and Mr. Thomas Kilpatrick, Springside, won ten first prizes between them, and Mr. Arthur Ross, Kilmalcalm, was a prominent exhibitor in the perpetual-flowering classes.

For the first time, the decorated dinner tables were arranged in three classes, resulting in an increased number of entries. The Invertrossachs Cup for the best table of Roses was won by Mrs. Dixon, Dumfries; and for the best effects obtained with Sweet Peas, and Carnations, Mr. James Currie and Mrs. Berry, Lanark, were placed first, respectively. Decorative baskets, bowls and vases were also numerous and were arranged in most cases with artistic skill.

Gold Medals were awarded to Messrs. Dobbie and Co., for Sweet Peas, Roses and Dahlias; Messrs. Austin and McAslan, for Roses, and a rock garden; Mr. H. Woolman, for Carnations; Messrs. R. K. Gemmell and Co. for Roses and Sweet Peas; Messrs. R. Lawrie, for Begonias; the Scottish Wholesale Co-operative Society, for Roses; Messrs. Thyne and Son, for herbaceous plants and Roses; Messrs. Leighton, for herbaceous and alpine plants; and to Messrs. C. Engelmann, Ltd., for Carnations.

BRITISH GLADIOLUS.

August 10.—The annual show of this special flower Society, held at the Horticultural Hall, Westminster, on this date, was very successful in the number and quality of the exhibits, and the attendance was larger than might have been expected during a holiday week. The hall was filled with exceedingly good spikes of Gladioli which well represented the great changes which have been effected during recent years in the colourings of the flowers. As, unfortunately, too often is the case with the shows of some special flower societies, the number of the exhibitors was relatively few. The large trade groups, arranged on the wall spaces, were of great merit and well illustrated the decorative value of the flower. Many new seedlings were submitted, but late in the day no awards appeared to have been made.

Open Classes.

The class for an exhibit illustrating the various decorative uses of the Gladiolus was popular with exhibitors and visitors alike. Each exhibitor was allowed twenty-five feet run of tabling, and while the component parts of their exhibits were distinct, the collective effect was very good. The first prize, a handsome silver cup, presented by Messrs. Abol, Ltd., was won by Mr. W. Yandell, who displayed great ingenuity in his choice of subjects and executed them with considerable skill. He had floral emblems suitable for all occasions and purposes. Messrs. Hewitt and Co. had an admirable second prize exhibit, and Mr. H. Prins was third.

The Nurserymen's Championship Trophy was won by Mr. W. J. Unwin with an excellent display. The spikes were all of high quality and arranged with great taste. His Primulinus varieties included Altair, Souvenir, Jewell, Nydia and Salmon Beauty, while the principal large-flowered sorts were General de Wet, White Giant, Red Emperor, Prince of Wales, Purple Glory and Rose Precoce. Mr. W. Glen was second, and he included in Souvenir, Mr. Mark and Crimson Glow, very good Primulinus varieties. Mr. H. Prins was third. Mr. W. J. Unwin was also first in the class for a collection of Primulinus hybrids with an admirable collection, although the varieties were unnamed. Messrs. K. Velthuys and Co. were second.

The Society's Championship Silver Challenge Cup, which is offered for the best single spike of twenty-four large-flowered varieties, was won by Messrs. G. Mair and Sons with a magnificent exhibit which was surely the most meritorious in the show. The superlative varieties included Bullfinch, pale yellow centre passing to orange and purple; Comrade, satiny-heliotrope with creamy blotch; Irene, salmon-rose; and Sultan, crimson flaked with purple. Messrs. Konynenburg and Mark were second. Messrs. R. H. Bath, Ltd., had the best collection of eighteen Primulinus hybrids and so won the Championship Challenge Cup for the second time. In this exhibit they showed many excellent seedlings. Messrs. Kelway and Son were a good second. Messrs. Stewart and Co. had the best twelve varieties of either type. Among the large-flowered sorts were Purest of All, Purple Glory, Chateau Thirry and Frau Dr. Hauff. Mr. H. Prins was second.

With another magnificent collection, Messrs. G. Mair and Sons won the first prize in the class for twelve spikes of distinct large-flowered varieties. In this they included Comrade, Queen Mary, greenish-white at first and becoming pure white at maturity; Elegance, pale creamy-yellow with small crimson blotch; David Ardrie, rosy-carmine with paler centre; and Sultan. Messrs. K. Velthuys and Co. had beautiful spikes of Brilliancy, orange-red; Laetitia, pale salmon; L'Innocence, pale primrose; and Maiden's Blush, pink blush, in their first prize exhibit of twelve Primulinus varieties, Mr. H. Prins was a good second. Mr. W. Yandell was first with an excellent exhibit in a class for twenty-four spikes of either type; he included Rose Luisante, Ada, Orange Brilliant and General de Wet, of high quality.

The colour classes,each requiring three distinct varieties, one spike of each, contained many admirable exhibits. In these classes for large-flowered varieties, Messrs. Konynenburg and Mark won seven first prizes. Their best spikes were Elta Improved, pink; Troubador, purple; Crimson Glow, red; Stuttgardia, scarlet; Sappho, smoky; Albatross, white; and Barlow's Yellow. Messrs. K. Velthuys and Co. were first in three of the classes for large-flowered varieties, and their best were Captain Boynton, lavender; Doris, salmon; and Leviathan, cream. All the first prizes in the colour classes for Primulinus varieties were won by Messrs. K. Velthuys and Co., and in these their best spikes were Maiden's Blush, pink; Scarlet Cardinal, red; and Souvenir, yellow.

Amateur Classes.

As in the open classes, the quality of the flowers was very good indeed, and the exhibitors were relatively few. W. E. Samuel, Esq., Wrexham, won the Kelway Silver Challenge Trophy for the second year in succession. His twenty-four spikes of British-raised Gladioli were of great merit and included many seedlings. Mr. Samuel also won the Unwin Silver Challenge Cup. This class required twenty-four distinct varieties, and the outstanding sorts were Superba, Heliosa, Fortune, Thomas Edison and Heavenly Blue. The best six spikes of either section were staged by W. Kitchener, Esq., Hitchin, who included E. J. Taylor, Duchess of York and Vesta Tilley, of high quality. W. E. Samuel, Esq., had the best display of American varieties. W. E. Phillips, Esq., London, won first prizes with three large flowered varieties, three Primulinus grandiflorus varieties and six spikes of large-flowered varieties. W. E. Samuel, Esq., had the best exhibits of six varieties of Primulinus grandiflorus varieties and of six Primulinus varieties, while E. Baines, Esq., was first with three Primulinus varieties.

The colour classes in this section were also very good, and here only one variety was required of each of the stipulated colours. Miss Anderson, East Hanney, Berkshire, won first prizes with the following large-flowered sorts: Empress of India, maroon; Rose Ash, smoky; and White Giant. W. E. Samuel, Esq., was first with Heliosa, yellow; Thomas Edison, orange; and Nimrod, pink. W. E. Phillips, Esq., was first with Berty Snow, lavender; Red Emperor, Madame Appect, rose; Rodkappe, scarlet; and Rose Ash, any other colour, although this variety was also placed first in the class named "Smoky." Mr. A. E. Amos, Colchester, was first with Mother Pfitzer, cream; King George, red; H. Sully, white; and an unnamed scarlet. Major George Churcher had, in Sheila, the best scarlet, and J. H. Gregg, Esq., Bowes Park, London, was first with Opalescence, lilac; Evelyn Kirtland, pink; and Duchess of York, violet.

In the colour classes for Primulinus varieties, the first prizes were won by the following: W. E. Samuel, Esq., with La Hys, cream; Camillo Sclinendu, crimson; Viola Bird, lavender; Maiden's Blush, pink; Mrs. G. Wilkinson, purple; White Lady and Violet de Parma. Miss Anderson was first with Xanthia, orange. A. E. Amos, Esq., was first for lilac and for scarlet flowers with unnamed blooms. Major George Churcher was first with Golden Frills, a most beautiful variety; and E. Baines, Esq., was first with Scarletta. In Group C of the amateurs' classes, the chief prize winners were R. B. Long, Esq., Richmond, Surrey; W. Kitchener, Esq., Miss Anderson and Mr. W. Mabbott, Tiverton, who all showed exceedingly good spikes of Gladiolus of the various sections.

The decorative classes were very successful. The best dinner table decoration was of yellow and deep orange-coloured Primulinus varieties, tastefully arranged by Miss H. King, Histon. Mrs. Yandell, Maidenhead, was first with three delightfully arranged bowls of Primulinus varieties, suitable for sideboard decoration. Miss M. Zelley, Somerset, was equally successful with a well-arranged basket of Primulinus varieties; Miss W. Unwin excelled in the class for a bowl of large-flowered varieties, and Miss Velthuys had the best vase of the same type.

Non-Competitive Exhibits.

Mr. W. J. Unwin filled two long stretches of wall space with admirable collections of both types of Gladiolus. His large-flowered varieties included Shell Pink, John T. Virrie, Gertrude Grey, Jack London, Crimson Glow and Pride of Haarlem, while the best of his many good Primulinus varieties were L'Yser, Nydia, Souvenir, Altair, Citronella and Xanthia (Gold Medal).

Messrs. Kelway and Son filled the end of the hall with a large collection of very good flowers arranged with great skill. Chief among the large-flowered varieties were Mayor of Taunton, Odin, Loveliness, Gladiator, Golden Measure, MacDonald, Ornabus and Rev. Ewbank. Their excellent Primulinus varieties included Palestine, Phyllis Kelway, Josephine Kelway, Pinkie and Mrs. Swainson (Gold Medal).

Messrs. Konynenburg and Mark also set out a large collection of very good spikes. Their outstanding varieties were Purest of All, Krimchilde, Paul Pfitzer, Trundel Grotz, Troubador and Othello, while the many Primulinus sorts included Souvenir, Brilliant and Euridice (Gold Medal).

Messrs. R. H. Bath, Ltd., staged a very attractive group chiefly of the Primulinus type, which included many excellent seedlings, and vases of La Lys, Sphinx, Nydia and Souvenir (Silver-gilt Medal). Silver Medals were awarded to Messrs. D. Stewart and Son, Messrs. Lowe and Gibson, The Orpington Nurseries, Ltd., Mr. H. Prins and Messrs. K. Velthuys and Co., for interesting collections of Gladioli.

Since the above report was written, the Hon. Secretary of the British Gladiolus Society has obligingly sent us the following list of awards:

First Class Certificate.

Nancy Hanks and *Yvonne*.—Shown by Messrs. K. Velthuys and Co.

Awards of Merit.

Margie Kelly.—Shown by Messrs. Kelway and Son.

Victor.—Shown by Messrs. R. H. Bath, Ltd.

Elizabeth Arden.—Shown by Mr. H. Prins.

Rufus.—Shown by Captain G. M. Churcher, Blackdown.

Perle Brilliant.—Also shown by Captain G. M. Churcher.

Basil Prior.—Shown by Mr. A. E. Amos, Colchester

Alt-Wein, Stuttgardia and *Aida*.—These three varieties were raised by Mr. W. Pfitzer, and shown by Mr. A. E. Amos.

Card of Commendation.

Elsinore.—Shown by A. J. Bliss, Esq., Morwellham.

NEWCASTLE AND DISTRICT HORTICULTURAL.

The annual outing of the above Society took place on July 28, when about eighty members visited Howden Dene, Corbridge, and Beaufront Castle. At Howden Dene the party was conducted round the gardens by Mr. J. Winder, and the Rose borders and herbaceous borders were greatly admired, while the glasshouses contained many subjects of interest.

Mr. J. McLaren conducted the party round the gardens of Beaufront Castle, where the fruit plantations evoked great admiration, and the numerous flower borders were the source of much interest.

DUMBARTONSHIRE SWEET PEA.

The eleventh annual exhibition of this Society was held at Helensburgh, on August 11, when all available space in the Victoria Hall was occupied by a record number of exhibits. Apart from the decorative sections, twenty-two classes were devoted to Sweet Peas, and as the quality of the blooms were above the average, competition was exceptionally keen, particularly in the gardeners' and amateurs' divisions.

In the open section, Mr. James Paul, Killearn, was successful in the classes for eighteen and twelve vases; the best varieties were Pinkie, Royal Sovereign, Hero, Magnet, Youth, Avalanche, Doreen and Venus. Mr. George Blaikie also scored a double success in the classes for six vases and three vases, with fine examples of Royal Pink, Colorado, Mrs. A. Searles, Jessie, Youth and Challenger, in the former event, while Pinkie, Magnet and Sunkist formed a strong trio in the latter competition. Mr. Frank Dunbar, Cardross Gardens, won the Society's Cup for twelve vases of Sweet Peas, and the McGruther Vase, for nine vases, in the section confined to gardeners and amateurs in the county. His outstanding sorts were Nina, Jessie, Pinkie, Model, Charming, Grenadier and Harlequin. Nine exhibits were staged in the competition for the Cup presented by Miss Whyte, Barnhill, for the best three vases of Sweet Peas grown by amateurs who did not possess more than one-hundred-and-fifty plants. The winner was Mr. Allan McKinlay, and his vases of Model, Charming and Mrs. A. Searles reflected a high state of cultivation.

The Rose classes were well filled and the flowers were of good quality. The principal prize-winners were:—Mr. John Smellie, Helensburgh, for six vases; Mr. W. Carruthers, Cardross, for two vases of Rambler varieties; Mr. R. Findlay, Rhu, for three vases; Mr. C. McLauchlan, Helensburgh, for three vases, nine blooms, and one vase of any pink variety; and J. McRobbie, Dumbarton.

Mr. John H. McDonald, Glasgow, excelled in the Carnation section, winning first awards in the classes for six, three and a single vase of border varieties, and he also staged the best vase in the show, with grand flowers of Kelso.

In the decorative classes, Mr. D. McNeill, Dumbarton, had a very creditable record, being placed first for a lovely bouquet of Roses; two shower bouquets of Sweet Peas, and three button hole and ladies' sprays; while Messrs. Blaikie, Dumbarton, showed the best basket of Sweet Peas.

CUMNOCK AND DISTRICT SWEET PEA AND CARNATION.

Both as regards the number and the quality of exhibits, the annual show of the above Society, held on August 11, excelled all previous efforts. There were twenty-two classes for Sweet Peas, and the chief honours in the open section went to Mr. J. Logan, who won six first prizes. He was also awarded the special prize for the best vase of Sweet Peas in this section, with Royal Pink, and further added to his winning record by securing the chief honours in the decorative classes for bowls and baskets.

In the class for six vases of Sweet Peas, Mr. R. K. Wardrop, Bridge of Allan, was exceptionally successful. He was placed first, secured the Silver Trophy for the most meritorious exhibit in the Sweet Pea section, and an outstanding vase of Coralline was doubly honoured as the best vase in the section, and the best vase in the show. Other prize winners were Mr. James Gibson, Sarn; Mr. A. Young, Mr. D. Blackwood, Mr. T. Kay and Mr. I. Blackwood, Cumnock.

The Silver Bowl, for the best six blooms of Roses, passed into the custody of Mr. J. Munn, and Mr. A. Fox, Kilwinning, excelled in five of the remaining six classes; he also secured the special prize for the best vase in the show, with grand blooms of George Dickson.

Mr. A. McMillan, Cumnock, and Mr. A. Torrance, Lugar, shared the honours in the Carnation classes, the former having four first prizes, and the latter two first prizes to their credit.

Mr. J. Alston, Sarn, secured a triple victory with Pansies and Violas, and in the non-competitive section, Mr. David Smith staged a meritorious collection of Sweet Peas and Roses.

BAKEWELL SHOW.

This show was held under ideal weather conditions on August 9, and as the ground is in one of the most delightful valleys in the Peak district, with the romantic Haddon Hall in the immediate vicinity, many visitors considered that it was worth a visit on that account alone. The attendance at the show broke all previous records by several thousands, and although the horticultural section was an important part, it was by no means the only attraction.

There was a large number of non-competitive exhibits in the trade tent, and in the competition tent a very large increase in the number of entries, especially in the fruit and vegetable collections, which were a great advance on anything shown there before.

Messrs. Bees, Ltd., were awarded a Large Gold Medal for one of their well-known groups of herbaceous flowers. One point that was particularly noticeable was the freshness and vigour of exhibits from the north of England compared to those from the south, some of which plainly showed the effects of the drought and heat recently experienced.

Messrs. Dobbie and Co., Ltd., showed a large and attractive group of Dahlias and other flowers, which was awarded a Large Gold Medal. Messrs. Brooke, Bray, had an excellent display of floral designs and flowering subjects, including some good specimens of Lilium auratum.

Mr. Allan Falconer, Cheadle Royal Gardens, was a prominent exhibitor, and was awarded a Large Gold Medal for a magnificent group of mixed flowering and foliage plants, which occupied a prominent position in the centre of the large tent, some noble specimens of Statice profusa being very noticeable. Mr. Thomas Robinson staged an excellent collection of cut Roses, arranged in attractive style, which was deservedly given the highest award.

Gold Medals were awarded to Messrs. W. Artindale and Son, Sheffield, for a display of floral designs and other flowers; and to Messrs. Barron and Son, Derby, for Roses, and also for a rock garden.

Messrs. C. Engelmann, Ltd., exhibited one of their characteristic displays of perpetual-flowering Carnations, which secured a Gold Medal, similar awards being secured by Messrs. Dickson and Robinson, Manchester; Messrs. R. W. Proctor and Sons, and Messrs. Sutton and Sons, for their exhibits of border flowers and annuals.

Silver Medals were awarded to Messrs. Blackmore and Langdon, for Delphiniums and Begonias; Messrs. G. and A. Clark, Ltd., for herbaceous flowers; Messrs. Dickson, Brown and Tait, for herbaceous flowers; Dickson's Nurseries, Ltd., for Roses; Gay Border Nurseries, for herbaceous flowers; and Messrs. Maxwell and Beale, Dorset, for an attractive exhibit of Heaths in flower and dwarf Astilbes.

Mr. Allan Falconer secured the highest award for a collection of vegetables, every specimen displayed being practically perfect; this was a source of great interest to the other exhibitors, as it was the first time this exhibitor had shown in Bakewell.

ANSWERS TO CORRESPONDENTS.

Elm Tree.—*Anxious.* It is difficult and well-nigh impossible to offer any helpful suggestions concerning the young Elm tree which is in such an unsatisfactory condition. As, no doubt, you will know, from notes which have appeared from time to time in *The Gardeners' Chronicle,* the Elm has of late been attacked by a disease and also by the Elm Bark Beetle. But your description of the tree's condition does not point to either of those causes. It is not likely that winter winds even though rough, could cause the condition you have described. If you send specimens of stem, leaves and roots we will endeavour to diagnose the trouble.

Erica hyemalis and E. gracilis.—*H. W.* Both Erica hyemalis and E. gracilis, in common with all the South African Heaths, require perfectly cool treatment at all times; when they are housed during September they should be placed in a cool, airy greenhouse, where they may be afforded plenty of air. Care should, however, be exercised in this respect as draughts, as well as close, stuffy conditions, may induce an attack of mildew. An average temperature of 40° is high enough, and except for the exclusion of frost and to dispel damp they are best grown without any fire-heat. Unless they are advanced enough to flower naturally at Christmas, you can do very little to advance them, beyond giving them a slightly higher temperature, but it is not advisable to have this above 45°, as Heaths quickly resent high temperatures during the winter, and you would run the risk of spoiling the plants. Although it is true that exporters for market do subject some of their Heaths to higher temperatures, it is nearly always at the expense of colour and quality in the flowers.

Garden Engine.—*C. R.* The two best garden engines we know, and these have been in regular use, are those sold by Messrs. Thomas Green and Sons, Leeds, and Messrs. J. Bentley, Ltd., Barrow-on-Humber, Hull; price about £9 for a thirty-gallon engine. The best type for a large and lofty Peach house is one with a half-inch semi-rotary, gun-metal pump, and with a section pipe about six feet long; it may be filled from either tanks or ponds; there should be three feet of delivery hose, with a jet or rose. These engines last a long time, seldom get out of order, and when they do, are easily repaired.

Mystery plant.—*C. O.* The plant is Salvia Sclarea var. turkestanica, a variety of Clary or Common Clary. Seeds of this were distributed by the Royal Horticultural Society this year; also plants of S. officinalis var. purpurea, the Purple Sage. All the species of Salvia are named Sagi and Clary on occasions, the word Clary being derived from Silarea. The seeds were distributed under the garden name of S. turkestanica, which is only a varietal name applied to the Salvia having silvery-pink bracts under the clusters of flowers. There is another form named S. t. superba, which has a greater amount of colour, or a larger number of the small leaves with the pink colour. The plant is perennial in France, where it grows wild by dry roadsides; but is liable to die out in this country like a biennial, after ripening seeds, so you should save seeds. It may prove perennial in your seaside district.

Names of Plants.—*Sedgeley.* Colutea arborescens (Bladder Senna).—*S. J. R.* Perished in post.—*L. G. H.* Probably Campanula lactiflora.—*W. W. C.* 1, Gentiana asclepiadea; 2, Escallonia philippiana.—*C. B. and Co.* Cynoglossum amabile.—*Ede.* 1, Spiraea Douglasii; 2, Spiraea Bumalda var.

Pear Pitmaston Duchess.—*A. T.* It is difficult to account for the failure of your Pears, especially when the fruits attain such a large size before dropping off. If your soil is light or poor, it is possible the trees require watering and feeding at this season of the year to enable them to finish their fruits. Place a ridge of turf around the base of the tree, so as to form a basin to hold the water, and if you can obtain diluted liquid manure from the stable or cow-sheds, there is nothing better to use. Failing this, guano water or a dressing of some artificial manure may be used, but always water the trees with clear water before any manure or liquid manure is used. June to September is the best time to feed and water Pears, and from the middle to the end of October to gather this variety.

Tomatos Failing to Ripen.—*W. R. C.* Your Tomatos are not diseased, but merely suffering from lack of potash in the soil. This may be corrected by applying a light dressing of nitrate of potash which may be watered in.

Thalictrum dipterocarpum Seedlings.—*E. S.* We would advise you to repot the seedlings into four-inch pots and to winter them in cold frames, planting them out next spring in well cultivated soil of good texture, in a sunny but not too hot position.

Violas Diseased.—*W. S.* The Viola plant was in too dry a condition to make a correct diagnosis of the trouble. The stem had completely shrivelled and appeared to have been attacked by the fungus Thielavia basicola. Watering the soil with Cheshunt Compound should prevent the spread of this disease.

Communications Received.—A. E. R.—H. R. D.—W. C. T.—A. B.—W. H. H.—A. L.—D. W. T.—G. F. G.—H. M.—M. D. H.—H. W.—T. H.—A. T. J.—R. M.—C. N.—H. G. K.—J. D. P.—R. A.

TRADE NOTES.

The contract to supply the bulbs required by the Parks and Open Spaces Committee of the London County Council naturally attracts considerable competition, particularly as the successful tenderers have such an unequalled opportunity of demonstrating the quality of their produce. This year, we understand, the contract goes to Messrs. Little and Ballantyne, the well-known nurserymen and seedsmen of Carlisle, so it may be safe to assume that we shall see in the spring of next year a display in the London public parks in keeping with their best traditions.

We understand that the Royal Horticultural Society has awarded Messrs. Corry and Co., Bedford Chambers, Covent Garden, a Highly Commended Certificate for their non-poisonous weed-killer powder, "Weed Death."

We learn that Messrs. J. de Jager and Sons, Heiloo, Holland, have been favoured with an appointment as Bulb Growers to H.M. Queen Marie of Roumania.

THE
Gardeners' Chronicle
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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 60·1°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, August 22, 10 a.m. Bar. 30. Temp. 63°. Weather, Fine.

Some Garden Pests.

It is not our present purpose to write of the garden pests which attack fruit and vegetable crops. So much has been written on that subject that for the moment, at all events, it may be left on one side. But there are some pests which affect certain gardens that do not get the attention they deserve in spite of their devastating effects on the plants to which they devote their attentions. Take, for example, Lavender (Lavandula Spica). In many gardens, especially those by the sea, it flourishes year in and year out, but there are hundreds, and indeed thousands of others, where after a year of vigour it falls sick, its leaves dry, the bases of the stems become black and slimy, and, lo! it is no more. It is evidently a fungus which causes the mischief, and where that fungus is, Lavender must either not be grown—an admission of defeat not to be thought of—or grown as an annual. Here is an opportunity for a horticultural research station to earn lasting fame and thanks. What shall we do to save our Lavender hedges? Should we dip our cuttings in an antiseptic, or shall we dust the ground heavily with sulphur? Gardeners would willingly put themselves to much trouble to save their Lavender, for which of us has not suffered in our pride to discover that, no matter what sort of cultivation we exercise, the Lavender dies all the same. And again, the super-disease of the Rose, namely Black Spot, is a menace to domestic happiness. If it attacks our Roses and leaves our neighbour's free, our gardening status is undermined. It is said that spraying with Bordeaux mixture mitigates this disease, but so far we have had no first-hand experience of the remedy, although much of the black spots. This year seems to be one in which the disease is peculiarly insidious, and again, if only a research station would rid us of its malign attentions, how we should hasten to endow it with our thanks. The splendid Zinnia, which, lover of sunshine as it is, should this year have excelled itself in splendour, is falling a victim to a curious malady. The stem at ground level becomes bare of cortex as though nibbled by mice, and down the withered plants go, one by one. It would seem to be a malady which develops while the plants are in the frame, a Phytophthora, perhaps; but gardeners who have staked their credit on a record show of Zinnias must, if this disease has visited their plants, be looking around to find something which will mask the blanks in the bed. There is also the perennial puzzle of Parsley, a weed in some gardens and a fugitive for others. Yet again, the Primulinus hybrid Gladiolus has the habit of turning yellow and withering away. The symptoms suggest the activity of a fungus, but we are not aware that the trouble has been investigated. It deserves to be, for this beautiful plant should be saved from an ignominious and untidy end. Finally, although no one writing of minor garden pests need be gravelled for lack of matter, there is that perennial pest Hollyhock rust. On all but light soils Puccinia malvacearum is well-nigh ubiquitous, disfiguring foliage and stunting growth. Investigations carried out in America, if we remember aright, have brought to light the curious fact that plants which suffer severely from the rust in any one year get off lightly—if they survive at all—in the following year, and contrariwise, plants which take this complaint mildly in one season suffer a severe attack the next. Our own experience tends to confirm these observations. Surely here is an interesting problem awaiting the plant breeder. These few examples show that there is room for further scientific investigations into the diseases of flowering, as well as other plants. The investigation should be a fundamental one. If we could learn, for example, the range of soil acidity and alkalinity which such important garden plants can stand, and the optimum soil condition for each plant, we might be able to supplement our cultural adroitness in such a way as to banish each and every disease; for if cultivation be good the fungi will trouble us but little. Therefore, the problem is what, in the case of the Lavender, etc., is good cultivation; in other words, what soil conditions should be induced in order that the plant may defy successfully the attack of the disease which, under ordinary conditions, so surely overwhelms it.

Southport Show.—Writing from Southport on Tuesday evening, our representative reports that "the prospects are exceedingly good for a wonderful exhibition at Victoria Park. When the advanced-booking offices closed on Monday evening last, the value of admission tickets purchased was already £400 in excess of the previous record. The whole exhibition site covers about twenty-two acres of ground and two-and-a-half acres are under canvas. The outdoor rock and formal gardens are as numerous as ever and competition is keen in the two large group classes. Non-competitive displays, almost completed, appear to be fine and even, while the entries in competitive classes number over 3,700 and hundreds of entries had to be refused. The National Sweet Pea Society's Show is very promising and at least one Irish grower is present. Southport is looking its best; Hesketh and Victoria Parks, the numerous public gardens along the promenade, the new herbaceous border by the new and beautiful bathing pool, and the half-mile herbaceous border in Rotten Row, are all in fine condition, showing that the Park Committee continues to give the heartiest support to the efforts of Mr. W. Clark—the Parks Superintendent—to maintain Southport's position as the great garden seaside town of the country."

Acreage of Hops.—According to the preliminary statement issued by the Ministry of Agriculture and Fisheries, the total acreage of Hops in England and Wales at the present time is 23,800 acres, exactly 800 more acres than in 1927. In Kent, there are 14,800 acres under Hops; Hampshire has 990 acres; Herefordshire, 3,780 acres; Surrey, 160 acres; Sussex, 2,150 acres; Worcestershire, 1,790 acres; and other counties, 130 acres. It is interesting to note that in some of the Hop gardens in Kent the workmen are this year equipped with stilts, in place of the step-ladders commonly used.

Legacies to Gardeners.—The late Mr. William Jones Johnston-Vaughan, J.P., of The Old Rectory, Wotton St. Mary Without, Gloucester, who died on June 14, left £300 to his groom and gardener, Mr. Henry Bircher.—The late Mrs. Caroline Mary Cooper, of the Friarage, Aylesbury, who died on March 8, left £100 to her gardener, Mr. Thomas Busby.—The late Mr. Stephen Cliff, of Western Flatts, Wortley, Leeds, who died on June 22, left £100 and a life annuity of £104 to his gardener, Mr. Ernest Hyams.

Importation of Orchids into America.—Fresh restrictions on the importation of Orchids into America have recently been announced. Hitherto, permits for the importation of Orchids into the United States have carried a limitation of twenty-five plants for species, and one hundred plants of seedlings, for propagation purposes. Orchid permits will, hereafter, be limited to not exceed twenty plants of one kind, species or hybrid; and to not exceed twenty different types, species or varieties, to any individual permittee in one year. The term hybrid is understood to cover hybrids which have received an award under a varietal name in its country of origin, and also any unflowered and unnamed seedling which may meet the requirement of probable or special merit.

Goldfish to Exterminate Mosquitos.—In the United States, goldfish are being used in huge numbers for combating the mosquito menace, by introducing them into the ponds and other likely breeding places of these insects, for goldfish feed voraciously upon the larvae of the mosquitos. We learn that more than one thousand goldfish were recently placed in the various ponds of the Cypress Hills Cemetery, Glendale, and it is claimed that already the ponds are practically free of mosquitos.

Selection, Storage and Treatment of Seed Potatos.—This is the subject of a recent publication (*Leaflet* No. 362) issued by the Ministry of Agriculture and Fisheries. It is pointed out that crops of fourteen tons of Potatos per acre are not uncommon in Lincolnshire and Cambridgeshire, these heavy crops being due, in the main, to two factors: (1) the use of healthy and suitable seed tubers; and (2) proper cultivation and good manuring. The grower's attention should be concentrated on the choice of seed, a three-fold problem: (1) the choice of variety; (2) the size and maturity of the seed tuber, and (3) its health, *i.e.*, the absence of disease. In connection with the choice of varieties a list is given of those varieties whose yields have been ascertained by the comparison of results from trials at the various experimental stations. The list of first-early varieties is headed by Epicure, followed by Duke of York and Sharpe's Express, the difference between the yields of the latter two being not strictly significant; Ally, King George and Great Scot, in the order given, are the first three in the list of second-early and main-crop Potatos. The size of the tuber is of paramount importance. Recent experiments indicate that tubers weighing two-and-three-quarters to three ounces, yield as heavily as larger tubers, and more heavily than those of a smaller size, although the crop from the latter contains a larger proportion of heavy ware tubers. These facts, together with consideration of the price of seed Potatos per acre, indicate that the most profitable seed tubers are those weighing between one-and-a-half and two ounces; roughly speaking, those that pass over a one-and-a-quarter inch mesh and through a one-and-three-quarter inch mesh. If the crop is intended mainly for seed purposes, the grower is advised to plant seed tubers of larger size—averaging three or even four ounces in weight. The seed Potatos, so soon as received—autumn is advised as the best time to secure them—should be placed, if early varieties, one layer deep in shallow boxes with the rose end uppermost; larger boxes, to hold several layers, are recommended for main crop and late varieties. The various types of boxes suitable for sprouting purposes, etc., are illustrated, and the various underlying principles of these operations are discussed in this useful pamphlet.

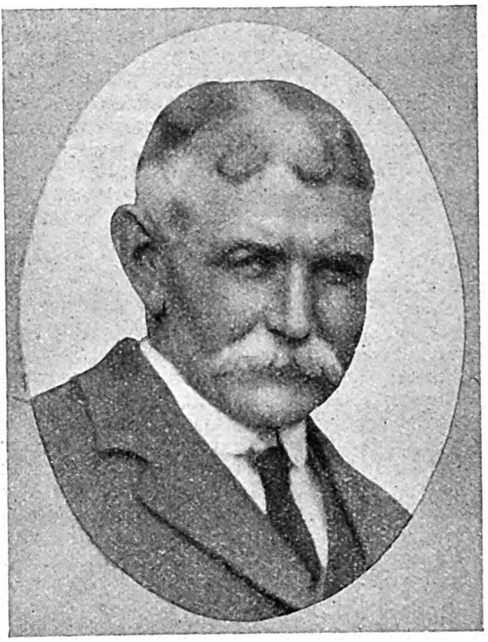
Larch Canker introduced to America.—An outbreak of the European Larch canker is reported in an area about fourteen miles long by four miles wide in eastern Massachusetts, and it is regarded by the United States Bureau of Plant Industry as a serious menace not only to Larches, but to the Douglas Fir, the most important forest tree in America, and the Western Yellow Pine, both of which it is stated to have attacked. At present the outbreak is limited to the small area in Massachusetts, but as the disease is favoured by moist or foggy conditions, and as such are the prevailing climatic conditions on those parts of the Pacific coast where Douglas Firs grow best, the disease is naturally regarded as a potential danger.

A Green Zone around Greater London.—The Greater London Regional Planning Committee, formed by the Ministry of Health to consider the establishment of a green zone around Greater London—of land to be used for agricultural and recreation purposes—is now in touch with the local authorities concerned, with a view to devising a generally accepted scheme, or failing this, to deciding upon practicable methods of guiding and directing the further extension of London. A great open space is provided on the north-east side of London by Epping Forest, and on the south-west by Richmond Park, but other districts are practically devoid of open spaces and one of the tasks of the Committee is to consider how these deficiencies may be made good. It is hoped that the Committee, acting as a central body in conjunction with the various local planning committees, may lay down principles which will ensure a certain uniformity of action.

Tree Planting of Kingston By-Pass.—We understand that a technical sub-committee of the Roads Beautifying Association, presided over by Lionel de Rothschild, Esq., has, after a careful survey of the local conditions, drafted a plan for the furnishing of the margins, banks, waste places, etc., along the Kingston by-pass, and that the scheme is regarded with favour by the Surrey County Council. Forty-three different species of trees have been suggested as suitable for this purpose, and a proposal of interest is that the cross-roads should be marked with Poplar trees, one at each corner, to attract the attention of approaching motorists. It is hoped that owners of land along the by-pass will assist in the general planting scheme and so convert what is at present a barren and bleak scar on the landscape into an avenue of beauty.

Marking of Imported Rose Trees.—The public enquiry into the application for an Order in Council under the Merchandise Marks Act, 1926, to require the marking of imported Rose trees, will be held in Room 104, at 10, Whitehall Place, London, S.W.1, commencing at 10.30 a.m., on Tuesday, October 9, 1928, and continuing, if necessary, at the same time on the following day. Applications to be heard in evidence, and any other communications with regard to the matter, should be addressed, so early as possible, to the Secretary of the Standing Committee, Mr. H. J. Johns, 10, Whitehall Place, London, S.W.1.

Ancient Yew Tree Destroyed.—A five-hundred-years-old Yew tree, in the graveyard of Chapel Hill Church, near Tintern, was recently destroyed by fire. Its hollow stem had for years been occupied by bees, and it is believed that someone, in endeavouring to smoke out the bees, set fire to the tree and so destroyed it.



MR. C. NIPPARD.

Mr. C. Nippard.— No one has done more in promoting public interest in horticulture in Bournemouth and the surrounding district than has Mr. C. Nippard, of Ashton Court Lodge, Branksome Park, Bournemouth. A native of Brading, Isle of Wight, described centuries ago by Sir J. Oglander as "the awntientest towne in oure Island," he commenced his gardening career forty-seven years ago by spending two years in the market garden of Mr. W. Warder, at Brading, and there gained an insight into business methods of producing early fruits and vegetables for market. From there he went to the gardens at Nunwell Park, the seat of Lady Oglander, as an improver under Mr. E. R. Tolley, where he spent a very profitable four years, specialising chiefly in Roses and hardy fruits, especially wall fruits. In May, 1887, Mr. Nippard went to Bournemouth, to take up a post of journeyman at Roccabruna, the residence of the late F. J. Bright, Esq., and after gaining two years' experience there, mostly in connection with plants under glass, he joined the staff of Messrs. G. Watts and Sons, of The Palace Nurseries, as propagator and grower of Chrysanthemums for exhibition, winning several cups and certificates during the three years he was there. At that time—during the early nineties—the exhibition Japanese Chrysanthemum had reached the zenith of its popularity, and such stalwarts as Nat Molyneux, of Rooksbury Park; Thomas Wilkins of Inwood House, and George Garner, of Amberwood, were prominent exhibitors at the Bournemouth shows. A vacancy occurring with his former employer, F. J. Bright, Esq, Mr. Nippard returned to Roscabruna to take charge of the gardens, remaining there for over nine years, until, on March 1, 1902, he entered the service of John J. Norton, Esq., J.P., of Branksome Park, as head gardener, a post which he has now held for over twenty-six years. The gardens of Branksome Park are famous for a fine collection of hybrid Rhododendrons and Azaleas, comprising over six hundred of the best of the older and newer kinds. During the flowering season these gardens are opened to the public, and a proof of their popularity is the fact that during recent years over eighty thousand persons have visited them. Mr. Nippard is a member of the Bournemouth Horticultural Society and for several years he was an extremely active member of its Council. He was the successful organiser of Bournemouth's first Rose and Sweet Pea Show, held at Westover Rink on July 3, 1912, and from this small beginning the present-day exhibitions, held annually at Meyrick Park, have developed, no small amount of the success being due to the energies of Mr. Nippard. But this is not the only field of his activities. For the past seventeen years he has been Secretary to the Bournemouth Gardeners' Mutual Improvement Association, and during that time, with the assistance of a splendid band of helpers, he has organised annual concerts and other social functions in aid of the Royal Gardeners' Orphan Fund, which have resulted in the raising of nearly £250 for that charity. Mr. Nippard is well-known as a lecturer on matters horticultural, and his services are also much in demand as a judge at flower shows.

Awards of Garden Merit.—Volume LIII, Part 2, of the *Journal* of the Royal Horticultural Society contains yet another list of plants which have received Awards of Garden Merit, and with each plant is given descriptive notes, and in some instances cultural advice. For instance, with regard to Anemone blanda, which received an award on January 23, 1927, we are told that it likes a moist, but not wet, leafy, sandy loam, and a sheltered position, sunny in spring. It flowers at the same time as Narcissus cyclamineus "but not wanting so damp a spot as that does best in." Anemone Pulsatilla has also been honoured, and the variety Mrs. van der Elst is stated to be the most beautiful form. A fairly dry position, in well-drained limestone soil high up on the rock garden, is recommended for it, although it apparently does equally as well in moist grass. Spiraea × arguta, a fairly well-known early spring flowering shrub, received an award on May 9, 1927, while Astilbe × Arendsii has also been honoured, and deservedly so, for the many beautiful varieties which form the race of Astilbes included under the name Astilbe × Arendsii, are all of high decorative value, and when better known should become extremely popular. Other plants which have received the Award of Garden Merit are Schizostylis coccinea, a not uncommon South African subject which survives the winter in a warm border in sandy loam, to which has been added leaf soil, and during September and October, sometimes so late as November, produces spikes of ten or more vivid red flowers; Cotoneaster rotundifolia, a low shrub, spreading but shapely in habit, semi-evergreen, and laden from October to April with bright scarlet fruits; Prunus cerasifera var. Pissartii, more commonly known as Prunus Pissardii; Prunus cerasifera var. Blireiana, a desirable bush or small tree with purple foliage and bright rose-coloured blossoms; Berberis Thunbergii, too well known to necessitate description; and Erigeron macranthus, a first-class herbaceous plant which was figured in the *Gard. Chron.* in 1909 (Vol. XLVI, p. 53, fig. 26). Laburnum × Vossii received an award on March 13 of the current year; it is a hybrid between L. alpinum and L. vulgare and is a desirable small tree, with the longest racemes of any of the Laburnums. Quercus coccinea splendens is another tree that has been honoured, chiefly for the brilliant scarlet or brownish-red colouring of its foliage in the autumn; while the familiar Cydonia japonica terminates the list.

Roses from Szeged.—During the present Rose season five million Rose blooms were sent from Szeged, the capital of the county of Csongrád, Hungary, by air to Paris, Lyons and Berlin. The Roses are bought from the growers at eight fillens per head, packed in boxes lined with ice, and are sold twenty-four hours later at their destination. Szeged is the centre of the manufacture of *paprica*, a red pepper largely used in Hungary, and it is the commercial centre of the great Hungarian Alföld. During the last year or two Rose growing has made enormous strides in this district, and it has been proved that the soil around Szeged produces more perfume in the blossoms than that of either Holland or Italy. The Szeged Town Council has recently received an offer from a French firm to establish a factory for the manufacture of attar of Roses. The offer will no doubt be accepted and it is estimated that next year's output will exceed nine million Rose blooms.

Glasgow Flower Show.—We understand that the preparations for the Glasgow Flower Show, to be held at the magnificent Kelvin Hall under the auspices of the West of Scotland Horticultural Society, and Glasgow Corporation, on August 28, 29 and 30, are now practically completed, and the Show promises to be an extremely fine one. Many handsome prizes are offered in the various competitive classes, and in the Sweet Pea section there is a new trophy—the Sir John Reid Challenge Cup—for the best exhibit in the class for twelve seven-inch vases of Sweet Peas. Another introduction is the Thomson Challenge Cup, for the best eight bunches of Grapes, not more than two bunches of any one variety. The Countess of Stair has kindly consented to open the show.

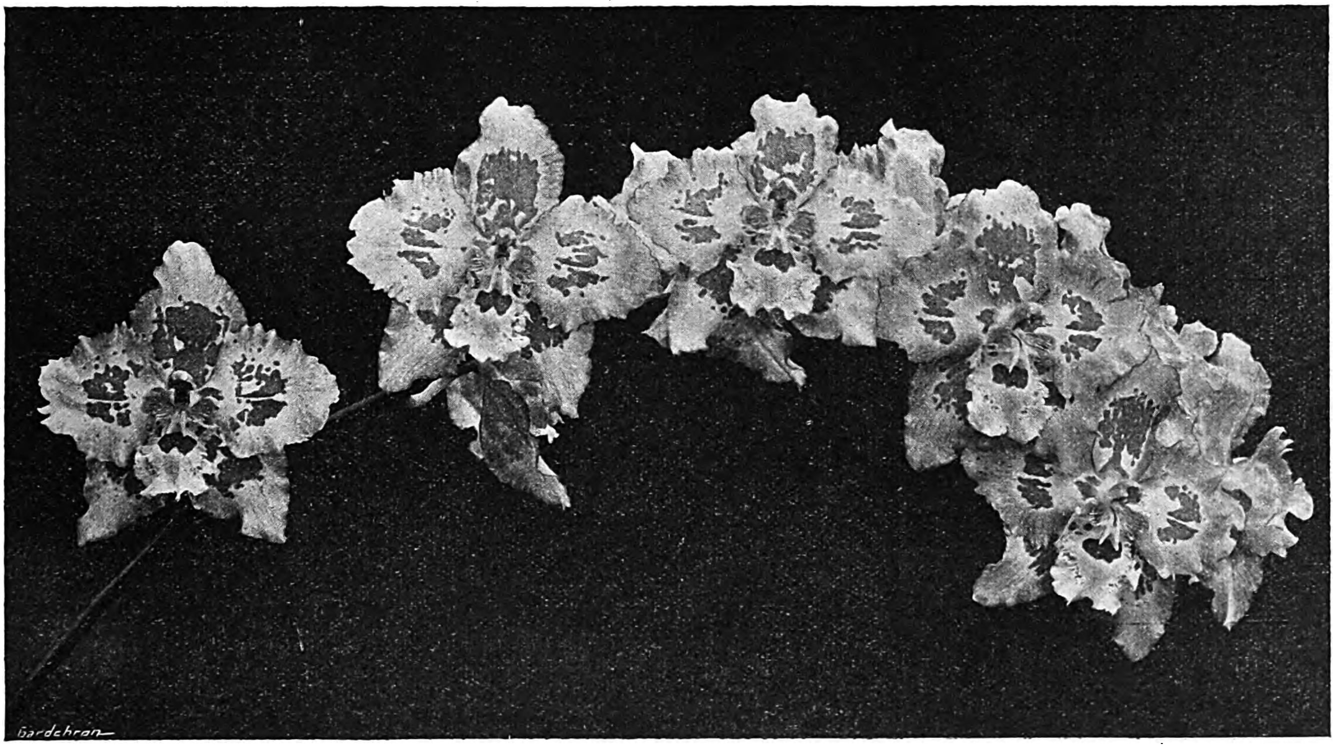


FIG. 60.—ODONTIODA COLINGE VAR. THE BARONESS.

R.H.S. First Class Certificate, August 14. Flowers rose-purple on white ground, blotched with red. Shown by J. J. Bolton, Esq. (see p. 137).

Restrictions on Imports of Fruit-tree Stocks into U.S.A.—The Secretary of Agriculture of the United States of America announces that on and after July 1, 1930, by amendment to Quarantine 37, Apple, Pear, Quince and Mazzard Cherry stocks will be excluded from entry into the United States. Similar action with regard to Mahaleb Cherry, Mirabelle Plum and Rose stocks is deferred for further determination of the question of availability of sufficient and satisfactory home-grown stocks.

Crop Returns of Irish Free State.—Estimates of the acreage under crops, etc., in the Irish Free State on June 1, 1928, have just been issued by the Department of Industry and Commerce, Dublin. The estimated area of Corn, root and green crops shows a slight increase as compared with last year. This year's returns show an acreage of nearly 1,511,000 acres, that of last year being 1,497,000 acres. The areas of Turnips and Mangolds this year are estimated at 186,000 acres and 85,000 acres respectively, increases of 3,000 acres and 5,000 acres on the acreage in 1927, while the Potato area has decreased to 363,800 acres, from 364,500 acres last year.

The Hardiness of Caraganas.—A *Report* from the Experimental Station at Fort Vermilion, on the Peace River, Canada, fifty-eight degrees latitude North, states that the Caraganas are the only hardy flowering shrubs that really succeed there, although the majority of the generally recognised hardy herbaceous perennials grow and bloom at the Station. C. arborescens is apparently the staple windbreak and hedge plant used on the bleak prairies of western Canada, and C. pygmaea is grown extensively for decorative purposes.

R.H.S. Fruit and Vegetable Show.—Copies of the *Schedule* of this Show, which is to be held in the Royal Horticultural Society's Hall, Vincent Square, Westminster, on Tuesday, October 9, may be obtained from the Secretary of the Royal Horticultural Society. The programme for the day is: 10 a.m., Staging to be completed, all competitors to leave the Hall; 10.5 a.m., judging commences; 1 p.m., the Show opens to the public; 6 p.m., the Show closes. Amateurs and horticultural traders are invited to stage non-competitive exhibits of fruits and vegetables; there will be no exhibits of flowers or ornamental plants at this Show.

Zauschneria latifolia.—Mr. T. Hay informs us that the plant which he showed at the R.H.S. Meeting on August 14, and which received an Award of Merit under the name Zauschneria californica var. latifolia (see p. 137), has now been identified at Kew as Z. latifolia, of Jepson's *Flora of California*.

Appointments for the Ensuing Week.—SUNDAY, AUGUST 26: Melrose Show; Newton Mearns Show; Thornhill (Perthshire) Show. MONDAY, AUGUST 27: Royal English Arboricultural Society's meeting (five days); Harrogate Horticultural Association meets. TUESDAY, AUGUST 28: Royal West Renfrewshire Horticultural Society's Council meets; Royal Horticultural Society's Committees meet. THURSDAY, AUGUST 30: Royal West Renfrewshire Horticultural Society's exhibition (two days); Paisley Florists' Society meets; Bideford Horticultural Society meets; Ayton Flower Show. FRIDAY, AUGUST 31: London Allotments and Garden Society's show (two days). SATURDAY, SEPTEMBER 1: Blackburn Horticultural Society's meeting and lecture; Hemel Hempstead Horticultural Society's exhibition; Barr, by Girvan, Show; Bothwell Show; Cambusnethan Show; Crieff Show; Cumnock, Old Dalrymple Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*New Zealand Flax.*—I have cultivated this in the open border here for above thirty years; this season it has sent up a flowering stalk full five feet high, producing fifty-two flowers, whose outsides are brownish or deep orange, while the inner petals are yellowish, and the stamens deep orange; as many as forty flowers have been all open at one time (August 8), free, perfect and ornamental. Bees visit the flowers, which are one inch in length. This place lies in latitude 55° 55′, and is about 160 feet above the sea, which is distant four miles from us (east coast). Loudon in his "Hortus Britannicus," sets the plant down thus: "Grows 6 feet; flowers, g.w., August; earth, 1 s.pt." It is not so here. I have never applied water to it till the other day, when the flowering specimen had one watering; this plant has remained undisturbed for many years. I have many times thought that the New Zealand Flax should be more generally grown in gardens than it is. I employ all its spare, tough leaves, for fastening plants, flowers, etc., with. *John Street, Beil, near Dunbar, N.B. Gard. Chron. August* 20, 1853.

Publications Received.—*Nature Round House and Garden*, by W. Percival Westell; The Sheldon Press, Northumberland Avenue, W.C.2. Price, 2s. 6d. net.—*Agriculture in Greater India*, by G. B. Deshmukh; G. B. Deshmukh, Ganeshkhind Botanical Garden, Kirkee, India; price 1/6. *New Zealand Trees and Shrubs*, by H. H. Allan; Whitcombe and Tombs, Ltd., Christchurch, New Zealand; price 6/6.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

Cymbidiums.—Specimens of this genus are now growing well and rooting freely, therefore they require ample supplies of water at the roots, although, of course, this may be overdone; it is advisable to allow the soil to become fairly dry between each application. After this date well established plants that have been well inured to the light should not require shading unless the sun is very strong during the hottest part of the day. Cymbidiums are robust growers and withstand quite a lot of sunshine, provided they have an abundance of fresh air. Ample light is essential for the production of flower spikes, therefore, if a house is not set apart for these Orchids, they should be arranged together in a cool house, where their requirements may be met so much as possible, otherwise, if shaded, similarly to Odontoglossums, etc., they may produce very fine foliage but very few flowers. Syringe between the pots occasionally and also the undersides of the leaves to keep red spider and other insect pests in check. This operation should be done fairly early in the afternoon, as the sun becomes less powerful, or there may be too much moisture on the plants at night, especially in low-lying districts. Air should be admitted, through the top and bottom ventilators at night, according to the weather conditions. Should insect pests, such as scale or red spider, gain a hold on the plants, they should be removed by very careful sponging, as some of the early flowering kinds, such as C. albanense and some of the C. grandiflorum kinds are already showing flower spikes, and these are easily damaged at this stage. These plants should be given the lightest position possible to assist the development of the scapes.

Shading.—Where a light shading has been put on the glass in conjunction with the blinds, it should be removed, as the blinds in themselves should now provide sufficient shade and the extra light may prove beneficial to the plants at this season of the year.

THE KITCHEN GARDEN.

By Allan Falconer, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Exhibition Vegetables.—By this time exhibitors have seen the results of their early attentions, and it is very gratifying to the man who has paid strict attention to every detail to be able to show the result to the general public, but I fear with not always the credit really high-class vegetables deserve, for various reasons. On looking round many of the shows, one finds vegetables are not given the prominence they deserve, and many exhibitors do not pay sufficient attention to making their produce look attractive, with the result that the general public do not afford more than a passing glance at some of the exhibits, which is to be regretted. Again, at some of the shows glaring examples are noticed where the judges pay little attention to quality and staging, and give prizes in favour of the man who produces weight without quality, with the result that size is gradually gaining favour over quality.

Cabbages.—Towards the end of the month make the first plantation of spring Cabbages. The site should be an open but sheltered one, of soil which has been well prepared by trenching and manuring. Break down the surface so soon as the plants are ready to handle, and if such a variety as Harbinger is grown, the plants may be placed quite closely together, with the object in view of cutting every other plant in early spring, for use when they are most acceptable, vegetables being scarce. The second sowing, which is usually made during August, may be planted on ground which was previously cropped with Onions, and if it is given artificial manure or a light dressing of farmyard manure, and is either forked or cultivated with the Roto-tiller to a depth of a few inches, an ideal bed results for this crop. The plants should be watered in once and the hoe used occasionally, and later on, soil should be drawn up to the stems. In cold, wet districts it is advisable to prick out some of the later-sown plants during October into skeleton frames, about four inches apart each way, protecting them during very bad weather; these should be useful to fill blanks and to form a succession to the earlier sown plants.

Potatos.—Second early varieties in many places should be ready to lift, and if they have been free from the many diseases so prevalent it is advisable to save so many seed Potatos as required, in preference to relying on all new seeds in the spring. Avoid leaving any sets in the ground, and burn all rubbish so soon as possible.

Cauliflowers.—Attention should be given to Cauliflowers which are just producing their heads, by applying plenty of manure water, and as they become fully developed, cover each one with a leaf to keep it clean and fresh, as the sun soon turns the heads yellow.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Melons.—Melons that are growing in frames have had a most favourable season, for the weather experienced during July was all in favour of quick growth, and the fruits should now be well advanced, if not actually ripening. A little care should be exercised to ripen them well if the weather becomes dull and sunless. In my previous notes I recommended that some of the laterals be allowed to ramble over the surface at will, but now that the fruits have attained their full size some may be removed A few laterals may still be retained to assist the fruits to mature and keep the plants in good health. Care is needed at this stage when watering the plants so that the water does not come into contact with the fruits. Discontinue feeding the roots with stimulants, but it is not wise to withhold clear water at this stage, yet a somewhat drier condition should be maintained.

Peaches and Nectarines—Peaches and Nectarines that are growing in receptacles for producing early fruits should, if necessary, be repotted, so that they may develop new roots before the resting period arrives. Where these trees are grown in tubs it is not always desirable to re-tub them each year, but it may be advisable to lay them over on their sides and examine the drainage. When repotting, the first point to consider is the composition of the soil. This should consist chiefly of loam from old pasture land, to which may be added some old mortar-rubble, bone-meal and wood-ashes. The compost should be used somewhat on the dry side to allow it to be rammed firm. The receptacles should be clean and carefully crocked, and they should be of sufficient size to allow the potting stick to be worked freely between the ball of roots and the side of the pot. When potting, see that the roots are not dry; if they are, stand them in a tub of water previous to potting. When preparing the roots for repotting remove so much of the old soil as possible with a sharply pointed stick, but care is needed not to injure the small roots. Having prepared them in this manner, place sufficient rough material over the crocks so that when inserted the ball of soil and roots is about four inches below the rim of the pot. This should give ample room for water and also allow plenty of room for a top-dressing when the trees need such assistance to mature their crops. After potting, stand the trees in an open, sheltered position, making some provision to ward off heavy rains until such time as the soil is settled well about their roots. Slates placed on either side of the stem of the tree should give sufficient protection. Spray the trees frequently with water.

PLANTS UNDER GLASS.

By J. Coutts, Assistant Curator, Royal Gardens, Kew.

Cyclamens.—If not already done, no time should be lost in sowing Cyclamen seeds. To obtain a quick and successful germination it is important to have fresh seeds, old seeds being very slow and uncertain in starting. The seed-pans should be stood in a temperature of 55° to 60°, covered with pieces of glass, and shaded until germination takes place. The young plants should be kept well up to the roof-glass, and when fit to handle should be pricked off into pans or boxes, in which they may remain over the winter, or they may be placed singly in thumb pots.

Isoloma hirsutum.—This is a subject of general decorative value for the conservatory, for it may be had in flower more or less all the year round, by raising batches of plants in succession. It may be increased by dividing the scaly rhizomes, or by cuttings of the young growths produced from the base of the plants. The best results are obtained by inserting four or five cuttings in a large sixty-sized pot, potting them when well rooted into six-inch pots, in which receptacles they may be flowered. In time, they attain a height of three to four feet, when they are very useful for placing in the beds; for this purpose they should be grown on into seven- or eight-inch pots. Plants raised from cuttings inserted at the present time should provide a display of flowers during next spring and early summer.

Hippeastrums.—As the foliage of the old plants matures and dies down, they should be transferred from the growing house to cold frames, where they may be fully exposed to the sun, with the frame light over them. Before transferring them from the house, they should be examined for mealy bug. Young seedlings, from seeds sown earlier in the season, should, when large enough, be potted singly into small pots; they may be planted early next spring in a bed of rich soil, with slight bottom heat, and under such conditions they make faster progress than when grown in pots. Seedlings should be grown on steadily without being dried-off, until they attain flowering size.

HARDY FRUIT GARDEN.

By T. E. Tomalin, Gardener to the Earl of Bessborough, Stansted Park, Emsworth, Sussex.

Protection from Birds and Wasps.—As the crops of Morello Cherries and Apricots are cleared, nets become available for covering early and mid-season Pears on walls. The nets for this purpose should be of small mesh, and they should be fastened securely, for by far the greater amount of damage to Pears is caused by small birds of the tit family, and these find the smallest opening to obtain access to the fruits. As a protection from wasps the finest fruits should be enclosed in hexagon netting bags, or failing these, fairly transparent paper bags, which may be obtained from the village grocer, are sometimes quite effective.

Plums and Gages.—Trees of dessert Plums and Gages on walls should now be examined daily, for the fruits may be picked before they are fully ripe and finished off in a warm, dry room. Potato sprouting-boxes are very useful for this purpose. If lined with wood-wool, with one layer only of fruits in each box, they may be stacked one above another, and so take up very little room. If wasps are persistent in attacking the wall fruits, some counter attraction should be provided. This may take the form of jam or pickle jars containing a small quantity of stale beer and sugar. These should be suspended among the branches and the bait renewed from time to time.

Loganberries.—When the berries have all been gathered the old canes should be cut out at the base, and the young growths tied in to replace them. The sooner this is done the better will be the prospects of a full crop next season, for the new canes require all the air and sunlight obtainable in order to develop the fruit buds and to ripen them sufficiently to enable them to withstand severe frosts. Similar treatment should be afforded the Blackberries and various hybrid berries as they pass the fruiting stage. The newer hybrid berries are interesting to grow, and often very useful. They are not fastidious as to soil or aspect, although the latter should be fairly sunny. Indeed, they often serve as a screen for unsightly corners, and are well worth a trial where such a position is available. They include the Veitch Berry, Low Berry, New Berry and Laxton Berry. The Japanese Wine Berry (Rubus phoenicolasius) may also be included. This grows in the form of a very attractive bush, and the fruits make a delightful preserve, besides being very ornamental on the plant.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to the Duke of Devonshire, Chatsworth, Bakewell, Derbyshire.

Pentstemons.—These are very satisfactory bedding plants, especially where large beds or borders have to be filled to produce telling colour effects. The brighter pink and scarlet-flowered sorts are very striking for such purposes, and such old favourites as George Home and Southgate Gem, and the newer Castle Forbes, are among the best for general use. Remove all flower spikes so soon as they are past their best; by doing this the secondary shoots should benefit at once and continue the display of blooms until quite late in the season. Pentstemons revel in good, well-manured soil, and should be given plenty of water during hot, dry spells, or they may receive a severe check in their growth, and the flower spikes may become stunted.

Alterations in Flower Gardens.—As the different subjects in the flower beds and borders are at their best, notes should be taken during the summer of any necessary alterations, whether in the design of the flower garden or in the elimination of certain subjects in favour of improved forms, or any other plants found especially satisfactory. Stocks of flowering plants have been so much improved during recent years that there is little excuse for growing inferior forms, or weak growers, where there is such a wealth of beautiful subjects to select from. It costs no more to grow a good plant than an inferior one, but there is no possible comparison in the results.

Lippia citriodora.—Often called the Lemon-scented Verbena, this is a favourite plant for tubs, and plants may be kept for years under correct cultural conditions. They should be stored with Fuchsias and similar plants for the winter in a frost-proof shelter.

Agapanthus umbellatus.—This is one of the most satisfactory plants for growing in tubs. Not only is the handsome foliage, when well grown, ornamental, but when surmounted by an abundance of strong spikes of blooms A. umbellatus is probably one of the most attractive plants for such receptacles.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener at Jordanhill Training Centre, Glasgow.

Early Bulbs.—Wherever possible, it is an advantage to pot or box the bulbs required for Christmas flowering at an early date, and where Freesias are to be grown successfully no time should be lost in starting them. If the bulbs have been thoroughly ripened by resting them after the foliage died down, and keeping them in a fairly high temperature free from moisture, they may be expected to give quite as good results as freshly imported ones. They should now be emptied out of their pots or boxes and graded in sizes, which should be potted up together, using from eight to ten of the largest for a six-inch pot, while this number may be increased slightly as the size of the bulbs decreases. The smaller bulbs may be placed in boxes and grown on for another season, and although only a very small proportion of these may flower next spring, they should, if properly attended to, produce useful bulbs for the following season. Many beautiful shades of colour are now obtainable, and many named sorts of undoubted merit may be had in limited quantities, but where the older and better-known sorts, such as F. refracta major and F. r. Leichtlinii, are well-grown, they produce masses of sweetly-scented flowers at a minimum cost. Unlike the majority of bulbs, Freesias should not be plunged in sand or ashes, but should be kept fully exposed to light and air from the start.

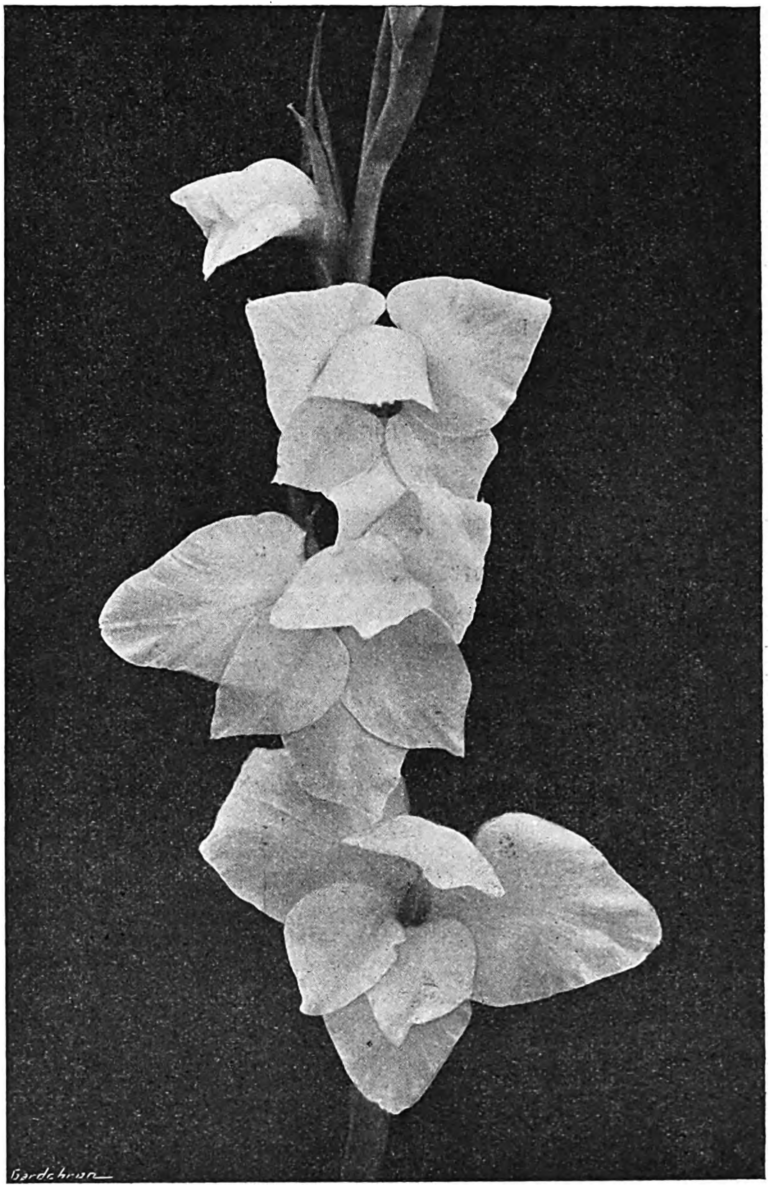


FIG. 61.—GLADIOLUS BASIL PRIOR.

British Gladiolus Society Award of Merit, August 10. A Primulinus hybrid. Flowers pure white, throat occasionally tinted. Shown by A. E. Amos, Esq., Colchester.

(see p. 139).

Buddleias.—Among the many forms of Buddleia now grown, few are more worthy of a good position than the improved forms of B. variabilis, such as B. v. magnifica, and B. v. Veitchiana, and these splendid late summer flowering shrubs, should be grown extensively. They may be propagated by cuttings inserted in pots or boxes of sandy soil about this time, and the young plants, when rooted, a peculiarly straggling root-system which, if allowed to spread, makes them rather difficult to transplant successfully. The cuttings should be made of tender young side-shoots, which, if taken off with a heel when from three to four inches long, make useful plants for setting out next spring. They may also be rooted during the early summer, when the young growths have advanced sufficiently after the winter-pruning, but at that time pressure of other work may prevent it, so they should be attended to now. Another beautiful Buddleia of more recent introduction is B. alternifolia, which, if not so vigorous in its habit as the foregoing varieties, is worthy of a place in the best collections. Among other sorts which may be tried in the milder districts are B. Colvillei and B. nivea, and these also may be increased by cuttings taken about this time. B. albiflora and B. v. nanhoensis, so far as observed, are disappointing, and while they may be useful for certain positions they are not to be compared with those already mentioned for effectiveness.

Tender Bedding Plants.—Fortunately, such tender subjects as Tropaeolums, Heliotropes, Alternanthera, etc., are not grown very extensively now in northern gardens, as the seasons are too short to justify their selection, but where they are, cuttings should be taken at an early date to ensure a supply of stock plants for next season. Bedding Pelargoniums may also be propagated now, but every care should be taken not to disfigure the beds as these plants may be expected to have some weeks of usefulness ahead. Violas may also be propagated in quantity now, and where portable frames are used for their reception, these may be removed later on and used for other cuttings during the winter, as the Violas, if rooted early, should stand unprotected.

FLOWER GARDEN.

TRITONIA ROSEA.

Although it has been in cultivation in our gardens for nearly one hundred-and-fifty years, Tritonia (Montbretia) rosea has never become so common as some of its allies. This may, perhaps, be explained by the fact that it is not nearly so rampant and aggressive as the too familiar Montbretia of some unfortunate gardens. T. rosea is more of a bulbous character, increasing comparatively slowly and producing slender, pale green leaves and elegant sprays of blossom to the height of some two feet. These flowers are delightful in colour, being of a fresh, shrimp-pink with a tendency to rose when opening, and they are yielded in abundance from the later part of July onwards into autumn. Such a colour is singularly beautiful in conjunction with the lavenders and blue-pinks of many later-flowering subjects, and it strikes an harmonious note with the warmer tints of this season.

In a thoroughly well-drained, gritty soil, T. rosea appears to be perfectly hardy and permanent, but those who cannot provide it with such a medium may find that it does quite well if lifted in autumn and stored like a Gladiolus. It should, of course, be given a position in full sun. *J.*

VERBASCUM NIGRUM ALBUM.

An old plant in gardens, Verbascum nigrum, the Dark Mullein, otherwise the Black-rooted Mullein, is now seldom included in even the wild garden, to which some of its allied Verbascums have been relegated. The typical plant, possessing yellow flowers with bright purple hairs to the filaments, is not nearly so attractive as the white variety, V. n. album, and it is a few years since I last saw the type plant in a garden, where it had seeded and self-sown plants where in flower, some without and some with branching spikes, and with a considerable amount of variation in other ways. I had grown the white variety for some years and did not feel disposed to add the yellow one to my garden, as it is much inferior to the white. The type is a native of Britain and western Asia; it is about four feet high, and has long spikes of blooms.

The white variety has been in flower in one of my borders from about the middle of July. It forms a handsome clump when in bloom, and a large plant has been bearing a number of the symmetrical, unbranched spikes of creamy-white flowers with purple hairs to the filaments, the latter character adding greatly to the beauty of the blooms, and producing a more delightful effect than on the flowers of the yellow variety. I have measured some of the spikes to-day, and they have inflorescences of opened flowers two feet in length, with many unopened blooms at the apex. I prefer to grow it without a stake, but as the position is an exposed one, I have found it necessary to insert one. V. n. album grows in ordinary garden loam. *S. A.*

HARDY FLOWER BORDER.

VERONICA SPURIA.

A native of south-eastern Europe, this charming herbaceous Veronica is well worthy of a place in the garden, for it is an attractive subject for the herbaceous border, is useful for planting in beds on the rock garden, or it may be grown in wilder portions of the garden where it may seed itself about and produce a charming effect during early summer, for its flowers, of a striking shade of blue, are produced in great profusion in loose, erect racemes about eighteen inches high.

V. spuria, like the majority of the herbaceous Veronicas, flourishes in average garden soil, loves the sun and flowers freely; later producing an abundance of seeds by which it may be increased, or if large plants are required, they may be secured by dividing the old crowns.

LIATRIS PYCNOSTACHYA.

This season seems to have been particularly favourable to Liatris pycnostachya, for at the time of writing a large clump in the herbaceous border is a mass of giant, dense cylindrical spikes of rosy-purple flowers. The tallest of these, on stout stems crowded with deep green, narrow leaves, are over three feet in height.

Liatris pycnostachya is undoubtedly a handsome border plant, especially attractive at the present time, its one fault being, in my opinion, a habit peculiar to, I think, all the species, of opening the flowers from the top of the spike downwards, not from the lower ones upwards as in most plants which produce their flowers in spikes or racemes. Although still attractive when half through its flowering period—quite an extended one—it is not nearly so effective as in the early stages of blossoming.

POLEMONIUM COERULEUM VAR. HIMALAYANUM.

P. c. himalayanum is considerably superior to the old-fashioned Jacob's Ladder, i.e., P. coeruleum, at least that is the opinion I formed upon seeing it in flower this season. It forms a handsome border plant, three feet high, and of erect habit, with flowers larger and of more substance than those of the type, for they are nearly one-and-a-half inch across and of a clear, lilac-blue colour.

The habit of growth and attractiveness of its flowers makes this Polemonium, which is fairly long lived and quite hardy, a valuable acquisition to the herbaceous border for early summer effect. It produces seeds with moderate freedom and these form a ready method of securing a stock of it. *M. W.*

ORCHID NOTES AND OLEANINOS.

BRASSIA VERRUCOSA.

I have in flower, at the time of writing, a very good specimen of this species. There are seventeen blooms on the spike, and the white and purple colouring renders them very attractive. In addition, there is an element of the curious about Brassia verrucosa, for the floral segments are drawn out until the tips are almost as fine as the threads of a spider's web.

The species, which is a native of Guatemala, requires stove treatment. During winter the temperature should range from 55° to 65°, but from February to October a temperature of 75° may be maintained by fire-heat, and it should not fall below 65°. A compost of equal parts of fibrous peat or Osmunda fibre and nut charcoal is suitable for this Orchid; frequent root disturbance is undesirable, but when the plants require repotting, the work should be done immediately before growth begins in February. Being an epiphytic Orchid, Brassia verrucosa should be shaded from bright sunshine, and abundant supplies of water are required at the roots during the growing season; when the plants are not in bloom they should be syringed in the morning and afternoon of favourable days. The species does not rest during winter, but the supply of moisture should be considerably less than in summer. If an increase of stock of this Orchid is desired, the plants may be divided easily during February or March. *Geo. H. Copley.*

COELOGYNES.

The graceful flowering species of this genus, such as C. Dayana, C. asperata and C. Massangeana, although not so bright in colour as some members are, when well-flowered, very attractive, and their drooping racemes are shown to advantage when suspended from the roof. The two former species grow best in pans or baskets, while C. Massangeana thrives in the intermediate house. Fresh roots are now being produced from the new growths, and those plants that were not repotted in the spring, and which now require fresh rooting material, should be attended to at once, using a compost of Osmunda or A.1. fibre, in a rough state, chopped Sohagnum-moss and a little fibrous loam, adding broken charcoal to keep it open and porous.

When the roots are well established in the new soil good supplies of water are required until growth is complete, when only sufficient water should be given at the roots to prevent the bulbs shrivelling. During favourable weather the undersides of the leaves should be well syringed, to keep red spider and other insect pests in check; this should be done early in the afternoon to allow the growths to dry before night, and so avoid any risk of their damping-off.

DISAS.

These beautiful terrestrial Orchids are cultivated in larger numbers now, principally owing to the fact that home-raised hybrids, are of easier culture than the older species were. Many beautiful and interesting varieties have been raised, and are available at the present time.

It is often a question of finding the right situation to grow these plants in, for they do not thrive in a hot, stuffy atmosphere, but require conditions such as exist at the cool end of the Odontoglossum house, where abundance of fresh air may reach them during both day and night in favourable weather. The pots may be plunged in moss to keep the roots cool and moist, and they should be shaded from direct sunshine. During hot weather light sprayings overhead with soft water are beneficial. Insect pests should be watched for keenly, especially thrips, which often attack the young growths at an early stage, when they are easily stunted and make very little headway if the pests gain a hold. It is best to spray or dip the plants occasionally in a weak solution of insecticide, tilting them afterwards to allow the moisture to drain away from the young growths. Vapourising is detrimental to any of the Disas, and if the house is to be fumigated, the plants should be removed to another house until the fumes have disappeared.

Directly the flowering period is over any necessary repotting should be done, for new roots are produced as growth commences. Small plants should be potted on with very little root disturbance, and specimens that have carried several spikes should be divided carefully and each growth potted separately. Use well-drained pots and a compost of equal parts fibrous loam and A.1. fibre, and one part chopped Sphagnum-moss, adding charcoal and crushed crocks to keep it porous, and finishing off with a layer of clean Sphagnum-moss to help to retain moisture around the roots. *W. G.*

EARLY ORNAMENTAL FRUITS.

Among the very earliest of those ornamental fruits—to use the word in a botanical sense—which come to remind us that we have passed the turn of the year and that the high-tide of life has begun to ebb, are those of the wild Arum, our only native species. Common hedgerow herb that it is, the bold clubs of brilliant sealing-wax-red fruits, which often rise to the height of a foot, are very striking. For this reason, and because they ripen at a time when one's woodland garden is comparatively colourless, I encourage this handsome wildling. The closely allied A. italicum, which seems to be naturalised in, if not native to, a few southern counties, is said to be even finer, but although planted on several occasions, it has not succeeded here.

Another native plant which excels in the same way is the Baneberry, or Herb Christopher, Actaea spicata. This perennial, with the graceful foliage of some Umbellifer, a stature of about two feet, and small, white flowers, yields clusters of fruits as large as Horse Beans, which ripen in July or August. These fruits are black in the type, but there are forms with other colours, and one of the most arresting objects seen in a woodland garden a few days ago was a large clump of A. s. rubra, whose berries are a vivid scarlet. These fruits, by the way, are said to be highly poisonous, a fact that does not always prevent them being devoured by some creatures—voles or field mice let us hope.

Gaultheria tricophylla ripens its wonderful china-blue fruits, which are the shape of a Williams'sBonChrêtienPearand the size of a sparrow's egg, soon after midsummer and maintains a succession until late autumn. G. pyroloides, with sprays of round, snow-white berries nearly half-an-inch in diameter, is almost as early and one of the most delightful of its fascinating race. Then come what is usually listed as G. cuneata, also with a white, sometimes rosy-tinted, crop, and the much larger G. Veitchiana and G. Hookeri, with white to blue berries. Rambling about among these woodlanders our native Cowberry, Vaccinium Vitis-idaea, is not passed unobserved during the later summer, for its short growths are densely packed with large, round berries of a bright, holly-red.

Early August brings the first touches of colour to Nertera depressa's lace of green, these being quickly followed by others, until the whole mat is thickly studded with glossy fruits, each of the dimensions of a small Pea. They are often described as scarlet-terra-cotta, but their colour appears to me to be more akin to a bright, coppery-orange. At any rate, there is nothing more charming in the later summer than a patch of this tiny New Zealand plant, which is hardy enough to have survived last winter entirely unprotected. Equally hardy it seems is its compatriot, Myrtus nummularia, a wee prostrate Myrtle which adorns its gloomy green foliage and thread-like, wine-red branches with large, rose and white fruits at the same season. Yet another antipodean which companions the above and is now fruiting, is Leucopogon Fraseri, an Ericaceous shrub with a close habit and foliage which suggests an Empetrum, each small leaf being tipped with a spine. This interesting plant is also quite hardy, and its fruits consist of fleshy, egg-shaped berries of a reddish-amber tint.

The large, oval fruits which droop singly from the fork of Podophyllum Emodi major's stately stems, are always conspicuous towards the end of July. They do not escape the blackbirds which, probably in the belief that they have discovered a Victoria Plum, ripe and red, devour them greedily. And very luscious they seem, for the seeds are embedded in a juicy red and white pulp, which looks like crushed Strawberries and cream. The most brilliantly coloured of all the early fruits here, however, are those of Paeonia Wittmanniana, a very beautiful Caucasican species whose flowers are like globes of ivory lit from within by a golden light. The closely-packed rows of seeds which are disclosed by the gaping capsules, while these are still green, are coral-red, highly burnished and almost dazzling in the intensity of their colour.

Most of the Hypericums might be included among these forerunners of autumn, even the familiar H. Androsaemum making an attractive display with its deep purple, almost black fruits in their setting of yellowing leafage. But the bravest show of any of these is, I think, that of H. patulum and its varieties. Several large bushes of these have for many weeks been heavily laden with a profusion of the large, golden blossoms, and now, while there is still a fairly bountiful crop of the latter, the twigs are clustered with the colouring seed-capsules of those already spent. These cone-shaped fruits afford a variety of shades, from pale yellow to orange, and finally assume a crimson-vermilion so vivid and glossy that in evening light the shrubs seem aflame with colour.

The Spindle trees may be included among these early fruiting subjects, and the first to colour here is Euonymus latifolius. A young specimen about six feet tall has been very showy since early August, the elegant branches being hung with fruits three-quarters-of-an-inch across, swinging on slender, three-inch stalks. The lobes of these fruits are of a rich blood-crimson, and the seeds, which dangle within the gaping clefts like ear-rings, are a brilliant orange. *J. N., Wales.*

PLANTS NEW OR NOTEWORTHY.

NERINE FLEXUOSA ALBA.

This species is not well-named, a somewhat flexed scape being characteristic of the genus. Moreover, N. flexuosa is not flexed in the same marked manner as is N. filifolia.

Historical.—I do not know when, from whence, or by whom N. flexuosa alba was first introduced into, or originated in, our gardens. The type was introduced by Masson in 1795, but the albino was unknown to Baker in 1888. It was figured in *Gard. Chron.* of November 17, 1906, from Mr. G. H. Banks of the Botanic Gardens, Cambridge, who showed a group of many flowering scapes, which indicate that someone had probably had it in cultivation for some years. I described the type in 1904, but presumably had not then flowered the albino, which I fruited in 1910. It is not mentioned in Nicholson's *Dict. of Gardening Supp.* of 1901, and it is therefore probable that the albino form appeared in our gardens between 1901 and 1903, but in the following twenty-five or twenty-six years it has become such a popular favourite that few gardens are now without it.

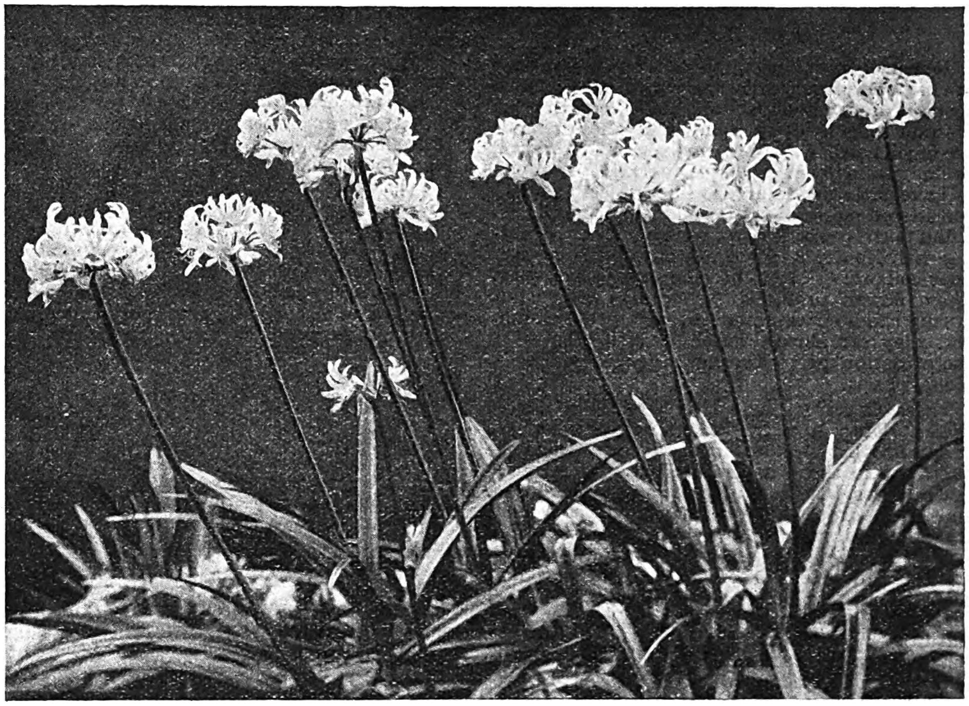


FIG. 62.—NERINE FLEXUOSA ALBA.

Culture.—N. flexuosa and N. Bowdeni are highland plants, hardier than most Nerines and not requiring any long period of drought and heat in order to prepare them for flowering. But the N. flexuosa group flowers in October and November, which is too late in the year for them to make much display out-of-doors, except upon our south-west coasts. If pot plants are wanted, the best way to grow this group is to plant firmly in a Chrysanthemum pot as many flowering bulbs as may be accommodated therein, and leave them alone for several years. When danger from frost is over, stand the pots outside in full sun, and let them take what weather comes until frost again threatens. N. Bowdeni does best planted out in situations which suit Amaryllis Belladonna. In such situations it should flower every autumn, and, in years when Amaryllis fail, it often prevents the border devoted to these bulbs from the " summer fallow " aspect which Amaryllis borders so often assume. Among the Nerines it is, perhaps, only N. Fothergilli (N. curvifolia var. Fothergilli ?) which attains its maximum size when grown in pots. By a great expenditure of labour and careful cultivation, Nerines may be grown well in pots but in order to save time and labour and to obtain bulbs of the maximum size, it is best, in our climate, to plant them out in a raised bed in an unshaded cool house. In a few years clumps of full-sized bulbs should have been formed, and, when these are lifted for division, the largest bulbs may be potted up three to six to the pot. This very simple method should give results which could never have been reached by growing the bulbs in pots. The figure here given of N. flexuosa alba (Fig. 62) was from a photograph* taken of a group of bulbs planted out in a raised bed under glass, and was the result of only two years' culture under these conditions. The view that Nerines will not flower except in pots is quite erroneous.

Lustre.—Among all the flowers of the world, Nerines have a unique beauty of their own in the sparkling or gem-like lustre which they display in sunlight or in strong artificial light. For this reason they have been popularly termed 'Jewel Flowers.' But this character does not apply to the whole genus, and was, until recently, almost confined to the Corusca section and to the varieties of N. curvifolia. It has seemed strange to me that breeders of Nerines should have devoted themselves so much to improved size and to new colours, and should have forgotten to select their seed-bearers solely among the most lustrous kinds. Certainly those who have produced a race of lustrous hybrid Nerines do not expect them to carry flowers of the same size as those which have been bred for size only. To-day we have lustrous reds in many tones and lustrous albinos and rosy and blush pinks, but the albino with which I am dealing—N. flexuosa alba—is quite devoid of lustre, and this is its chief demerit. However its vigorous constitution and free-flowering character count in its favour.

N. flexuosa alba.—A detailed description, of this (presumably) garden product is not needed, but a few notes are of interest :—

Flowers : Pure white, ten to fifteen to the umbel, one-and-a-half inch to one-and-three-quarter-inch span. Scape one-and-a-half feet high.

Leaves : Ten to twelve to the flowering bulb (as against four to six in Nerines generally) ; distinctly keeled and channelled, whereas Nerines generally have flat-faced leaves rounded on the back.

This is a true albino, reproducing itself true from seeds which are produced freely, and flowering within five years from sowing. The seeds are carried singly or in pairs (rarely three or four), in each fruit, and are about the size and appearance of a culinary Pea. N. filifolia has similarly-shaped seeds, but of a brown colour. Garden Nerines generally carry six to eight seeds to the fruit, and the forms of N. corusca major carry up to twenty-five fertile seeds to the fruit. In this latter case the seeds are much compressed, being globose at one end and tapering to a pyramidal point at their point of attachment to the placenta. The bulb is not strictly deciduous like the bulk of this genus, but may only be classed with N. Bowdeni as more or less deciduous.

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* By A. Burger, of Isleworth.

Under good cultivation, each fully-grown bulb flowers every year, and it makes a first-rate vase flower, lasting a long time after cutting. *A. Worsley, Isleworth.*

TREES AND SHRUBS.

GREVILLEAS.

REPORTS from various sources as to the effect of the severe frosts of last winter upon Grevillea rosmarinifolia and G. sulphurea, confirm an opinion long held by many that these shrubs are much hardier than they are generally believed to be. In my own garden they did not so much as have their tips injured, while subjects usually considered more robust were killed, or nearly so. I find both species first-rate subjects for associating with Heaths and Brooms on sunny banks of poor soil which often become exceedingly dry. They flower profusely in spring and again during the later summer and well into autumn, and they are shrubs which invariably attract the attention of visitors, whether they are in bloom or not.

These Grevilleas are natives of New South Wales. They grow to six feet or more, but G. rosmarinifolia is more inclined to a spreading habit, while the other is upright. Both have linear leaves, but those of the former are broader and of a deeper green than the leaves of G. sulphurea, which have a distinctly golden hue. The curious flowers have no petals; they are a bright rose-crimson in G. rosmarinifolia, those of its ally being a straw-yellow. These shrubs do not appear to demand any special culture. They prosper with me in a free, gritty loam, and seldom receive any attention beyond an occasional mulch of leaf-mould or decayed vegetable refuse. Propagation is not difficult to carry out by means of cuttings during late summer.

In addition to the two species named, there is G. thyrsoides. This appears to be very much akin to G. rosmarinifolia, but with a more upright habit. It has not yet flowered here. Then there is G. alpina, with which I have had no success. Apart from the fact that this dwarf, downy-leaved species is more tender than those named, it would seem to resent disturbance, since three healthy plants, moved from pots on different occasions during the last year or two, promptly died soon after they were put out. It would be interesting to learn what experience others have had with G. alpina. *A. T. J.*

CYTISUS DALLIMOREI.

IN his admirable and enjoyable book, *A Garden in Wales*, Mr. A. T. Johnson makes a remark concerning Cytisus Dallimorei, which has appealed to me on account of my own experience. He states, *inter alia*, that it "does not seem to enjoy the robustness which is characteristic of the Brooms in general in this garden." I am not quite clear whether Mr. Johnson intends this remark to apply to the hardiness of this Broom or to its lack of robustness or vigour of growth.

In either case, I have found that C. Dallimorei is neither so vigorous nor so hardy as the other Brooms here. Last winter, which was a trying one, owing mainly to late frosts, crippled to some extent C. Dallimorei in the two positions in which I grow it, while it is not nearly so vigorous as other Brooms planted at the same time. Mr. Johnson speaks of experimenting with it on its own roots in case the want of robustness is due to the method of propagation or to some other cause, and the results of his experiments are awaited with much interest. *S. Arnott.*

ALPINE GARDEN.

ONOSMA ALBO-ROSEUM.

ONOSMAS known to botanists are more numerous than is generally supposed, but few are in cultivation, and the finest of these are generally represented in gardens by the favourite O. tauricum, with charming yellow, bugle-like flowers possessing an Almond scent. Its sister flower, O. albo-roseum, is less frequently seen, although from many points of view it is an exquisite plant. It seems a good many years since it first came to the knowledge of the writer, who had previously grown O. tauricum, that there was a new species coming into cultivation called O. albo-roseum, and lost no time in I seeing and then purchasing this attractive plant.

Experience has proved that it has not the constitution of O. tauricum, and that large plants are liable to succumb to the trying winters of ours, when the conditions are vastly different from those of the limestone cliffs of Cappadocia, whence it comes. Some state that it is perfectly hardy, but this may be taken with the proverbial "grain of salt." Even Farrer suggests that although often grown in gardens, it is grateful for a little extra warmth and protection from winter wet. It is a lovely plant of sub-shrubby habit, covered with coarse down, with blunt leaves, and producing, on crozier-like inflorescences, exquisite bugles of waxy-white, tinged with red and blue, which droop fascinatingly.

O. albo-roseum likes a sunny ledge and a sandy soil with some lime added. It should, I consider, have full sun. It is increased by cuttings or seeds, but I have never seen it produce seeds with me. It flowers for a long time in summer and autumn, the flowers opening in succession. I prefer to plant this Onosma in spring, when danger from spring frosts is past.

CAMPANULA PSEUDO-RAINERI.

SEEING Campanula pseudo-Raineri in bloom, reminds me of an old controversy of some thirty or more years ago, when a number of those of us who were deeply interested in the Campanulas found ourselves in what I may call "a fog," regarding Campanula Raineri. The plant distributed under that name by a firm which was then among the leaders of the trade in alpines, was suspected—with truth, as it appeared afterwards—not to be C. Raineri, but a hybrid which had been raised with C. Raineri as one of the parents. It afterwards turned out that this plant was really that now known as C. pseudo-Raineri, a hybrid of C. turbinata and C. Raineri. It was difficult to obtain for a long time, but is now in the trade and is quite a desirable plant. Its flowers are of the flat, salver form of C. turbinata, but the plant is dwarfer and has more hairy and yellowish leaves.

I have an impression that in some soils the latter distinction is more pronounced than in others, for here C. pseudo-Raineri shows little of the yellow tinge. In a former garden, where I grew this Campanula in lighter soil, I found it useful to mulch it with fine gravel, but here it is cultivated in loam, sand and leaf-soil, and in sun, although I think it likes slight shade. C. pseudo-Raineri appears to be immune from the attacks of slugs, which appear to consider the true C. Raineri a choice delicacy. *S. A.*

CYANANTHUSES.

ONE of the most useful and effective families at the present time in the rock garden are the Cyananthuses. Closely allied to the Campanulas and limited in numbers to about six species, they are welcome for their late flowering season, extending into the autumn months. They are natives of the Himalayas and China. The long and fleshy roots delight to ramble among stones in moist soil consisting of leaf-mould and sand, in semi-shade preferably, and when well established these subjects make a fine floral picture at this season.

Cyananthus lobatus is probably the best-known of the genus, and my attention was called recently to a large colony in a rock garden near Sevenoaks. Here, in the rudest health, it rambled among the stones, its large, solitary, bright purplish-blue flowers, about one inch in diameter, being produced in the greatest profusion, while in height it grows to about four inches, being procumbent or creeping. Although introduced to our gardens from the Himalayas in 1844, it is seldom seen to any extent, and although slugs are very fond of the young shoots in spring, it is by no means difficult to grow, and should therefore receive more attention from plant lovers for late summer display in the rock garden, when most of the Campanulas are finished.

A fine form of this species, known as Cooper's Variety, has larger and brighter flowers, and is probably more floriferous.

Cyananthus incanus is a dwarf gem, and although regarded as delicate, is not so when well established. The flowers are azure-blue, produced in terminal heads, and it is a native of Sikkim. It appears to require a drier situation than C. lobatus. A fine form recently introduced from China under the name of C. incanus leiocalyx is now to be seen in gardens, and is larger and stronger in all its parts. But in any case, all members of this family are deserving of more extended culture than they at present receive. They may be readily raised from seeds, or by cuttings of the young growths in spring, which, if inserted in sandy soil and kept moist, root quickly. *E. Scaplehorn, Beckenham.*

MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.[*]

VI.—THE ASSAM VALLEY, AND WHAT LAY BEYOND.

YOU remember how Hero Perseus, before he was able to fulfil his wager on the Gorgon's head, had to put in much strenuous staff work, calling on the Grey Sisters (the Moss Brothers of the north, so to speak) and other general outfitters, who equipped him for the chase? Well, after leaving the Naga Hills and advancing several parasangs towards Sadiya, I arrived at Dibrugarh on the Brahmaputra, where they grow Tea, on mass production lines. With Dibrugarh as centre, and any radius, I then proceeded to run down several officers with intent to interview—not for the press. One man might have a piece of exclusive information, and over a cocktail at some planter's club he would impart it. Another, an unique experience, information on which would be valuable to me. A third, and he the most important of all, had exclusive powers, which, if set in motion, would facilitate my expedition, or which, on the contrary, if not retained in another direction, would wreck the whole enterprise; and the application of a little lubricant might not be amiss. This is the staff work of a frontier expedition, and by far the most exacting and delicate part. It is spiritualistic, and therefore requires a hard head; in Assam, at any rate, it favours the schoolgirl complexion, with variations, stereoscopic speech and non-co-operative vision.

Thus it happened that from Dibrugarh I travelled seventy miles by train (half-a-day's journey in Upper Assam, of course) to meet an officer in Margherita, at the foot of the Patkoi range. The railway runs through mile after mile of Tea gardens. It was the pruning season. The dust-laden bushes are shaded by the bare, spreading Albizzia stipulata, or while very young by a species of Leucaena. From time to time we plunged into dense jungle, which, however, is fast disappearing, scourged by fire and sword. Suddenly, we arrived at what at first sight looked like an industrial town in the midlands, complete with engineering shops, railway sidings, oil tanks, chimneys, and along the edge of the jungle, a dozen or more high derricks. It was Digboi, where many years ago the wallowing elephants were noticed by some acute observer to be shining with oil! Now the magnificent jungle is smirched and uglified out of all recognition by a too ruthless efficiency of production. Then comes Margherita, and the coal-mining district beyond the Noha Dihing, a river which at this season is composed of three parts sand and one part water. In the course of a short walk into the surrounding country I noticed, in thickets, the long, swinging kite-tails of Thunbergia coccinea, a Clematis in fruit, and Strobilanthes; the trees were those commonly met with in Assam, such as Bauhinia purpurea, Alstonia scholaris, Bombax malabaricum, and Ficus species.

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[*] Previous articles on Mr. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII, and July 7, 21, and August 4, 1928.

In Upper Assam no sahib is ever permitted to languish at a dâk bungalow—and for dirt, decay and general squalor, the local dâk bungalows would be hard to beat. Complete strangers greet you in the Club and carry you off to their Tea gardens, where they will put you up for a week, or a month, or possibly for a year if you are tactful enough to avoid the subject of your departure. From here you will be passed on to their friends, and to their friends' friends, and so on round the map. (But remember the sad story of Tranter, of the Bombay side!). At Dibrugarh I was royally entertained by a well-known planter and his wife, who passed me on to Margherita for twenty-four hours, where I became the guest of the General Manager of the Assam Trading Company; and that evening at the Club I met the officer I had come to see. He had it in his power to kill the main expedition dead, were he so minded. Not only was the whole difficulty liquidated, as it were, in a whisky and soda sea, but matters were so adjusted that I should accompany a column up the Dihang before turning my attention to the Lohit. So I left Margherita next morning and returned to my hospitable planter friends with these plans tingling in my head. While all this coming and going was in progress, actual work in the field suffered eclipse, nor did the advent of race week in Dibrugarh help to revive it. My intention was to cross the Brahmaputra and visit the foot hills on the other side, via the Deckari river; but hearing that I should be unable to get an elephant for the journey across the plain, I abandoned the project. Probably in the short time at my disposal (for we were assembling in Sadiya on February 2), I should have found nothing there that I could not get equally well on the south bank of the river. Therefore, I decided to accept an invitation to visit the Tocklai Experimental Station instead.

Before leaving Dibrugarh, however, I enjoyed several tramps in the jungle along the banks of the Brahmaputra. The river here varies from three to five miles in width, but at this season the bed is a vast ocean of sand, choppy in places where reefs of driftwood, bleached by the sun and sandpapered, poke through the surface. Along the low banks, jungle alternates with savannah, all the surrounding country being a swamp in the rainy season.

One of the commonest trees in the jungle is Dillenia indica, an umbrageous tree with very large leaves and no trunk to speak of, except in girth. Its massive branches spread far and wide, and partly, perhaps, owing to the dense shade it casts, the ground underneath is always quite bare, although this bareness is partly due to the fact that elephants are fond of resting beneath the Dillenia trees; hence the name, Elephant Apples, for the bulky fruits which strew the ground. Moreover, these fruits are acid, or turn acid on the ground, which alone might destroy the undergrowth. Much of the land is contoured like the river bed, except that it is covered with forest. Deep trench-like hollows, filled with water even in the dry season, are separated by high banks smothered under impenetrable thickets of trees, shrubs and climbing plants, of which the most aggressive is a species of Calamus.

These *bhils* are so well screened by the jungle that they are very difficult to locate, until you fall into one; or except where the scour of the flood has washed a track through the forest, cutting out all the undergrowth and leaving only the Orchid-laden trees standing knee deep in sand. Other species noticed which help to increase the tangle are: Caesalpinia microphylla, easily recognised by its queer, craggy, indehiscent fruit, with a parrot-beak hook at the end, and enormously reinforced sutures; Derris; Sarcocephalus, with globular heads of flowers; Hippocratea (Celastrineae), another scrambler, recognisable by its fruit, of which the three flattened woody carpels separate completely from one another; and Tournefortia viridiflora, one of the few woody Boraginaceae, with small greenish-cream flowers in tight rows. In the savannah country are Bombax malabaricum, just bursting into scarlet blossom, before the leaves come out; extensive thickets of Tamarix dioica; a white-flowered Osbeckia; and bulky tanglements of herbs and shrubs, wherein were recognised a strapping Zingiberaceous plant, Lantana with small heads of small mauve flowers, Grewia species in fruit, Buddleia asiatica, and numerous Fig trees, especially Ficus infectoria. The Fig trees are above all other trees heavily clothed with epiphytic Orchids, and the reason seems to be that their trunks are nearly always clasped by a network nightmare of their own roots from above, or of F. Benjamina, which gives ideal lodgement for plants.

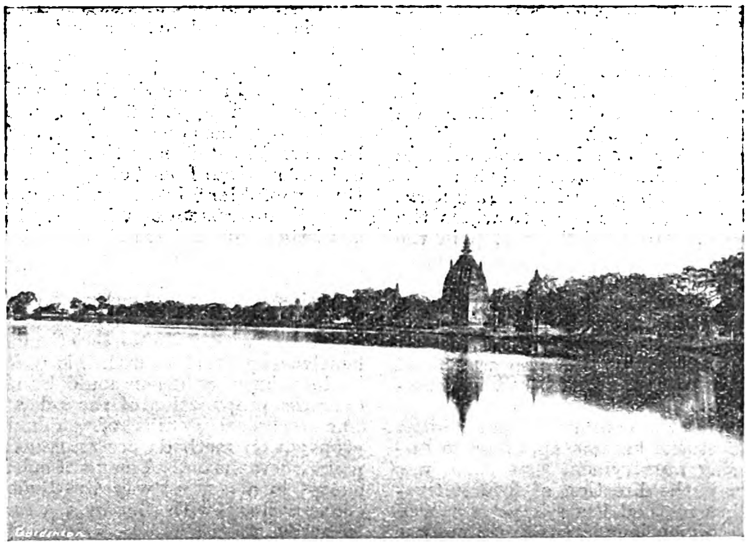
FIG. 63.—THE ASSAM VALLEY: VIEW OF THE ANCIENT ROYAL TANK AND TEMPLE AT SIBSAGAR.

In very thick forest Orchids are by no means common, at least, low down. They seek the light and air, and are usually high up, although the broad Dillenia trees give support to some. In the savannah land it is otherwise. Here the trees are scattered as in a park, and the Ficus trees are often clad from top to bottom with a mantle of epiphytes, Orchids, Ferns, and Aeschynanthus chiefly. Down near the base a fountain of Cymbidium foliage gushes out. Higher up are Dendrobiums, such as the large-leafed D. moschatum, perhaps the commonest species in Assam, and D. lituiflorum; Vandas and others. Where a large and convenient tree, such as a Ficus, overhangs the water, whether it is a *bhil* or the river itself, the epiphytic flora attains a maximum; indeed, it is often impossible to recognise the tree, so overwhelmed is it.

Wherever there is an attempt at cultivation, hedges of Gymnosporia, covered with orange capsules, are seen; and in the fallow fields grow small Acanthaceae, Linarias, Cynoglossums and other widespread weeds. One might suppose that almost anything within reason would grow in the Assam valley; but if so, it interests nobody. So long as the Tea bush flourishes, who cares? Dibrugarh itself, for all its ninety-inch rainfall and entire absence of frost, its well marked cold weather and the well saturated atmosphere, looks a sad and untidy wilderness; nor does a thick film of grey dust over everything in the dry weather help to mitigate the general air of culpable neglect. One speaks of the 'dry weather' in Assam, of course, as opposed to the rainy season; but although not much rain falls between November and May, the atmosphere is always moist, and often saturated as shown by the heavy precipitation of mist in the early mornings, which frequently lies over the river until the sun is well up. Usually there are short periods of rain in the dry season also, enough to tide over the vegetation until the monsoon breaks, although it is no unusual experience to have three months or more without a drop of rain.

A hedge of Acacia arabica along the Club drive is one of the few bright spots in Dibrugarh: its delicate fragrance is wafted across the road by every river breeze. The Nahor (Mesua ferrea) with hard and harsh olive-green foliage, but of neat figure, is common; in the spring, every branch is tipped with fire as the young leaves burst forth, and this sombre tree achieves a halo of glory. A few planters keep up their private gardens, festooning the Grevillea and Cassia trees with Orchids; there are Goldmohur trees, too, which are graceful even out of bloom, and South American Bignonias. The commonest Orchids met with are Dendrobium moschatum, D. nobile, and D. chrysanthum; Vanda coerulea and V. teres; Cypripedium insigne, and the beautiful C. Spicerianum, this last in flower.

About a day's journey from Dibrugarh by train is Tocklai, in the heart of the Tea district, where the Indian Tea Association maintains finely equipped laboratories and a highly-trained staff of expert mycologists, chemists and bacteriologists, but rather strangely, no botanist in the strict sense of the word. One would have expected them to include a physiologist at least.

On January 26, I left Dibrugarh for Tocklai, at the invitation of the Director; I wanted both to see over the laboratories and also to discuss certain points in connection with the wild Tea plant. It is a loathsome journey from Dibrugarh, because one has to change twice and the trains never fit properly. I missed the first connection, and spent the night at a wayside dâk bungalow, around which the jackals and the cockroaches howled all night. On the following night I was bundled out of the mail train at 11 o'clock and packed into a toy train, where I slept until it started; when the clanking and puffing and blowing became so strident that I was easily awakened, and did not doze off again until we were nearing Tocklai. So, of course, we went sailing past my destination, and I awoke and tumbled out at the next station; thence back to Tocklai. But Tea requires a chapter to itself. *F. Kingdon Ward.*

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THE PROPAGATION OF LILIES.

SLOWLY but surely the home propagation of Lilies is gaining ground in this country, and although progress may sometimes seem to be slow, it is only necessary to look back twenty years to realise how definite it has been. Until the war, nurserymen had not concerned themselves seriously about the origin of their stocks of Lilies, and the notion of raising their own supplies was looked at askance. There were exceptions, of course, and Max Leichtlin, of Baden, stood pre-eminent among them; but in a general way the propagation of Lilies was pursued only by keen amateurs, to whom the process was a natural and definite step in the pursuit of an interesting hobby. It was personal, however, to those men who could then be counted on the fingers of one hand, and, perhaps, are now rather more numerous; but as each amateur joined his predecessors on the other side of the Great Valley, the gap was filled neither easily nor quickly. Progress, in consequence, was slow.

It was not until the commercial possibilities of home-raised stocks became apparent to one or two far-seeing nurserymen, that there was a definite move in the direction of field cultivation, and if that method has not yet attained to considerable dimensions, a good deal more is being done in a quiet way than has ever been done in Britain before.

At the present rate of progress, it is only a question of time before home-raised stocks of Lily bulbs enter seriously into competition with imported stocks, and then there should arise an interesting situation, in which the undoubted advantage of home-raised bulbs over those raised or collected far afield should be an important factor. But before that can happen it is essential that the public which buys Lily bulbs should realise the merits of home-raised bulbs over foreign stock, much of which has travelled thousands of miles on its way here, and has necessarily suffered in consequence. The question of price need not be considered, because while British commercial growers may find that they cannot compete with foreigners in the production of bulbs of some species which, in consequence, they will leave alone, there are many other species which may be raised here as easily as elsewhere, and raised as cheaply as they may be imported.

L. regale is certainly one of these, and L. Willmottiae another, while growers should have no difficulty in propagating L. testaceum, L. pomponium, L. Martagon album and L. M. dalmaticum, L. monadelphum, L. pardalinum, L. Parryi, L. superbum, L. canadense, L. Grayii, L. Henryi and L. tigrinum. Farrer's form of L. Duchartrei is easily raised and so, in my brief experience of it, is Ward's Lily No. 6,034.

The high prices charged for many of the above may only be justified because the supply is not equal to the demand, and that, in turn, is due to the fact that the propagation of the particular species has not been undertaken on sufficiently bold lines. Except in the case of certain Japanese and American Lilies, and Dutch-raised kinds, of which the supply is tolerably regular, British merchants of Lily bulbs seldom know from season to season whether their requirements will be met, and it has often happened before now that a nurseryman has had to go out into the highways and byways in search of bulbs to satisfy the needs of his customers. A year seldom passes in which a request does not reach me from some merchant, English or foreign, for information as to supplies of bulbs, and for the last three years running I have been asked in different directions if I knew of some source whence five thousand, and even ten thousand three-year-old bulbs of L. regale could be obtained.

In a measure, the backwardness of our trade growers in the propagation of Lilies is doubtless due to ignorance of the technique, for in the case of many desirable Lilies it is not merely a case of sowing the seeds and reaping the harvest of bulbs. L. testaceum, for example, cannot be raised from seeds, for the excellent reason that it is sterile, while the percentage of true-to-type germination of some varieties, such as L. Martagon album, is often low. L. Hansonii, again, rarely sets fertile seeds, so that in the case of these and many other Lilies, propagation must proceed by methods in which the sowing of seeds has no place. These methods, of which there are many, are not generally so well known as they should be, and it has remained for the Americans to collate them in simple, and concise form.

The last few years have seen the same widening of interest in gardening in the United States as has been apparent here, and, naturally, the interest has spread to Lilies. One outcome has been that for some time past a department of the American Board of Agriculture, called the Bureau of Plant Industry, has given attention to the cultivation of Lilies, and at intervals has issued illustrated bulletins for the information and guidance of growers who are interested in this branch of horticulture. The latest of these bulletins* deals with the commercial propagation of twenty species grown in American gardens, and deals with it in so practical and comprehensive a spirit, that, with this *Bulletin* in hand, an intelligent gardener could hardly go astray over the propagation of the Lilies enumerated. The technical details of seminal and other propagation methods are explained up to the point where the bulbs become of saleable size, and except in a general way the *Bulletin* does not concern itself with the management of Lilies in gardens.

There are many points in the cultivation of Lilies at which practice in the United States diverges from that followed in Britain as a whole, and the differences are mainly the result of varying climatic conditions. But these climatic variations do not materially affect the propagation of Lilies, which is much the same in the North American continent as it is here. At this time of day, it is not to be supposed that there is anything new in the propagation of Lilies. The methods by which they may be increased by seeds or by vegetative process are well-known and are available to those who seek them; but they do not seem to have been brought together in such convenient form or with such elaboration of illustrated detail or regard to the ecomomic side of the question as in the *Bulletin* under notice.

The American experiments have been conducted on heavy land at Bellingham, Washington—recently cleared of forest; at the Arlington Farm, Rosslyn, Virginia, where the soil is a coarse, lean sand, and at Puget Sound, and as was to be expected, some species have taken more rapidly to one station than to another.

The technique of the commercial propagation of Lilies by scale and stem bulblets is fully explained in the *Bulletin*, but perhaps hardly sufficient stress is laid on the importance of this method of propagation in the case of Lilies which do not regularly come true from seeds. The white-flowered form of L. Martagon is a case in point, for in Britain the true-to-type germination of this variety is not always high; a large number of the seedlings, too, have small flowers, many of which would pass for white until closely examined, when they may be found to be faintly spotted or flushed with rose. At different times, Dutch growers have separated some of these as distinct forms.

There is hardly a page of this interesting *Bulletin* in which there is not some unconscious illustration of the difference in the behaviour of Lilies in North America and in Britain. We read, for example, that L. concolor seeds quite readily in the United States, although seeds are seldom seen on it here except in a hot summer. L. concolor is referred to as a good bedding Lily of very easy culture, but by no stretch of the imagination could it be called that in England. In a country so liberally populated with the Irish, it is singular that the Orange Lily should be so little known. According to the *Bulletin*, it seeds readily in the United States, and that is a good deal more than may be said of the species here.

The susceptibility of some species to late spring frosts, which has been so noticeable in this country in the case of L. regale during the last two years, has also made itself felt in the American experiments; L. Hansonii is just as difficult to bring through the spring at Bellingham as in the south of England. Overhead shelter is essential for success with this Lily, which seems even less easy to manage in the United States than it is here. A point brought out in the course of the experiments is that it is a mistake to leave commercially-grown Lily bulbs undug for more than two years, but although there may be excellent reasons for this, it should not be taken as applying to Lilies in English flower gardens, for they should be left undisturbed until they begin to degenerate.

In the Bellingham experiments, the seed-beds are in the open, and as Lilies are hardy subjects, this is the natural procedure to follow in the case of species of which sufficient seeds are available to make it worth while; and if there are not sufficient seeds, bulbils or bulblets, the operation ceases to be a commercial one. In commercial propagation the same procedure should be followed here, for if seedling Lilies are to be raised wholesale, the labour entailed in raising them in pans or in frames is a serious initial charge on the ultimate cost of the bulbs.

The pests of Lilies are not regarded as formidable by the author of the *Bulletin*: "There are a number of them, and they do at times cause damage, but the worst enemies of Lily bulbs are neither pathological nor entomological, although fungi and insects are likely to be blamed for much of the havoc wrought by high temperatures, bad soil conditions, exposure, abrasion and desiccation. . . Much of the injury to stocks caused by heat, desiccation, etc., is often mistakenly attributed to associated insect and fungus organisms which may be present and conspicuous, while the real culprits are not in evidence." There is much sound sense in this, but it is only partly true of this country where rabbits and moles, slugs, wireworms, millipedes and leather jackets are a constant menace. The first may be controlled, no doubt, by determined growers, but the control is often obviously less rigid than it should be, with the result that the damage done to Lilies in gardens all over the country by rabbits is incalculable. The wilting of Lily stems just below the flowering head, which is noticeable in this country, has been appropriately named "Limber-neck" by American gardeners and is ascribed in the *Bulletin* to low spring temperatures.

This *Bulletin* of thirty-five pages is packed with information, obviously the result of personal observation by the author of it, Mr. David Griffiths. Much of it is as relevant to the raising of Lilies here as in the United States. Observations, such as that seeds of L. superbum sown before they have been thoroughly dried, germinate in the following spring, but not until a year afterwards if they have been dried, show that a keen pair of eyes has been directing the operations of the United States Board of Agriculture in these particular experiments. *A. Grove.*

**A Score of Easily Propagated Lilies.* By David Griffiths, U.S.A. Dept. of Agriculture. March, 1928.

MECONOPSIS GRANDIS.

Of the perennial species of this genus in cultivation, M. grandis is undoubtedly the finest, not only in the size, but also in the colour of their flowers, which, on the plants figured in the accompanying photograph (Fig. 64), are of a lovely purplish-blue. On other plants which for more than twenty years have been grown here, the colour is of a much deeper, vinous purple shade. In *The Gardeners' Chronicle* of June 24, 1905, Mr. A. K. Bulley draws attention to this variation in the colour of the flowers in plants grown by him at Ness Gardens, Cheshire.

At present M. grandis is by no means a common plant in gardens, and this scarcity is probably due to the difficulty of procuring seeds. Here, for the past few years, we have failed to secure seeds from our plants, and I have heard that this is the experience of others who cultivate it.

The illustration, taken by Mr. R. M. Adam, shows plants raised from seeds sent us by the Hon. R. James, of Richmond, Yorkshire, who kindly shared with us those which he had fortunately saved from plants growing in his garden there.

Our method of cultivation is to grow this Meconopsis in a deeply worked soil of a rich loamy nature, well mixed with leaf-soil and old decayed manure, in a position slightly shaded from the midday sun. About this time last year, as an experiment, one of our original plants was lifted and divided at the rootstock and the divisions replanted in fresh soil; these are now growing freely and give promise of becoming good plants. Where Meconopsis are grown an endeavour should be made to include this species in the collection, as its beauty when in flower may hardly be over-estimated. *R. L. Harrow, Edinburgh.*

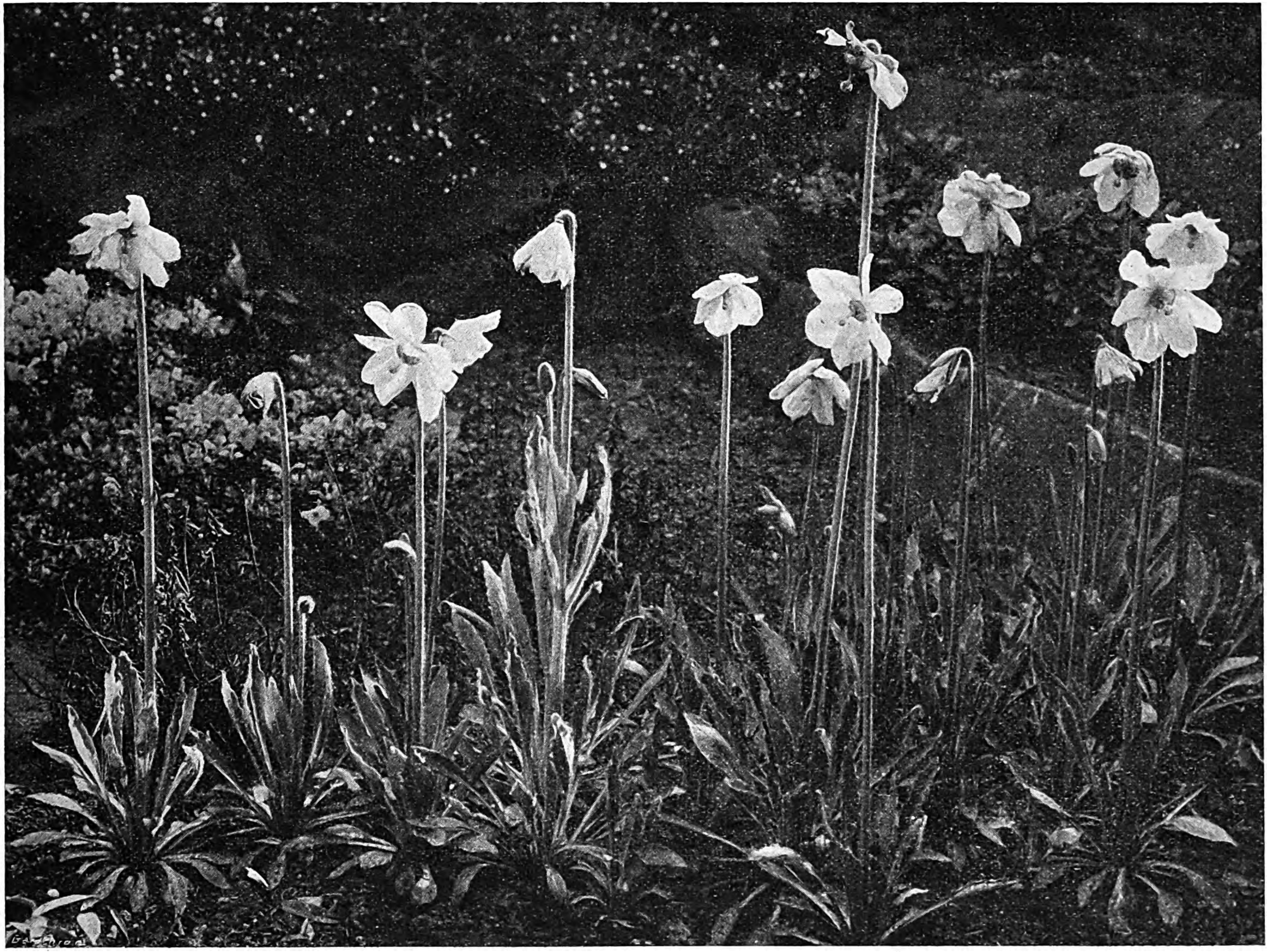

FIG. 64.—MECONOPSIS GRANDIS AT THE ROYAL BOTANIC GARDENS, EDINBURGH.

NOTES FROM WISLEY.

Most gardens of a special nature, such as an Azalea or an Iris garden, are only at their best for a few weeks or even a few days in the year, and in order to sustain interest, some other kind of flower has to be introduced. Not so in the Heath garden, however, which is entirely self supporting and with no outside aid is able to provide flowers the whole year round, not a few odd blooms here and there, but colour in masses. It is therefore difficult to say exactly when a garden of this type is at its best, and although I have already described in my notes in the early part of the year the Wisley Heath garden as being at its zenith, it is difficult to imagine that it could have been any better than it is now. In addition to some very large plants of the common Heather, there are many handsome white varieties of this plant, as well as attractive forms of Erica cinerea and E. tetralix.

A pleasing feature in a certain portion of the wild garden is the way in which a Rudbeckia has become naturalised and is flowering among plants of Osmunda regalis and other Ferns. Another plant which is blossoming freely throughout the wild garden is the Willow Gentian, G. asclepiadea, of which, as has been pointed out recently, there are several distinct forms.

In the heated tank outside the laboratory, the blue Nymphaea stellata is now flowering exceptionally well. Its leaves have not been disfigured quite so badly this year as last by insects, and this may be due to the activities of the goldfish in this pool, which are now very tame and create a great commotion at feeding time. The Water Lilies in the rock garden pools are also flowering well, while on the banks the recently planted Rodgersias have become well established. Their flowers are now over, but their red fruits and flower stems are still very decorative in association with the bronze foliage.

In the rock garden there is not such a good display as was to be seen a month earlier. Nevertheless, several attractive plants are in bloom, such as Abelia grandiflora which, although tender in some localities, is a most valuable shrub, both on account of its compactness and lateness in flowering. A plant which has been in flower for a considerable time is Allium carinatum, with mauve-pink flowers borne on a stem twelve to fourteen inches high. The foliage of this plant is apt to present a withered appearance, but this is not the case with another species, A. Huteri, which is in bloom in the alpine house frames. The latter has particularly fresh green leaves and small heads of purple flowers. Other plants of interest flowering in these frames include Corydalis Wilsoni, with yellow flowers and glaucous foliage, which resembles our British species C. lutea; Commelina tuberosa, with Gentian-blue flowers, and Zephyranthes robusta, a charming Amaryllis-like plant with wide-spreading trumpets of pale pink.

In the alpine house itself, few plants remain in flower. Exceptions occur in the curious carpeting plant, Raoulia australis, and a Bellflower, Campanula macrorrhiza fl. pl., whose semi-double flowers somewhat resemble, in miniature, those of a Delphinium.

Under glass, a trial of Aubergines is in progress, together with one of Capsicums. Some varieties of the latter, such as Long Yellow, Kaleidoscope, and Red Cluster, are very ornamental when in fruit.

In the flower trial grounds the rain just came in time, after the long drought in July, to ensure the success of the majority of the trials in progress. A large proportion of the Gladioli on trial have passed their best, but a few still have spikes to open, including the blood-red Frau Dr. Hauff, and a beautiful lemon-yellow variety named Cecilia. The annual Phloxes are now making a very bright show, and among the many good strains in bloom may be mentioned Messrs. Dobbie's Crimson and White Eye, and Messrs. Watkins and Simpson's Rose Cardinal, with vivid salmon flowers. The Fringed Mixed strain, with its star-like blooms, is not unattractive, while many visitors are attracted by the straw-coloured Isabellina.

The Salvias on trial are now commencing to flower in earnest. Of the scarlet varieties, Harbinger and Early Dwarf Bedder are well in advance of the others. Among the herbaceous Sages, Salvia farinacea is conspicuous with its Lavender-like spikes of powdered blue. The trial of annual Lupins has now been judged, and the plants have gone to seed. One of the best varieties, however, L. luteus Romulens, with yellow flowers, which gained an Award of Merit, is again showing buds and seems likely to produce a second crop of flowers.

The Dahlias have grown very rapidly lately and most of the dwarf varieties are in full bloom, including Coltness Gem, H. J. Jones, Janet, with orange flowers; and the orange-brown-flowered Mignon, misnamed Coltness Salmon. One of the best of the pink-flowered Mignon varieties is Lady Aileen, which obtained an Award of Merit. Its habit, however, is not so dwarf as one would expect in this class of Dahlia. Piccannini, with deep purple foliage, is also decorative but it does not appear to possess a particularly strong constitution or to be a very free-flowering variety.

Among other plants worthy of note, in flower in the trial grounds, may be mentioned two good strains of Godetia, namely, Double Shell Pink, and a darker-coloured one named Double Rich Pink. There are also in bloom some Pentstemons of Sutton's Large-flowered strain, which certainly answer well to their description. *J. E. Grant White.*

PLANT INDUSTRIES OF CORSICA.*

(*Continued from p.* 110).

IV.—Oils, Essences and other Products.

Much might be written about the timber lands of the island. During the early spring of 1927 the snowfall was so heavy that thousands of Pines were injured. These were sawn up and so far as possible turned to good account, the roads suffering very much from the heavy haulage. But the Pines are utilised also for the preparation of turpentine. Passing through the forest of Ospedale from Porto Vecchio to Zonza at the end of April, I saw vast numbers of trees being milked for their sap, which flowed into cups arranged around the stems a few feet from the ground. There were sometimes three to six such receptacles to one trunk, and the quantity of turpentine collected must have been very large. Resin and tar are other products of the Pine, and in former days the exudations of Corsican Pines were not without their medicinal virtues. The Larch, Cluster or Maritime Pine (Pinus Pinaster, syn. P. maritima), Aleppo Pine and Stone Pine are all found in the island, and the forests suffer much at times from the destructive fires which are frequent here as in the south of France. As in the Riviera, the trees often suffer much from the ravages of caterpillars. The Larch attains dimensions such as I have never seen surpassed.

While the timber is of great value and as an export brings in a goodly sum, a number of minor industries are based on the woods with beautiful grain, such as Olive and Beech, Oak and Heath. Orezza, Corte and other towns provide the visitor as well as the native with serviceable and ornamental articles, since "*Les hêtres et les chênes de la montagne, la racine des bruyères servent a fabriquer de nombreux objets—chaises, cuillers, fourchettes et pipes,*" to which may be added rings for serviettes, paper knives and other things. Gallic acid is another product for which factories exist. Regarding the Chestnut, a recent writer remarks that the trees in some parts are now in a fair way of destruction, since their owners have learnt that a quicker "though final return from these trees can be obtained by felling them for the extraction of pyro-gallic acid, which is a process extensively carried out here, and one which bids fair to cause the destruction of the Chestnut tree."

In connection with the Arbutus, it is of interest to the naturalist to learn that a magnificent Helix, dedicated to Raspail, is found only in the caverns where the Strawberry tree grows amid the high mountains of Corsica. It may be recalled that it was the dissection by Moquin Tandon of a snail in Ajaccio which first gave the famous Fabre his bent towards the study of zoology and insect life.

Hitherto, no mention has been made of the Mulberry, which here, as elsewhere around the Mediterranean, is grown not so much for its fruits, as for its leaves. Silkworms are reared in Corsica, and in a few localities one of the sights which add to the picturesque scene is that of the native women with trays of silkworms on their heads. Another plant industry is that of hat and basket making from straw. Alata is, perhaps, the most famous place for this, the women producing "*des paniers et des chapeaux de paille fort simple et très recherchès par les touristes.*"

Charles Reade in *The Cloister and the Hearth*, has a good word to say about the wines of Corsica, and these, together with the Olive oil, must find place among the essences and aromatics. Then there are the extracts from the Lavender, Rosemary and other native plants, which have given to Corsica its name of the Fragrant Isle. In Corsica, so well as in the Riviera, the Pistacia or Mastich is abundant in the maquis. Although usually regarded as a shrub, it attains, under favourable conditions, the dimensions of a tree. It is in some places cultivated for the aromatic resin which it exudes. This is used in England for the preparation of a varnish, but the word "masticate" reminds us that gum is chewed both to perfume the breath and to strengthen the gums. The wood of the Mastich is also considered by natives of the south of France and elsewhere better than any other for toothpicks. Mastich is further pressed into service in making both a dentifrice and a liqueur.

With a view to the production of Attar of Roses and other essences, a famous Corsican perfumer has, during recent years, planted large quantities of Roses and other aromatic shrubs at Barbicaglia and elsewhere; and one may hope that such industries as these will find favour with the Corsicans, and that M. Coty's *école pratique du culture florale* will become a great success. Many species of Cistus grow luxuriantly in Corsica. Around Ajaccio at the end of April, four different colours are to be found. From the Cretican Cistus the famous Myrrh of Scripture used to be obtained. Tobacco is cultivated and cigars are manufactured. Yet the *Encyclopaedia Britannica* remarks that "the manufactures are of slight importance." It refers to the gallic acid obtained from Chestnut bark, and the preparation of Citrons and other delicacies, Macaroni and cigars. In 1905, the exports amounted to £336,000, or almost three times that of the imports. They included Chestnut extract, charcoal, Citrons and other fruits, timber, seeds—of which the kinds are not specified—Chestnuts, and bark for tanning.

Reference may be made in conclusion to the trees and plants which are utilised for hedgerows and for avenues and public places. The latter include the Plane, various Palms, Vines, Olives, Pepper, Eucalyptus, Acacia and Rubber. For hedge-making the Prickly Pear is used, as well as the Myrtle, Arbutus, Pisticia or Mastich (called *Stinchu*), Ilex, Oleaster, Phillyrea, Honeysuckle, Hawthorn, Smilax or Sarsaparilla and Myrtle, to name only the more important. Although these notes do not aim at being exhaustive, it is believed that they give a fair idea of the plant industries of the Fragrant Isle. *Hilderic Friend.*

THE GENUS PRIMOLA.

(*Continued from p.* 129).

COREANA (Nakai). Corean P.
(Cortusoides-Geranioides.)

This plant was regarded as a form of P. sinenses. It produces a weak tuft of heart-shaped, concave leaves about one-and-a-half inch long and two-and-a-half inches wide, their margins being divided into rounded lobes which are irregularly and sharply toothed; the upper surface is sparsely ciliate, underside hairy on the veins; they are borne on slender, rounded, hairy stalks about one inch long. Flower stems two to four inches tall, bearing an umbel of purple-rose coloured flowers on smooth, slender stalks about one inch long. Corolla about three-eighths-of-an-inch across, divided into five oval lobes. Flowers in September.

As the specific name implies, this plant is found in Corea, but the exact locality and conditions under which it grows have not been recorded. It would probably succeed in cultivation under the same conditions as members of the P. sinenses group, and should be quite hardy in sheltered localities in this country.

CORTUSOIDES (Linn.). Cortusa-like P.
(Cortusoides.)

This well-known and easily-grown plant has the whole of its foliage covered with a fine, silky pubescence. The leaves, have oblong blades two to three-and-a-half inches long, heart-shaped at the base, on stalks two to six inches long; margins cut into small lobes which are furnished with small, irregular teeth. Flower stem six to twelve inches tall, bearing a many-flowered umbel of rose or red-coloured blooms, from five-eighths-of-an-inch to nearly one inch across, on rather short stalks. Corolla divided into five broadly heart-shaped bilobed lobes; tube cylindrical, longer than the calyx. Flowers in May and June. Grows in fairly damp, half-shady places, ranging from the Ural mountains, eastward to the Altai mountains of Siberia. Introduced in 1794.

Var. dentiflora (Andr.) is apparently a garden form and differs from the type in having the margins of the corolla toothed (Adr. *Bot. Rep.*, t. 405).

Culture: Plant it in good loam and leaf-soil, in a well-drained, half-shady spot.

CORYPHAEA (Balf. f.). Hazel-leaved P.
(Bella.)

A very attractive, minute perennial carpeting plant, with a dense rosette of smooth, green leaves, about a quarter-of-an-inch long, with elliptic or nearly round blades, wedge-shaped at the base and cut into small, pointed, revolute lobes on their margins; they taper to a narrowly-winged stalk, about equal to the blade in length. Flower stem very short, hardly perceptible, bearing a large, solitary, rich violet-blue blossom, with a tuft of snowy-white hairs at its throat; lobes broadly wedge-shaped, bilobed to the middle.

Found on the exposed summits of granite mountains in northern Burma.

Culture: Sandy loam mixed with granite chips, in an open spot on the rock garden, with protection from wet in winter, is indicated.

COTTIA (Widmr.). Cottian P.
(Auricula-Erythrodrosum.)

A beautiful dwarf form of P. commutata, with a tuft of fleshy leaves covered with long, coarse, dark reddish-brown, glandular hairs. Leaves two to three inches long, oblong-lance-shaped, or obovate, usually furnished with teeth above the middle and tapering towards the base into a broadly-winged stalk. Flower stem two to five inches tall, rather stout, glandular, hairy, bearing an umbel of two to twelve blossoms, on stalks about a quarter-of-an-inch long. Corolla three-quarters to one-and-a-quarter inch across, rich rose colour; lobes broadly heart-shaped, notched. Most specimens have a white eye; tube very much longer than the calyx.

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* See Art. I, Fruits of Many Kinds, *The Gardeners' Chronicle*, April 28, 1928, p. 296; Art. II. Nuts and Other Products, Aug. 4, 1928, p. 92; Art. III, Scrub and Shrub, Aug. 11, 1928, p. 110.

Grows on exposed ledges of granite cliffs, in full sun in the Cottian Alps of north-western Italy, at from 3,000 to 8,500 feet above sea-level.

Culture: Good fibrous loam, with a southern exposure and protection from excessive wet, should suit it.

CRAIBEANA (Balf. f.) Craib's P.
(Capitatae).

This plant produces a spreading tuft of foliage resembling that of P. capitata, but may be distinguished by the yellow instead of white meal on the lower surface of its foliage. Leaves three to six inches long, narrowly lance-shaped, broadening at the tip, green above, glandular; margins toothed. Flower stem erect, stiff, twelve to fifteen inches tall with a large head or umbel of many purple flowers. Corolla three-eighths-of-an-inch across, more or less concave, divided into fine rather shallow, nearly square, notched lobes; tube cylindrical, three-eighths-of-an-inch long.

Flowers in August and September. This plant grows under the same conditions as P. capitata in Sikkim, at 10,000 to 16,000 feet above sea-level, and is by some authorities considered a microform of P. capitata.

Culture: As for P. capitata.

CRASSA (Hand.-Mtz.). Thick-stalked P.
(Petiolares-Davidii.).

A rather dwarf, perennial species with a tuft of downy, pale green, egg-shaped or rounded leaves, one inch to four inches long, with short, distinct, stout stalks; margins furnished with small, blunt, irregular teeth. Flower stem downy, stout, about as long as the leaves, bearing an umbel of two to seven purplish-rose or violet-rose blossoms on rather short, stout, downy stalks. Corolla nearly three-quarters-of-an-inch across, divided into five broadly heart-shaped or egg-shaped, broadly cleft lobes; tube cylindrical, about three-eighths-of-an-inch long, with a broad ring at the mouth. Flowers in April.

Grows in dense woods and thickets on the mountains of South-eastern Yunnan, at about 8,000 feet above sea-level.

Culture: Oak or Beech leaf-soil in a sheltered, damp, shady place, with protection from frost in winter, is indicated.

CRISPA (Balf. f.). Crisped P.
(Denticulata.)

This beautiful plant has long been confused with the true P. erosa (Wall.), which is not yet in cultivation. It forms a tuft of oblong-oblanceolate or obovate-spathulate, fleshy leaves, two to three inches long, rounded at the tip, with wavy, irregularly-toothed margins; they are smooth and green on both sides. The slender flower stem reaches a height of about nine inches, and is coated with yellow meal among the blossoms. The flowers are borne in a somewhat dense head, the individual flowers resemble those of P. capitata in shape and size, but are usually of a paler colour. Flowers in April and May.

Grows in damp places among short herbage on the Sikkim Himalayas at 13,000 feet above sea-level. Introduced in 1887. *Bot. Mag.* t. 6916, under P. erosa.

Culture: As for P. capitata; it is quite hardy.
A. W. Darnell.

(*To be continued*).

MESEMBRYANTHEMUM.

(*Continued from p.* 128).

17.—CRYOPHYTUM, N. E. Br.

4.—C. conjectum, N. E. Br. = C. clandestinum, L. Bol. in *S. Afr. Gard.*, 1927, pp. 326 and 327, f. 11, E. Not M. clandestinum, Haw.

Of this species Mrs. Bolus gives no description, and figures only a seed and two valves of a capsule, which most certainly do not represent the seed and valves of the true C. clandestinum, N. E. Br. I have therefore changed the name, but a proper figure and description of the plant are needed.

South Africa: Montagu Division; near Montagu, collector not stated. Bolus Herb., 17357.

5.—C. crystallinum, N. E. Br., in Phillips, *Gen. S. Afr. Pl.*, p. 245; *S. Afr. Gard.*, 1928, p. 83, f. 21.

= M. crystallinum, L. *Sp. Pl.*, p. 480, founded upon Dillen. *Hort. Elth.*, p. 231, t. 180, f. 221; Haw., *Obs.*, 113 (chrystallinum) and 433, *Misc. Nat.*, 43, *Synop.* 243, *Suppl.* 91, and *Rev.* 157; Hill, *Eden*, p. 200, t. 25, f. 1; DC., *Pl. Gr.*, t. 128; Berger, *Mes. und Port.*, p. 35; Baill., *Dict. Bot.*, Vol. II, p. 609; Gaertn., *Fruct*, Vol. II, t. 126. Plenck, *Ic.*, Vol. IV, t. 397; Lam., *Ill.*, t. 438, f. 3; Vietz., *Ic. Pl. Med.*, Vol. VIII, t. 656; Sibth., *Fl. Graeca*, Vol. V, t. 481; *Rev. Hort.*, 1860, p. 151, and 1903, p. 525; Berg., *Charakt.*, t. 60, f. 460; Cusin et Ansberque, *Herb. Fl. France*, Vol. VII, Ficoid., t. 2; *Garden*, 1877, p. 281; with fig.; Pouchet, *The Universe*, ed. 5, p. 284, with fig.; Karst., *Deutsch Fl. Pharm.-Med. Bot.*, p. 528, and *Fl. Deutsch.*, Vol. II, p. 62; Hoffm., *Pflanzenatl.*, t. 41, f. 256; *English Fl. Gard.*, t. 168; Vilm.-Andr., *Pl. Potag.*, p. 249; Fiori et Paol., *Ic. Fl. Ital.*, p. 122;; *Beih. Bot. Centralbe*, 1901, Vol. X, p. 178; Coste, *Fl. France*, Vol. II, p. 122; Reichenb., *Ic. Fl. Germ.*, Vol. XXIV, t. 155; Warburg, *Pflanzenw.*, Vol. I, p. 555; Trotter, *Fl. Econ. Libia*, p. 146; Armstrong, *Field Book West Wild Fl.*, p. 109; Bailey, *Cyclop. Amer. Hort.*, p. 1,003, and *Standard Cycl. Hort.*, p. 2,043. Vars. annuum and bienne, DC., *Prod.*, Vol. III, p. 448. M. glaciale, Haw., *Suppl.* p. 92, and *Rev.* 157.

South Africa: Occurs in several of the coastal divisions from Cape Division to Uitenhage Division, or perhaps further eastward, where it seems to be a native. It is also found along the coastal area of the Mediterranean, and in the Canaries, but has probably been introduced into these areas. It is stated to have been in cultivation before 1727, and is sometimes eaten as a vegetable or salad.

6.—C. grandiflorum, N. E. Br. (Fig. 54, p. 128)—Annual or biennial, glabrous, covered with glittering papulae on all green parts. Leaves of the central rosette opposite, in four ranks, those on the branches alternate, all spreading, petiolate; petiole ½-2 inches long, 2–4 lines broad, concave above, not sheathing and very slightly united at the base; blade 1–5 inches long, ½–2½ inches broad, ovate-lanceolate to lanceolate, acuminate, sub-cordate or tapering into the petiole at the base, flattish or concave, with wavy or crimped margins, green or tinted with red at the apex and edges. Flowering branches axillary from the central rosette, ascending or decumbent, 2–24 inches long, 2–4 lines thick, with internodes 1–3 inches long, and ending in a lax cyme of 2–9 flowers, or the flowers scattered along the branches opposite the leaves, bracteate. Pedicels (above the bracts) 3–18 lines long, 1½–2 lines thick. Calyx unequally 5-lobed, with the tube above the ovary 1 line or less long; the three larger lobes 5–7 lines long and 3–3½ lines broad, oblong or ovate, acute, the others with broad, membranous margins. Corolla 1½–2¼ inches in diameter, open during the day, closing at night, and having a faint and not quite pleasant odour; petals very numerous, in 5–6 series, irregularly bent or contorted, giving a ragged appearance to the flower, united below into a tube 2½–3 lines long, the outer 10–12 lines long, about ¼-line broad, filiform-linear, acute; the inner gradually shorter, passing into staminodes, white, with the basal part and the staminodes lemon-yellow or pale greenish-yellow, giving that tint to the centre of the flower. Stamens numerous, erect; the outer 4–5 lines long, lax; the inner gradually shorter and connivent, or densely clustered around and pressed against the stigmas, the innermost about 2 lines long; filaments very minutely scabrid, not bearded, white; anthers yellow. Stigmas 4–5, filiform, 3–3½ lines long, erect, with recurved tips, not quite equalling the longest stamens. Ovary nearly or quite superior, 5-celled, green. Capsule more than half-superior, with 4–5 valves, which rise to 3½–4 lines above the base of the calyx-lobes, pale ochreous, with the gaping sutures or edges of the valves blackish-brown, uniformly pallid inside, and 6–9 lines in diameter when expanded. Seeds ½-line in diameter, much flattened, triangular in outline, with a small hump on one of the sides, not tuberculate, of a peculiar and somewhat dull bronzy brown.

M. crystallinum var. grandiflorum, Eckl. and Zeyh., *Enum. Pl.*, p. 321; Sond. in *Fl. Cap.*, Vol. II, p. 453.

South Africa: Prince Albert Division: Near Abraham's Kraal, Mrs. D. van der Bijl! Riversdale Division: Common in the district, Muir 3898, 3989; Zeyker, 2097. Orange River Region, Shaw! Miss Wilman!

B.—FLOWERS PROBABLY WHITE, BUT COLOUR NOT STATED.

7.—C. Fenchelii, N. E. Br.—A stout herb, probably biennial, glabrous. Leaves in a central radical tuft, opposite, flat, petiolate, 1½–3 inches long and ½–1¼ inch broad, ovate, acute, papillate. Flowering stems produced from below the rosette of leaves, prostrate or ascending, stout, terete, up to a foot or more long and 2½–3½ lines thick, papillate, ending in lax cymes. Pedicels ½–1 inch long. Calyx produced above the ovary into a short tube, unequally 5-lobed above; lobes 4–6 lines long, broadly ovate, with acute or subulate tips. Petals very numerous, apparently about 8–9 lines long, but perhaps longer, united into a short tube at the base.

M. Fenchelii, Schinz, in *Bull. Herb. Boiss.*, Vol. V, *Append.* III, p. 79 (1897).

Great Namaqualand: East of Keetmanshoop, Fenchel, 172. And probably the following also belong here:—Tsoachaub, Rautenan 41, Belck 69, Dinter 950, Usakos, Schinz 917, as they all appear to be the same species as the type.

The actual type consists of a flowering branch only, which has been browsed by an animal and is branching again, no radical leaves are present, so that in the above description these organs are described from the other specimens quoted, whose leaves on the flowering branches are identical with those of the type of C. Fenchelii, which was kindly lent to me by Dr. Hans Schinz. According to a label with the type specimen, Berger appears to have mistaken this plant for M. crystallinum var. grandiflorum, Sond., but it is quite distinct from that species, and inhabits a totally different region.

In *South African Gardening*, 1928, p. 83, a plant from Great Namaqualand is mentioned under the name of C. crassifolium, L. Bol., but as there is no description it is impossible to understand what plant is meant, and according to international rules the name is invalid; probably the plant intended by that name is either C. Fenchelii or C. grandifolium.

8.—C. grandifolium, N. E. Br.—A stout herb, probably biennial. Leaves in a large tuft or rosette, flat, broadly lanceolate, 4–5 inches long and 1–1½ inch broad, narrowed to a sessile or sub-petiolate base, obtuse, wavy, glabrous, papillate. Flowering branches arising from under the rosette of leaves, 4–8 inches long, 2–3 lines thick, two-edged, ascending, sometimes 1-flowered, but usually branching in a cymose manner and bearing 3–9 flowers, and having opposite leaves up to 1½ inch long, and small ovate, obtuse, opposite or sub-opposite bracts 3–6 lines long. Pedicels 4–9 lines long, stout. Calyx papillate, produced above its union with the ovary into a distinct tube about 1½–2 lines long; the ovary part half-globose, 6–7 lines in diameter; lobes 3–4 lines long, 2–3 lines broad, ovate, obtuse, with or without a dorsal point. Petals very numerous, apparently 7–8 lines long, united into a distinct tube at the base. Stamens not very evident in the flower examined, but arising from the corolla-tube. Ovary apparently nearly superior, but too much crushed to admit of the determination of its stigmas or cells.

M. grandifolium, Schinz, in *Bull. Herb. Boiss*, Vol. V, p. 79 (1897).

Great Namaqualand: Near Rehoboth, Fleck 341A.

The above description is made from the type specimen kindly lent to me by Dr. Hans Schinz.
N. E. Brown.

(*To be continued.*)

CAPSID BUGS.

The following observations on the method of egg-laying of the Potato capsid bug, Calocoris bipunotatus, Fabr., may throw some light on the manner in which several other capsid bugs lay their eggs.

On the evening of August 1, large numbers of adult capsids of the species Calocoris bipunctatus were noticed on some Chestnut posts and spiles used as supports for a wire-netting fence surrounding a field at East Malling. The age of these posts and spiles varies from three to fifteen years; most of them were cut some nine years ago. Closer examination revealed the fact that these capsids were gravid females busy laying eggs in the wood of the posts. In all, probably several thousands were observed between 6.30 p.m. and 9.30 p.m. on this date. Heavy rain had fallen during the afternoon and it was at first thought that the sappy condition of the wood had induced the capsids to lay their eggs in it. On each of several ensuing days, however, numerous capsids of this species were observed egg-laying, even when the posts were quite dry, although they were never quite so numerous as on the first occasion on which they were observed. In addition, a single specimen of another capsid, a species of Orthotylus, was observed to lay eggs in a similar manner in a fourteen-year-old Chestnut spile.

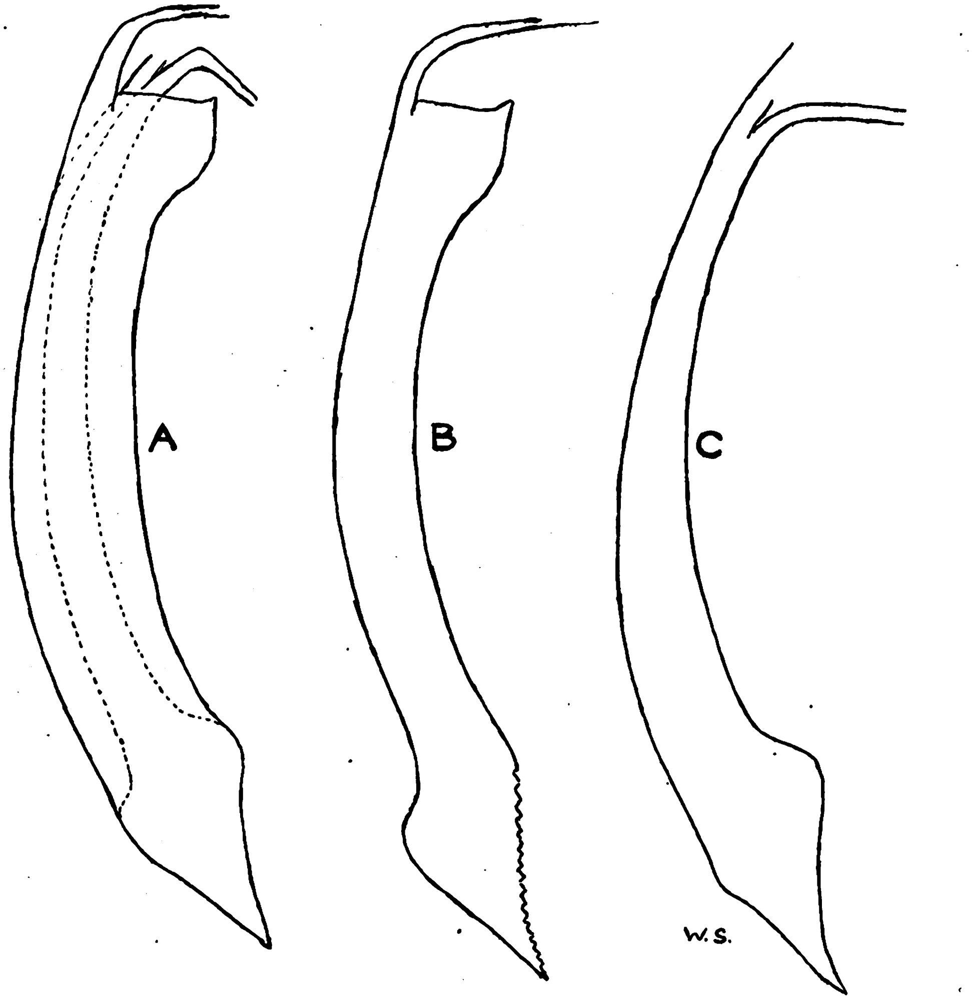

FIG. 65.—OVIPOSITOR OF CALOCORIS BIPUNCTATUS, FABR.,
(left side) A. Ovipositor. B. Same with scimitars removed, showing one of the saw-like edges. C. A scimitar. (× 47·6).

The method of egg-laying is as follows:—The bug, having drilled a hole with the rostrum or beak, inserts in this hole the tip of the ovipositor (Fig. 65), and, arching its back, works the ovipositor into the wood with a saw-like action, which it accomplishes by a rocking motion of the abdomen. When the ovipositor is deeply imbedded an egg is apparently laid. The ovipositor is then withdrawn, and the capsid begins to drill a fresh hole. The whole operation of egg-laying takes about half-a-minute. On the first occasion on which these capsids were watched, several females were observed to lay eggs at the rate of sixty to seventy an hour. In several instances it was actually possible to watch the whole of the operation through a lens of a magnification of fifteen diameters. It was common also to find the remains of an abdomen of Calocoris with the ovipositor still imbedded in the wood, the rest of the body having been snapped off, possibly by a bird.

Portions of the wood of the fence were examined in the field with a pocket lens, and in the laboratory by the aid of a binocular microscope, and eggs were found in large numbers, some being still quite soft and obviously newly-laid. It is necessary to "tease" a piece of wood carefully with a needle or pocket-knife in order to see the eggs. Their presence in the wood cannot be detected by any outward sign. Under a strong lens a minute slit in the surface of the wood may sometimes be seen where an egg has been laid in softer wood.

The egg is whitish, 1·4mm. in length, and of the shape shown in Fig. 66. It is flattened laterally, and is thus narrowly elliptical in cross-section. The cap, which is prised off when the young bug hatches out, is whiter and more compressed than the rest of the egg. All this may be seen with an ordinary low-powered pocket lens. When it is laid, the rounded end of the egg leaves the body of the insect first, and the cap last. When dissected from the body of a female capsid, the egg is cylindrical, only the cap being flattened. The egg is apparently compressed by lateral pressure in its passage through the narrow ovipositor, and the pressure of the wood in which it is laid causes it to retain this acquired shape until the outer chitinous layer, the chorion, has hardened. Indeed, when quite newly-laid eggs are dissected from a wooden post, they tend to become cylindrical again.

The diagrams (Fig. 65) of the ovipositor of Calocoris bipunctatus, show how it is possible for this insect to lay its eggs in wood or in plant tissue. The capsid bugs of Apple and Black Currant, etc., have similar egg-laying apparatus with which they may deposit their eggs beneath the rind of shoots and branches (see *The Gardeners' Chronicle*, June 2, pp. 399-400). A pair of scimitar-shaped blades (C), work inside a sheath (B) formed by a pair of "saws" fused together along their hind margins from the base to the beginning of the serrations. When at rest, the whole ovipositor lies in a sheath on the underside of the abdomen.

We have recently observed a capsid bug, closely allied to the Black Currant and Apple capsid bug, Lygus pabulinus, L., damaging Hops in the Rainham district in Kent. It seems reasonable to suggest that this capsid, Lygus spinolae Mey, may lay eggs in Hop poles. The bug was present in certain Hop gardens last year, and possibly in previous years, and this year's infestation, therefore, may be derived from eggs laid in the Hop poles last year. The Hop bine is cut out and destroyed in October, and unless an alternative host plant exists, there is nothing but Hop poles in which the bugs may oviposit. It is just possible, of course, that this species overwinters as an adult, as is the case with Lygus pratensis, L. Incidentally, there appears to be no previous record of this capsid attacking Hops.

Since the Potato capsid and apparently certain other capsid bugs may lay eggs in wooden posts, is it not possible that other capsids of greater economic importance may do likewise? It remains to be seen whether this habit of Calocoris is of general, or merely occasional occurrence. We would be pleased to hear from any others who may have made similar observations. *A. M. Massee, F.E.S., and W. Steer, B.A., Dip. Hort. (Camb.), East Malling Research Station, Kent.*

INVESTIGATIONS ON INTERVARIETAL DIFFERENCES OF A CHEMICAL NATURE IN THE MATURE POTATO TUBER.*

(*Concluded from p.* 133).

(C).—The Blackening of Potato Tissue and the Tyrosinase Reaction.

(1).—The Blackening of Potato Tissue.

When a Potato tuber is cut and allowed to lie exposed to the air for some time, the cut surface gradually reddens; later the red colour disappears and is replaced by black. These reactions are due to the oxidation of a substance, tyrosine, through the agency of an enzyme, tyrosinase. The production of the red colour requires the presence of the enzyme, and takes place only in the presence of oxygen. The red substance changes spontaneously into a colourless substance, and this latter is finally oxidised to form melanin, which gives rise to the black coloration. The last two processes do not require the presence of the enzyme, but may be accelerated by it or by other oxidases present in the Potato juice.

All Potato varieties do not blacken to the same extent when the cut surfaces are exposed, hence varieties may be grouped according to the intensity of the colour produced.

Method.—The temperature and hydrogen-ion concentration of the medium have a marked influence on the formation of the black coloration. Potato tyrosinase acts on tyrosine between p.H.5. and p.H.10. In neutral and acid medium the main product is the red substance during the first few hours, but in alkaline medium the production of melanin is hastened and the black colour rapidly develops, the preliminary reddening not being very marked.

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* By T. P. McIntosh, B.Sc., reproduced by permission from *The Scottish Journal of Agriculture*, July, 1928.

The following system was therefore adopted in these tests, viz.—(*a*) transverse slices were cut with a stainless-steel knife from the middle of the long axis of the tubers, and the surfaces of these slices were lightly scratched with a silver fruit-fork in order to expose more tissue; (*b*) these slices were immersed in a solution of sodium carbonate (p.H. 8·3) for about thirty seconds; and (*c*) the slices were placed in petri dishes and incubated at 37°C. for thirty minutes in a moist incubator, care being taken not to use up the oxygen supply by incubating too many samples at once. It was found that the blackening continued for some time after removal of the slices from the incubator. Table III gives the results.

Table III.—The Blackening of Potato Tissue.

1. Dark.	2. Intermediate.	3. Faint.
British Queen Katie Glover King George	Abundance Ally Arran Chief Arran Comrade Arran Victory Bishop Eclipse Edzell Blue Field Marshal Great Scot Majestic Puritan Rhoderick Dhu Sharpe's Express Tinwald Perfection Witchhill	Dunottar Castle* Golden Wonder Harbinger Langworthy May Queen President

All varieties were tested six times during the months, December, 1927, and January, 1928, four tubers of each variety being used on each occasion. Thereafter only the varieties in Groups 1 and 3 were compared, eight tests being made during the months of February and March, 1928, five tubers of each variety being used on each occasion.

With the exception of slight differences in degree of varieties in the intermediate group, the results were consistent. Towards the end of the storage period there appeared to be a slight diminution in the amount of melanin formed, but the individual varieties still retained their relative positions.

It was found also that these differences may be correlated with the intensity of the reddening on the cut Potato surface. This latter action, however, is slower, and does not give such clearly defined results as that under consideration.

Application of the Test.

The blackening of Potato tissue by the method described and also the reddening of the tissue exposed to the open air, may be used to separate stocks of the varieties of Group 1 from those of Group 3. The method has no value for the detection of rogues, but it provides useful evidence of the identity of a variety, the information given in Group 3 being especially valuable. In making such tests it is desirable to use a control of the Group 1 variety.

(2)—The Tyrosinase Reaction

As previously noted, the red colour which forms on cut Potato slices is due to the oxidation of the substance tyrosine, by an enzyme. Para-cresol is similar in its chemical constitution to tyrosine, hence it was to be expected that it also would be oxidised by the enzyme. Para-cresol has therefore been used in tests on a large number of tubers.

Method.—Slices of Potato tubers were cut as before, and to the surfaces were applied, either by a dropper or small brush, a few drops of a ·2 per cent. solution of para-cresol. The tests were carried out in a laboratory where the average daily temperature was 40°F. The red coloration which develops appears in about ten minutes, and during these tests readings were taken at the end of fifteen minutes. If the slices be left longer the colour differences become less pronounced. Table IV gives the results.

Table IV.—The Tyrosinase Test.

1. Red.	2. Intermediate.	3. Pale Pink.
Bishop British Queen* Crusader Edzell Blue Katie Glover King George* President	Abundance Ally Arran Chief Eclipse Great Scot Harbinger Majestic May Queen Sharpe's Express Up-to-date	Arran Victory. Dunottar Castle. King Edward*

These tests were begun in February and continued through March without any appreciable variation being noticed.

Application of the Test.

As in other tests, the reaction of any variety fluctuates about a mean, and varieties have been placed into three groups. Stocks of the members of Groups 1 and 3 can be compared with certainty.

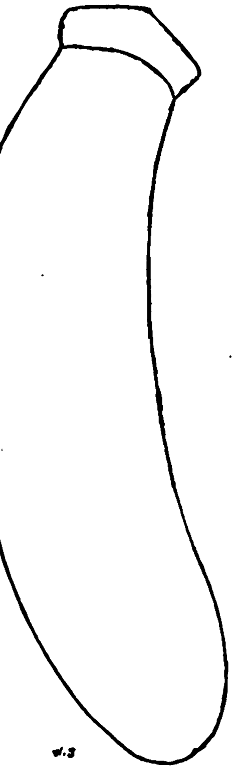

FIG. 66.—EGG OF CALOCORIS BIPUNCTATUS (×about 41). (see p. 154.)

The range of variation of the individual varieties is greater, however, in this test than in the alkali or oxidase tests, and occasionally lighter-coloured tubers are found in Group 1. Deep red tubers, however, have not been found in any Group 3 variety, hence the occurrence of such a tuber in a variety of that group may be taken as evidence of an impurity. Here again, all tables provide useful information concerning the identity of varieties.

(D).—The Nicotine Test.

Advantage has been taken of the destructive effects of alkaloids on vegetable tissue. When sections, cut as in the previous experiments, are steeped for two minutes in a 20 per cent. solution of nicotine and then exposed to the air, the results are not always the same; the cortex, or band of tissue next the skin, of some varieties turns gradually brown, and in about thirty minutes black, while that of other varieties appears to be quite unaffected. The blackening may be regarded as due to the action of the liberated enzymes, and in those varieties where no colouring appears, it may be assumed that the destruction of tissue has been slight. Further investigations however, will be necessary before the full details of the reaction can be elucidated.

Unfortunately, the fact that different reactions existed was only realized late in April when the writer's stocks were almost exhausted. Nevertheless, sufficient observations are believed to have been made to determine that some varieties may be differentiated by this method.

Further trials will be necessary to ascertain whether or not the results are constant throughout the storage season.

Negative Results.

The following tests have failed to reveal substantial intervarietal differences:—

1. For tyrosine. (Millon's Reagent).
2. The reducing power of tissues. (Methylene Blue).
3. Oxidising agents.
4. Reducing agents.
5. Common acids in various degrees of concentration.
6. Hydrogen-ion concentration of the cell-sap.

With regard to the last-mentioned, (6), it is interesting to note that (*a*) the heel ends of tubers are generally less acid than the remaining tissue; (*b*) the majority of Potato varieties give acid reactions, but some, *e.g.*, King George, are outstanding because they produce a high percentage of neutral, or nearly neutral tubers; and (*c*) the reaction of the tuber appears to depend to some extent on the environment in which the tubers were grown.

Conclusion.

The tests enumerated afford useful and simple means for differentiating the tubers of many Potato varieties. However, the investigations described may be regarded as preliminary in nature and the reactions to the various chemicals of many more varieties will require to be determined. On the other hand, sufficient information has been obtained to warrant the assumption that perhaps more might be done in differentiating varieties by chemical means. In consequence it is proposed to continue and extend these investigations.

Acknowledgment.

The writer is much indebted to Dr. W. T. H. Williamson, Edinburgh and East of Scotland College of Agriculture, for advice on chemical matters and to the following firm and persons for duplicating tests.—(1) Messrs. Sutton and Son, Reading; (2) W. M. Findlay, Aberdeen and North of Scotland College of Agriculture; (3) J. W. Hall, Edinburgh and East of Scotland College of Agriculture; (4) A. W. McAlister, Dumfries; and (5) H.-L. de Vilmorin, Paris.

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante. pp. 112-118.)

(Continued from p. 136).

ENGLAND, E.

Essex.—The fruit crop generally is very satisfactory. Apples are abundant, but a large number are now dropping which, in the circumstances, is an advantage. Pear trees flowered profusely, but no doubt were affected by the late frosts. By the same influence Plums are very thin, but Damsons are very abundant. The majority of wall Peach trees are carrying a medium crop, but some sorts have scarcely any fruits. Apricots are thin but good. Bush fruits have been particularly good. Currants, both Black and Red, are good, and Raspberries are abundant. I am pleased to say I have been more successful with Strawberries this season than for many years past, and I am hoping that with the method of cultivation now practised I have to a great extent conquered much of the difficulty experienced in previous years. Our soil is a stiff, yellow clay overlaid with a few inches of strong loam, and may only be cultivated successfully under suitable climatic conditions. *Arthur Bullock, Copped Hall Gardens, Epping.*

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* Included in trials since February only.

* Almost intermediate.

Essex.—All bush fruits were greatly damaged by frosts. Strawberries also suffered severely, the crop being reduced to quite one-third, for until the frost destroyed the blooms there were signs of very heavy crops. *Charles A. Heath, Morleys, Great Hallingbury, Bishops Stortford.*

——The fruit crops in general are fairly good, in spite of the very severe frosts experienced during late April and May. The Cherries, Pears and Strawberries suffered most. The soil of this district is heavy, overlying clay. *John Dewhurst, Gilston Park Gardens, Harlow.*

——The soil contains a considerable percentage of boulder and London clay. The cold winds of early summer were very trying for fruit trees, and the recent drought has also been serious. Scab and American blight are rampant on Apple trees, and aphis attacks are widespread, in spite of the use of tar-oil washes. *C. Wakely, East Anglian Institute, Chelmsford.*

Huntingdonshire.—Except in sunny, open positions, Apple trees failed to flower, due, I think, to the fact that the wood did not ripen thoroughly last autumn. Pear trees are carrying a good crop of clean, well-formed fruits. Apricots, Peaches and Plums blossomed profusely, but three consecutive nights of frost, of 8°, 9° and 10°, respectively, destroyed the prospects of crops completely. I cannot remember a more disastrous season for stone fruits. Small fruits of all kinds are very good, and Strawberries have never been better. *Guy S. Aubertin, Conington Castle Gardens, Peterborough.*

Lincolnshire.—Taking everything into consideration, the fruit crops are very satisfactory. The earlier varieties of Apples seem to have set their fruits better than the later ones, perhaps owing to a few late frosts which occurred. Strawberries have done very well, the outstanding variety being The Duke. The crops of Black and Red Currants, also Gooseberries, are everything one could wish. Pears are of good quality, but not plentiful, and Plums promise to be a good crop, especially Victorias. *A. E. Jackson, Normanby Park Gardens, Scunthorpe.*

——The poorness of the fruit crop is due to the continual cold weather experienced here, no less than fifty-four records having been made of temperatures below 32° since the beginning of the year. *J. F. Vinden, Harlaxton Manor Gardens, Grantham.*

Norfolk.—All fruit trees, and also bush fruits, are carrying good crops which, after such a bad growth-ripening year as 1927, is very satisfactory. Owing to the heavy rains which occurred during May and early June, the fruit trees in general are clean and free from insect pests. The local soil is very light, with a gravel subsoil. *Isaiah Johnson, Catton House Gardens, Norwich.*

Suffolk.—At the time of writing we are experiencing a drought, with very high temperatures, which is causing a good many Apples to fall prematurely. All fruit crops are good in this district, with the exception of Black Currants. Gooseberries and Raspberries have been exceptionally plentiful. *A. E. Sales, Flixton Hall Gardens, Bungay.*

(*To be continued*).

HOME CORRESPONDENCE.

Lilium Martagon album.—We have received the following letter from a correspondent:—"Mr. Clarence Elliott, who writes so enthusiastically about this lovely Lily, will no doubt find that the beautiful specimens shown in his photograph (Fig. 45, p. 106) will begin to go back once they have reached their optimum. This variety has not the constitution of the common Martagon Lily, and over and over again, while the latter will cling to life in the most unlikely places, the white form is seen to be far less permanent. I have many photographs of fine colonies of it which fell away to ghostly proportions within a few years of the taking of the photographs."

SOCIETIES.

SHROPSHIRE HORTICULTURAL.

August 15 and 16.—The Shrewsbury Floral Fête was held, as usual, in the Quarry, "where every prospect pleases." The venue is so well-known that the Committee consider any mention of it as unnecessary in the *Schedule*. The exhibition thoroughly maintains its reputation and the Committee keeps abreast of the times in regard to the variety of classes scheduled, and the time of judging and opening of the show. The Quarry and the Dingle were looking their best on the above dates, and crowds of visitors were admitted punctually at 10.30 a.m. on August 15, by which hour the judging was concluded, and all the awards, save some of those made to non-competitive displays, were in position.

The big group classes were once again a great attraction, and Sir G. H. KENRICK was a particularly successful competitor. The groups of hardy flowers and of Gladioli were splendid, while Sweet Peas, fruits, and vegetables were all of a high standard of merit.

The non-competitive displays contributed greatly to the effectiveness and success of the show, and although there were fewer of outstanding merit than usual, the general standard of excellence was good. Limits of space do not allow a detailed account of these exhibits, but a few merit special mention, notably the superb display of vegetables contributed by the Hon. VICARY GIBBS (gr. Mr. E. Beckett V.M.H.), Aldenham House, Elstree, to which the President's Prize—a special trophy valued at thirty guineas—was awarded, as it was the best exhibit in the show. Five special trophies offered for non-competitive exhibits were awarded respectively to THE KING'S ACRE NURSERIES, for a grand group of well-cropped fruit trees in pots, early-flowering Chrysanthemums and Roses; Messrs. BAKERS, Wolverhampton, for a formal garden, a display of Phloxes, and a beautiful set of floral designs; Mr. W. J. UNWIN, Histon, for an extensive and finely arranged exhibit of well-grown Gladioli; Messrs. DOBBIE AND CO., for Sweet Peas in excellent condition for the time of year, and a grand lot of Dahlias; and to Messrs. DICKSON AND ROBINSON, Manchester, for a display of first-rate Dahlias and some capital fruits and vegetables.

On the eve of the show the large contingent of judges, together with the leading exhibitors, were invited to a reception by the President, Chairman and Committee, and as this is the third successive occasion on which a reception has been held, it may be regarded as a permanent institution.

Groups.

The fifty-guinea Challenge Cup and £45, offered as first prize for a group of flowering and foliage plants, arranged for effect on a space of three hundred square feet, was awarded to Sir G. H. KENRICK (gr. Mr. J. Macdonald), Whetstone, Edgbaston, Birmingham, for a very bright and tasteful display in which brilliantly coloured Codiaeums, fine Humeas, Cattleyas, Dendrobiums, Oncidiums, Ixoras, Francoa ramosa, Palms and Ferns, were pleasingly and artistically associated; second, Messrs. JAMES CYPHER AND SONS, who used graceful Fuchsias, Francoa, Liliums, Humeas and finely-coloured Codiaeums with great skill; third, Mr. W. R. MANNING; fourth, Mr. T. M. PETCH.

In the class for a group of foliage plants only, an outstanding feature was the brilliant colouring of the Codiaeums used by the various competitors. The premier award was made in favour of Sir G. H. KENRICK, whose Selaginellas and Nandina domestica were of fine colour; second, Mr. W. R. MANNING; third, Messrs. JAMES CYPHER AND SONS; fourth, J. A. ROY, Esq. (gr. Mr. A. Falconer), Cheadle.

The best group of one kind of flowering plant consisted of Campanula pyramidalis, shown by Sir G. H. KENRICK; second, A. M. BARBER, Esq. (gr. Mr. T. A. Bremell), Wellington, who showed Liliums, chiefly L. speciosum, L. auratum and L. Henryi.

H. FIELDING, Esq., Marshbank, staged the best group of Begonias, and this included many capital plants of excellent varieties; second, A. M. BARBER, Esq. The premier exhibit of flowering and foliage plants was tastefully arranged by a Shropshire exhibitor, A. M. BARBER, Esq., whose display included Anthuriums, Humeas, Cypripediums, Odontoglossums, Celosias, Liliums, Statice, Palms and Ferns.

Only one exhibitor came forward in the class for a group of Orchids arranged on a space sixteen feet by four feet, and this was J. MCCARTNEY, Esq. (gr. Mr. C. Potts), Bolton, who was awarded the first prize for his handsome contribution, in which Vanda coerulea, V. suavis, Cattleya Hardyana, Odontioda Dovere, Miltonia Hyeana and Cypripedium Lord Derby were all conspicuously good.

Hardy Flowers.

Hardy flowers were once again a very fine feature of the show, and although competition was not so keen as we have seen it in the big class for an arrangement on a space of 250 square feet, it was, nevertheless, good. The Trophy and first prize was won by Messrs. BEES, LTD., with a magnificent group of splendidly-grown flowers arranged in bold and artistic fashion. Especially meritorious were the huge sheaves of Hollyhocks, with long stems clothed with fine flowers and good foliage; Gladioli in variety; Lilium auratum and L. speciosum, Kniphofias, Scabious, Crinum Powellii and Agapanthus umbellatus; second, Messrs. G. GIBSON AND CO., whose Gladioli, Kniphofias, Phloxes and Poppies were shown in splendid condition.

Messrs. BEES, LTD., were also first prize winners in the class for a group of Lilies and other bulbous flowers, with an attractive display, wherein figured Lilium auratum, L. speciosum, L. Henryi, Galtonia candicans and Allium sphaerocephalum, all finely grown; second, Messrs. M. PRICHARD AND SON, who had Crinum Powellii and Lilium auratum in good condition.

Messrs. BOWELL AND SKARRATT secured the first prize for a group of aquatic and bog plants, arranged in a space of twelve feet by eight feet—much too small for such a feature; a pool of Water Lilies was the principal feature, and this was surrounded by Bamboos and Reeds; second, Mr. P. GARDNER, Ilkley.

Messrs. BEES, LTD., had the best collection of hardy cut flowers of one kind, and showed Gladioli of high quality, filling a space of about sixty square feet. The finest examples were of Thomas Edison, Flaming Sword, Yvonne and White Giant; Messrs. M. PRICHARD AND SON, second.

Mr. A. D. PITCAIRN CAMPBELL, Bangor-on-Dee, showed the best set of twelve varieties of herbaceous Phloxes; second, Mr. T. W. SMALLWOOD, Ford.

Hardy and half-hardy annuals are invariably interesting when well-grown and carefully arranged, and in the class provided for them (one hundred square feet allowed, and Sweet Peas excluded), Mr. H. CLARK, Taunton, led with a bright display that included Clarkias, Nemesias, Chrysanthemums, Godetias, Zinnias, Eschscholzias, Salpiglossis, Linarias, Marigolds, Jacobaeas, Larkspurs and Mallows; second, Mr. E. J. BAYLEY, Shrewsbury.

Carnations and Sweet Peas.

With a very bold and handsome display, Messrs. C. ENGELMANN, LTD., won the premier award for a large group of perpetual-flowering Carnations, the collection being arranged on a space eighteen feet by five feet, and not more than eight feet high. There were huge masses of Laddie, Blonde, Brilliant, Topsy, Circe Improved and other useful sorts.

For a smaller group of Carnations, Mr. CHARLES WALL secured the first prize with a charming exhibit in which Sheila Greer was very well shown. Mr. WALL was equally successful in a class for six vases of Carnations, distinct, twelve blooms in a vase, with good examples of Topsy, Mr. Gerrish, Laddie, Red Laddie and White Pearl. Mr. C. WHITE, Walsall, led for a collection of border Carnations, followed by Mr. **Matthew Campbell**.

Four large tables of Sweet Peas made a great display in the cut flower tent. In this class the schedule required a display facing all ways, and arranged on a table space twelve feet by six feet, the limit of height being five feet from the table level. The principal award was won by Mr. **A. Leigh**, Tittenden, with good blooms of Mammoth, Youth, What Joy, Mrs. A. Searles, Olympia, Ivory Picture and other useful varieties; second, Messrs. **Herd Brothers**, Penrith; third, Mr. **W. Weaver**, Mold.

Mr. **Allington Hughes**, Gresford, had the best dozen bunches of Sweet Peas, and some of his best sorts were Magnet, Grenadier, Youth, Model, What Joy, Royal Mauve and Powerscourt; second, Mr. **Challinor**, Balterley. Mr. **Richards**, Denbigh, led for six vases of Sweet Peas.

Gladioli and Dahlias.

In the principal open class for large-flowered Gladioli, effective arrangement was required and and a space fifteen feet by four feet allowed. Competition was keen, and the premier prize was won by Messrs. **George Mair and Sons**, who had a superb exhibit of magnificent spikes of beautiful varieties, every spike carrying a large number of fully expanded, shapely flowers; Comrade, King George, Guy Mannering, Berty Snow, Gloriosa and Mabel were a few particularly attractive sorts, but some unnamed seedlings gave promise of further advances in lovely colour combinations—gold, softly shading to vivid scarlet, was an example. The second prize was won by Mr. **Watkins Samuel**, who had giant Nymph in grand form; third, Messrs. **Clement Dally and Co.**, Kidderminster.

Primulinus Gladioli, arranged on a space eight feet by four feet, made a handsome display, and the premier collection in this class was staged by Mr. **Watkins Samuel**, Wrexham, whose examples of White Lady and E. B. Williamson were very fine; second, Mr. **J. R. Sands**, Wem.

The Shropshire Amateurs' Class for half-a-dozen vases of Gladioli of the primulinus type, brought out some good exhibits. Especially fine was that by Mr. **T. Hollingshead**, whose fine spikes of good varieties were, unfortunately, not named. The same exhibitor excelled in the county class for six vases of large-flowered Gladioli, but here, again, the educational value of the class was lost on visitors, as the varieties were not named.

Some fine Dahlias were shown by Messrs. **W. Treseder, Ltd.**, Cardiff, in their first prize display arranged on a space five feet wide, with a twenty feet frontage. Emblem, The Prince, Mabel Lawrence, Gold Rose and Glory of Nygkerk were a few notable sorts in this well-arranged display; second, Mr. **E. Clegg**, Dewsbury.

The best collection of Cactus Dahlias, arranged on a ground space of twelve feet by five feet, was arranged by Messrs. **W. Treseder, Ltd.**, Cardiff. Wiring was not allowed. Some of the finest flowers were those of Pierrot, Andre Hofer, Flora Treseder and Mrs. Judd.

Roses.

In the open champion class for Roses, the competitors were required to fill a space twenty feet by four feet, with eight feet as the limit of height. There was good competition, and the whole display was extremely beautiful and effective. Messrs. **Gunn and Sons**, Olton, obtained the premier award of £20 with a handsome group of capital flowers arranged in baskets and pillars; the central basket of Lady Inchiquin was greatly admired, as also were the massed blooms of Souvenir de Claudius Pernet, Gwyneth Jones, Los Angeles and W. F. Dreer; second, Messrs. **Bees, Ltd.**, whose outstanding varieties included J. E. Thornton, Marcia Stanhope and Los Angeles; third, Mr. **T. Robinson**, who had Mabel Morse, Emma Wright and Betty Uprichard in good form.

Messrs. **Gunn and Sons** secured first prize in the class for eighteen vases of as many distinct varieties of decorative Roses, and their beautiful exhibit contained a very fine vase of the attractive Elvira Aramayo; second, Messrs. **Wheatcroft Bros.**, whose outstanding vase was of Betty Uprichard.

Floral Designs.

This section did not appear to be quite so extensive as usual, but perhaps this was because the exhibits were in the cut flower tent and did not make such an imposing display as in the principal and spacious tent where the gangways are wider.

Mr. **R. Adshead** excelled for three bouquets and Mr. **C. Vickers** for a bride's bouquet. Mrs. **J. Nixon** had the best basket of choice flowers, and Miss **Newsham** the best basket of flowers (Orchids and greenhouse flowers excluded).

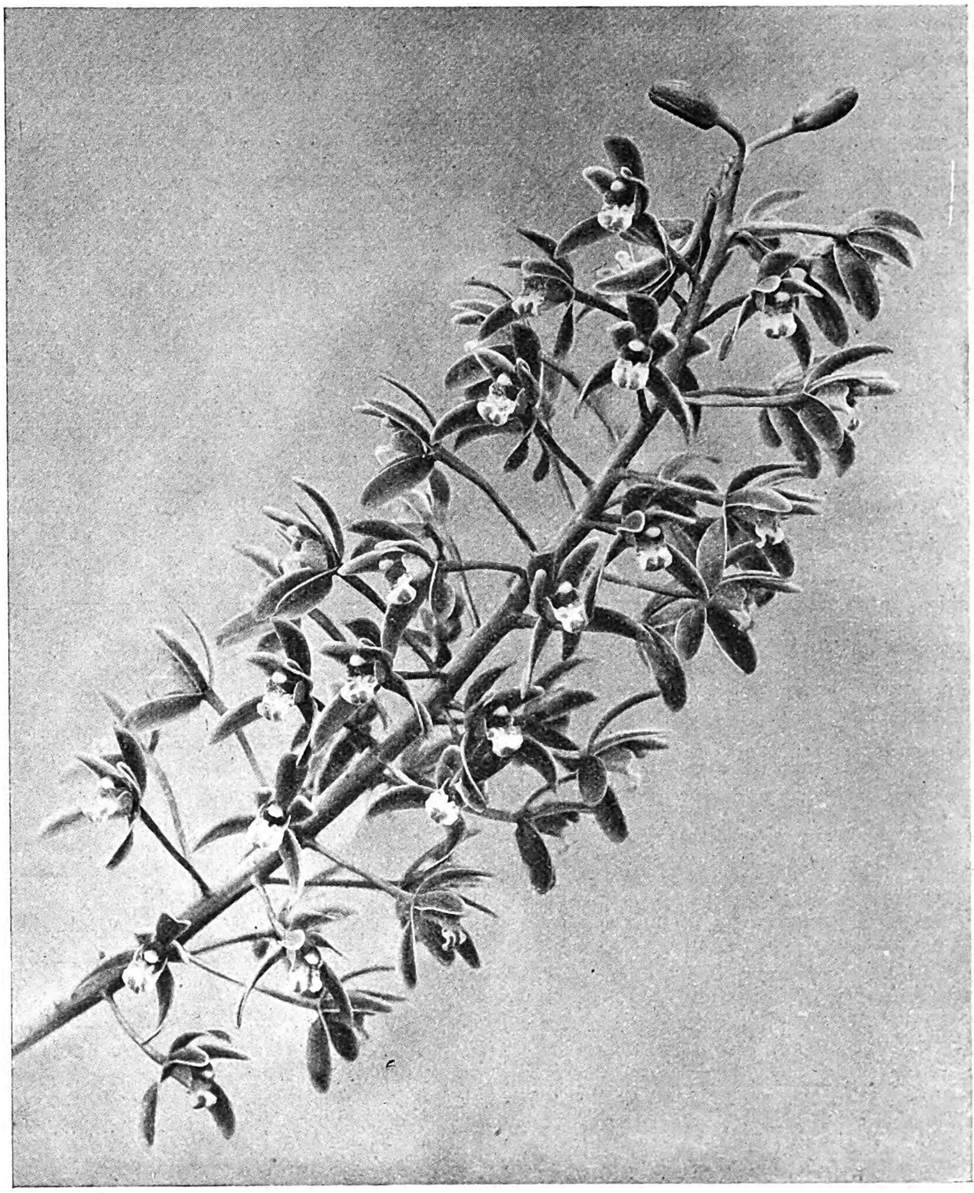

FIG. 67.—CYMBIDIUM SAUVISSIMUM.

R.H.S. Award of Merit, August 14. Flowers chocolate, white and yellow. Shown by Messrs. Sanders. (see p. 137).

Dessert Fruits.

The principal class in the fruit section is the one for a decorated table of fruits. The requirements are twenty-four dishes of fruits in not fewer than nine distinct kinds, and the space allowed is twelve feet by four feet. Not more than a dozen bunches of Grapes are allowed, and these must consist of not fewer than four varieties. Liberal prizes are offered, the first being £30, and this was won by Lady **Curzon Herrick** (gr. Mr. J. McBean), Beau Manor, Loughborough, who showed Muscat of Alexandria and Black Hamburgh Grapes, Williams's Bon Chrêtien Pears, Reine Claude de Bavay Plums, Brown Turkey Figs, James Grieve and Cox's Orange Pippin Apples, Peaches, Nectarines and Melons, the whole decorated with red Carnations.

Lord Belper (gr. Mr. J. McCartney), Kingston Hall, failed to comply with the schedule requirements, but in what respect we did not discover as the crowd of visitors and the enclosing wire-netting prevented a close inspection. However, the judges appeared to have dealt kindly with the exhibitor, and having dealt out justice by notifying on the class card the non-compliance with the schedule, they showed mercy by awarding a "special" second prize, of which—notwithstanding some infringement of regulations—the exhibit was worthy.

Lady Juliet Duff (gr. Mr. H. Weaver), Kingston Hill, Surrey, gained the first prize for a collection of twelve dishes of dessert fruits, with a goodly selection of well grown specimens that included Muscat of Alexandria and Madresfield Court Grapes, Brown Turkey Figs, Royal George Peaches and Lady Sudeley Apples; second, Messrs. **J. Webb and Sons**; third, Col. **Heywood Lonsdale**; fourth, Captain **H. E. de Trafford** (gr. Mr. Watkins), Newsell's Park, Royston.

For a collection of nine distinct varieties of choice fruits in not fewer than seven kinds, Colonel **Heywood Lonsdale** (gr. Mr. J. Mills), Shavington Hall, won the first prize, with good Muscat of Alexandria Grapes, Melons, Peaches, Nectarines and Plums; second, J. H. Jones, Esq. (gr. Mr. W. R. Catt), Breslingsdale; third, Captain W. W. Hayes (gr. Mr. A. Maddock), Harcourt. This class was open only to residents in Shropshire.

In the Shropshire class for six Peaches, W. J. Kennersley Browne, Esq. (gr. Mr. W. Phillips), Leighton Hall, led with a fine dish of Peregrine Apples, Plums, small fruits, Apricots, Peaches, Pears, Nectarines and Cherries were all shown well and plentifully.

Grapes.

There is no longer the great excitement that attended the displays of Grapes at Shrewsbury in pre-war days, when a crowd of Grape-growing enthusiasts used to surge into the tents, so soon as they were opened, to see who had won the Grape Championship, and by how many points. Nowadays the leading Grape class is for a dozen bunches in four or more distinct varieties, but not more than four bunches of one variety. On this occasion, R. J. Corbett, Esq. (gr. Mr. J. Jones), Towyn, secured the leading honour with good clusters that totalled 91 out of a possible 122 points. The varieties were: Muscat of Alexandria, four bunches, with 7, 7½, 6½ and 6½ points, respectively (maximum 11); Black Hamburgh, four bunches, 8, 9, 8½ and 8½ points (maximum 10); Mrs. Pince, two bunches, 8 and 8 points (maximum 10); and Gros Maroc, two bunches, 7 and 6½ points (maximum 9); total maximum, 122; total points awarded, 91.

The second prize was awarded to Messrs. J. Webber and Sons, Minehead, who secured 83½ points out of a possible 118.

The Earl of Lichfield excelled for two bunches each of white and black Grapes, and was followed by the Earl of Coventry.

The Earl of Coventry (gr. Mr. W. H. Wilson), Croome Court, led for a pair of bunches of Black Hamburgh Grapes, followed by the Earl of Lichfield (gr. Mr. G. Smith), Shugborough Hall. In a similar class open only to residents of Shropshire, J. H. Jones, Esq., was the most successful competitor.

In another class for two bunches of Black Hamburgh Grapes, Messrs. J. Webber and Sons excelled, as they also did for one bunch of this variety.

Colonel Heywood Lonsdale had the best pair of bunches of Muscat of Alexandria Grapes grown in Shropshire, and Messrs. J. Webber and Sons led in the open class for two bunches of white Grapes of any variety other than Muscat of Alexandria. Lady Hall (gr. Mr. C. Price), Abergele, and Lord Colwyn (gr. Mr. W. Owen), Colwyn Bay, were first and second respectively for two bunches of white Muscats.

Vegetables.

Vegetables were very finely shown, and the competition was good in most of the classes for collections, where the prizes were provided by seedsmen.

In Messrs. Sutton and Sons' class, for nine kinds, Mr. T. M. Jones, Llandilo, and A. H. Hickman, Esq. (gr. Mr. F. J. Parker), Kidderminster, were placed first and second, respectively. In Messrs. James Carter and Co.'s class, for nine varieties, J. A. C. Roy, Esq. (gr. Mr. A. Falconer), Cheadle, secured the first prize, and Mr. C. Kitchener, Olney, the second, each showing fine produce.

Messrs. Clibran's prizes were won in order of mention, by Mr. W. Robinson, Mrs. Holland (gr. Mr. H. Watkins), Swansea, and J. A. C. Roy, Esq. Mr. T. M. Jones was the most successful competitor in the class provided by Messrs. Dickson and Robinson, for nine kinds; second, Mr. T. Emmett, Lancaster. In Messrs. J. Peed and Son's class, also for nine kinds, Mr. W. Robinson was placed first and Lord Riddell (gr. Mr. A. Payne), Walton-on-the-Hill, second; while in the class provided by Messrs. E. Webb and Sons, A. H. Hickman, Esq., was first and Mr. F. Jenkins, Aberdare, second.

In the open class for twelve kinds of vegetables, Messrs. Jones and Son, Ammanford, proved unbeatable, and presented splendid Cucumbers, Cauliflowers, Runner Beans, Potatos, Peas, Tomatos, Leeks, wonderfully fine Parsnips, Celery, Carrots and Onions. In the county class for nine kinds, the prizes were awarded, in order of mention, to Captain F. B. Bibby (gr. Mr. J. Clark), Sansome Hall; Colonel Heywood Lonsdale, and Mr. W. H. Jones Clive.

Awards to Non-Competitive Exhibits.

President's Prize.—For the best exhibit in the show: to the Hon. Vicary Gibbs (gr. Mr. Edwin Beckett), Aldenham House, Elstree.

Special Trophies.—To King's Acre Nurseries; Messrs. Bakers; Mr. W. J. Unwin; Messrs. Dobbie and Co.; and to Messrs. Dickson and Robinson.

Large Gold Medals—To Messrs. Allwood Bros., for Carnations and Dianthuses; Messrs. Blackmore and Langdon, for Delphiniums; Mr. H. Clarke, for hardy flowers; Messrs. Fairbairn and Sons, for Phloxes; Messrs. Jarman and Co., for Dahlias, etc.; Messrs. S. McGredy and Son, for Roses; Messrs. J. Peed and Son, for stove and greenhouse plants; Messrs. W. H. Simpson and Sons, for Antirrhinums; Messrs. E. Webb and Sons, for Gladioli, Dahlias, annuals, fruits and vegetables; and to Mr. H. Woolman, for Dahlias.

Gold Medals—To Messers Daniels Bros., for Gladioli, etc.; Messrs. Dicksons, for shrubs and Roses; Messrs. Isaac House and Son, for Scabious, etc.; Mr. Klinkert, for topiary specimens; Messrs. Rich and Co., for hardy flowers; Mr. Walter Taylor, for hardy flowers; Mr. C. Vickers, for floral designs; Captain H. E. de Trafford (gr. Mr. Watkins), Newsell's Park, Royston, for a collection of fifty varieties of Potatos; Mr. W. Wells, Junr., for hardy flowers; and to Messrs. Wheatcroft Bros., for Roses.

Silver-gilt Medals.—To Mr. H. N. Ellison, for Ferns; Messrs. John Forbes, Ltd., for Phloxes and Pentstemons; Messrs. Hewitt and Co., for hardy flowers; Messrs. Jones Brothers, for Dahlias; Mr. John Jones (Wem), for Gladioli and Violas; Messrs. J. E. Knight and Sons, for hardy flowers; Messrs. Stuart Low and Co., for Orchids; Mr. Sydney Smith, for Cacti; Miss S. Thompson, for Cacti; Mr. E. Murrell, for Roses; and to Messrs. Prichard and Sons, for hardy flowers.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at Salford Flower Show on Saturday, August 4, the members of Committee present were: Mr. J. B. Adamson, Mr. A. Burns, Mr. B. Collins, Mr. A. Coningsby, Mr. A. Keeling, Mr. D. McLeod and Mr. H. Arthur, Secretary.

First Class Certificates.

Cattleya Eleanore alba var. Victory, a variety with pure white sepals and petals, a large Tyrian-purple lip and sulphur-yellow throat; *Sophronitis grandiflora, Adamson's var.*, with very fine flowers three inches across, the petals being nearly one-and-a-half inch wide. From J. B. Adamson, Esq.

Brasso-Laelio-Cattleya Alfred Mollet (*B.-L.-C. Norma* × *C. Hardyana*), a good flower with buff sepals and salmon-rose petals; lip fringed crimson, shading to rose, yellow lines in the throat. From Messrs. A. J. Keeling and Sons.

Awards of Merit.

Cattleya triumphans Rex (*C. Rex* × *C. aurea*); *Miltonia Mona regalis* (*M. St. André* × *M. Reine Elizabeth*); and *Miltonia vexillaria Hercules*. All from Messrs. A. J. Keeling and Sons.

Botanical Certificate.

Epidendrum (Cymbidium ?) ensifolium.—From J. B. Adamson, Esq.

Groups.

J. B. Adamson, Esq. (gr. Mr. J. Howes), Blackpool, staged a group to which a Gold Medal was awarded; it included Cattleya Eleanore alba var. Victory, C. Vesta var. Madonna, C. Hardyana Royal Crimson; Laelio-Cattleya Profusion, L.-C. Hassallii alba; Odontoglossum Lilian magnificum and O. Matador var. Ruby; Odontioda Laura; Miltonia Bleuana grandiflora, M. G. D. Owen, and M. Mona; Cypripedium Earl of Chester, C. Albion, C. Curtisii Sanderae, C. Maudiae magnificum, C. Lawrenceeanum Hyeanum, C. callosum Sanderae and C. Mrs. D. S. Brown. There were also good examples of Epidendrum (Cymbidium) ensifolium, Sophronitis grandiflora Adamson's var., and Oncidium flexuosum.

Messrs. A. J. Keeling and Sons, Bradford, were also awarded a Gold Medal for a group containing Cattleya Eleanore alba, C. Lorna and C. triumphans Rex; Brasso-Cattleya Alfred Mollet; Odontoglossum Jasper regalis, O. promerens and O. Faustina; Odontioda Purple Splendour and O. Red Monarch; Cypripedium glaucophyllum, C. Faith Hanbury, C. Curtisii Sanderae, C. Maudiae magnificum, and C. Rossetti Goliath; and Miltonia Mona regalis, M. F. M. Ogilvie, M. Gloriosa and M. Hercules; together with Selenipedium cardinale and Oncidiums in variety.

Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), staged Oncidioda Bruceiae, Cypripedium Astarte, Lycaste tricolor albens, and the rare Cattleya Canary, one of the citrina hybrids. The Hon. G. E. Vestey, Birkdale (gr. Mr. B. Collins), showed Cattleya Hardyana alba and Odiontioda Vuylstekeae.

The *Daily Dispatch* Silver Challenge Cup for the best exhibit throughout the show, was awarded to the exhibit staged by Messrs. A. J. Keeling and Sons.

SALFORD FLOWER SHOW.

This show, held at Peel Park, on August 4 and 6, surpassed any previously held in Salford, both in the variety and the quality of the numerous exhibits. The three-hundred-and-thirty-nine classes were fairly well filled and in most instances competition was keen. The Manchester and North of England Orchid Society, and the Manchester and District Pansy and Viola Society, combined to make the show a great success.

The first prize and Silver Salver Challenge Trophy were won by Messrs. W. J. Garner and Son, Altrincham, for a nicely staged group of stove and greenhouse plants, and they were again successful for Hydrangeas, with some well-coloured specimens of good size. Mr. P. Gardner, Addingham, gained the premier award for large flowered Gladioli, but had to be content with second place in the Primulinus section, Mr. L. Brazendale, Grappenhall, being placed first. Some very attractive exhibits were displayed in Class Eight for model rock gardens, that arranged by Mr. P. Gardner, Addingham, being the best; Mr. William Sharp, Withington, was second; and Messrs. A. and J. Clapham, Stockport, third. Mr. C. W. Holt's non-competitive exhibit was very fine, featuring a new hybrid Primula La Lorraine.

Sweet Peas were a feature of the show and of such exceptionally high standard that the judges must have been perplexed. Mr. W. Scott, Styal, was first with really good examples of Royal Mauve, Elegance, Charming, Ivory Picture and Mrs. A. Searles. Mr. W. Weaver, Mold, was a good second, with good quality blooms of Royal Mauve, Elegance, Charming, Powerscourt and Hebe. Messrs. T. Wadsworth and Son, Bishop Wilton, took third place. Mr. A. Carr, Utley, was first in the class for a collection of cut flowers, with a good variety of fine blooms. Messrs. W. J. Garner and Son, Altrincham, gained the first prize for a group of hardy trees and shrubs; and Mr. W. Sharp staged the best group of aquatic plants.

Phloxes, Heleniums and Centaureas were well shown in the first prize-winning group of herbaceous perennials staged by Mr. P. Gardner, Addingham. Roses were admirably staged, and a very popular feature. Messrs. W. J. Garner and Son taking the first prize and a Gold Medal, their finest blooms being of Fisher Holmes, Mrs. Henry Morse, Shot Silk, Ophelia and Golden Emblem. Mr. G. Marriott was placed second, with noticeable examples of Perfume, Madame Butterfly, George Dickson, Los Angeles and Betty Uprichard.

Nearly half of one large marquee was devoted to table decorations, and here again the judges must have had food for thought. Mrs. J. Nixon, Alderley Edge, was placed first, closely followed by Dr. J. A. C. Roy, Cheadle.

The Pansy and Viola classes were well filled, the Rev. W. Rathbone, Burnley, gaining the premier award for an artistically arranged display. Mr. J. Smith, Cleator Moor, Mr. R. Leslie, Whitehaven, and Mr. A. W. Upton, Sheffield, were prominent among the prize winners in these sections.

A very fine specimen of Dracaena Queen Victoria gained a first prize as a specimen plant; it was exhibited by Dr. J. A. C. Roy, Cheadle.

The open vegetable classes were well filled, Mr. William Robertson, Forton, receiving the first prize and a Gold Medal for a collection of vegetables. Dr. J. A. C. Roy, Cheadle (gr. Mr. A. Falconer), also gained many awards, including the R.H.S. Silver-gilt Medal. In the amateur classes, Mr. P. Hesford, Pendleton, gained the highest honours, including the R.H.S. Banksian Medal and the Nalgo Cup. Mr. F. W. Cartwright, Pendleton, gained many first prizes, and he also won the Challenge Trophy presented by the Rotary Club of Salford for the best window-box. Mr. B. Ibbotson, Ashton-under-Lyne, gained the R.H.S. Silver-gilt Medal for the highest points in classes 24 to 90.

The non-competitive exhibits were exceptionally fine. A wonderful rock garden with water effect, simple in arrangement but very natural, gained a Large Gold Medal for Messrs. Clapham Brothers. Messrs. J. Peed and Sons, as usual, staged a very fine group of stove and greenhouse plants, including fine Codiaeums, Caladiums, Dracaenas, etc., but their wonderful strain of Streptocarpus was the cynosure of all eyes. Good specimens, admirably staged, were deservedly awarded a Large Gold Medal. The Salford Corporation Parks Department staged a very large group of miscellaneous plants, including very fine Celosias; the group was awarded a Large Gold Medal. Messrs. Bradley Ibbotson, Ashton-under-Lyne, received a Silver Medal for a group of Gladioli, and Messrs. Dickson, Brown and Tait, Manchester, also gained a Silver Medal for Gladioli. A Gold Medal was awarded to Messrs. Baxendale and Co., Manchester, for garden requisites.

BRAMLEY HORTICULTURAL.

Among the many Shows in West Surrey, that at Bramley is admittedly one of the best, and the exhibition held in Bramley Park, the residence of Col. Ricardo on August 8, was quite equal to all former efforts in point of general excellence, although entries were not quite so numerous as last year.

Competition in the vegetable classes was keen, and exhibits of Potatos, in many varieties, were particularly good.

Exhibits of Roses and herbaceous Phloxes were staged by Messrs. Geo. Jackman and Sons, and the group of Roses set up by The Crastock Nurseries contained many excellent specimens. Another exhibit, from The Witley Nurseries, consisting entirely of Carnations, was a fine group, very well staged.

It was, however, in the non-competitive classes that the best exhibits were to be seen. A decorative group from the gardens of T. Pim, Esq., Snowdenham Hall, and staged by Mr. A. J. Joy, gardener, contained fine specimens of Campanula pyramidalis, Dicksonia antarctica, Kentia Palms, Grevilleas, Nephrolepis and Adiantums; Coleus in variety, Fuchsias, Hydrangeas, Celosias, Gloxinias, Streptocarpus, Torenias, Begonias and Vallotas. Another exhibit, from the same gardens, consisted of a circular basket, about four feet across, of choice fruits, including Nectarines Lord Napier, Humbolt, Rivers' Orange and Dryden; Peach Early Mignonne; Early Prolific Plums, Morello Cherries, Gooseberries, etc.

Another very meritorious exhibit, from Sir F. Hall, Grafham Grange (gr. Mr. Saunders), consisted of vegetables, Gourds and fruits in many varieties, the latter consisting of three large Melons, and some ripe Monstera, which upon closer examination revealed a flavour somewhere between that of a Strawberry and Pineapple, or a combination of both.

Obituary.

Charles Curtis.—Early on Thursday of last week, the old Veitchian collector, Mr. Charles Curtis, passed away, at his home, Laurel House, Barnstaple, Devon. About five weeks ago he underwent a severe operation and for a time hopes were entertained of his restoration to health, but these hopes were not fulfilled, and his long life of seventy-five years came to an end close to the Carnations and Sweet Peas, the little collection of Orchids, Streptocarpuses, Meconopsis and other plants he loved so well and tended with so much care during his years of retirement. Mr. Charles Curtis was the youngest of four brothers, all of whom commenced business life as garden lads at Bale's Nursery, North Devon. While quite a young man, equipped with a better education than his brothers, and with the Devon spirit of adventure stirring within him, he came to London and entered Messrs. James Veitch and Sons' nursery at Chelsea. For a few years he worked under the late Mr. John Heal, in the important new plant department, where he became acquainted with many famous plant collectors and studied hard to fit himself for a post as collector. In due time the opportunity came, and his first trip was to Mauritius and Madagascar. This was in 1878, and the trip lasted about a year; Angraecum sesquipedale and Nepenthes madagascariensis were among the plants he sent home on this occasion. *Hortus Veitchii* records that he "was sent in 1880 to Malaysia, where he explored Borneo, Sumatra, Java and the Moluccas, and collected many interesting Stove plants, Palms and Orchids, subsequently sent to Chelsea. The special object of the journey was to collect specimens of Miss North's Pitcher-plant (Nepenthes Northiana), the existence of which had been made known through a drawing by that lady in Borneo, now in the North Gallery at Kew. The precise locality where this plant grew was unknown, but after much search Curtis was successful and introduced it." Thus he became intensely concerned in one of the romances of plant collecting and one that attracted a great deal of attention in those days, when stove plants were cultivated extensively and a new kind was purchased eagerly at a high price. During the expedition to Borneo, Mr. Curtis took with him David Burke—who, later, lost his life while collecting in the eastern tropics—and it was Burke who brought home the large consignments they had collected of Cypripedium Stonei, C. Lowii, Vandas and Rhododendrons. After seeing Burke off at Singapore, Mr. Curtis explored Dutch Borneo, and while there he nearly lost his life and lost a large collection of plants he had discovered. A few of the plants by which Mr. Curtis will be long remembered are Cypripedium Curtisii, Nepenthes Curtisii, Medinella Curtisii, and Rhododendron multicolor Curtisii–the parent of many of the brilliant-coloured warm-house hybrid Rhododendrons. He also sent home, among other plants, the fine Rhododendron Teysmanni and Leea amabilis. His horticultural and botanical collections brought him into close contact with the authorities at Kew, through whom, in 1884, he obtained the appointment of Superintendent of the Botanic Gardens at Penang, a position he filled with great success and held until the end of 1903, when, after the loss of his wife, and following a severe illness, he retired to his native Barnstaple. While at Penang, Mr. Curtis gave ample evidence of his skill as a gardener by making the Botanic Gardens one of the most beautiful in the East. He was a tireless worker, and his story of the discovery of an enormous specimen of Grammatophyllum speciosum (probably the largest "specimen" Orchid in the world) and its transport to a commanding position in the gradens at Penang, affords ample evidence of his energy and tremendous will power. During his occasional "short leaves," he would go on botanical expeditions to some of the Malayan Islands or to Burma. One such expedition, that gave him great delight, was to the Lankawi Islands, where he found many interesting plants. On some of these "holidays" he was accompanied by Mr. H. N. Ridley. The development of the Rubber industry interested him greatly, and experiments he made in Penang with regard to the age—or youth—at which a Para Rubber tree could be tapped with commercial success and without harm to its health or longevity, proved extremely valuable to planters. Further, his advice and experience were always at the disposal of the many young men who then went to the Malays to plant and take charge of Rubber plantations. As collector, botanist and gardener, Mr. Charles Curtis "made good," notwithstanding that he started life with few opportunities, and no advantages other than the will to succeed, an adventurous spirit and a tenacity of purpose that brought him through many difficulties impossible to anticipate. His great regret during the years of retirement was that his health did not permit him to revisit the scenes of his former labours. *C. H. C.*

ANSWERS TO CORRESPONDENTS.

Gladioli Diseased.—*A. H. K.* We should be better able to answer your query if you sent us a complete specimen of a diseased Gladiolus, although from what you say it certainly appears that your plants are suffering from the Gladiolus disease. With regard to Hyacinthus candicans, it would be advisable to remove the flower stems so soon as they have finished flowering unless you require seeds for raising fresh stock.

Names of Plants.—*J. C.* Catalpa bignonioides. —*H. R. D.* Micromeria Douglasii, from north-west America.—*A.E.R.* Trachelium coeruleum.

Plants for New Greenhouse.—*C. E. H.* If you wish to stock your house at once you should, as you suggest, start by purchasing the plants; afterwards you may be able to propagate the subjects which you desire to grow. In addition to the plants you mention, you may grow any of the usual greenhouse plants, as from the list you sent we assume you intend to use the house for greenhouse plants. Among those suitable are Epacris, Boronias, Callistemons, Myrtles, some of the smaller-growing Acacias, such as A. armata, A. longifolia var. mucronata, and A. Drummondii. Rhododendron Lady Alice Fitzwilliam, with white, sweetly-scented flowers, is a very fine subject for a house of moderate size; also Daphne odora (syn. D. indica), but you would do well to secure a catalogue of greenhouse plants from Messrs. Robert Veitch and Sons, Exeter, and make a start with the things you know you would like to grow. You may also grow all the greenhouse Primulas, Cyclamens, Cinerarias, etc., but most of these may be raised from seeds. Clivias are also handsome and useful greenhouse plants, also Richardia (Calla) africana; all the bulbs usually employed for forcing, such as Hyacinths, Tulips and Narcissi, so well as Freesias, Nerines, Lachenalias and Ixias may be included.

Termination of Tenancy.—*Constant Reader.* The land should be cleared before September 29 but with regard to the glasshouse, section 22 of the Agricultural Holdings Act, 1923, provides that the removal by the tenant must take place before or within a reasonable time after, the termination of the tenancy. What is a reasonable time must depend upon the facts of each particular case, such as the nature of the fixture and how it will have to be removed.

Tomatos Diseased.—*Reader.* Your Tomato fruits are undoubtedly attacked by the black rot fungus, Macrosporium Tomato, which gains an entrance to the fruit through punctures or wounds in the skin. Over- or under-watering or over-manuring are likely to cause the fruits to crack and should therefore be guarded against rigidly.

Communications Received.—G.M.—A. H.—H. F. L.—E. G. C.—W. Y. E.—J. P. F.—H. B.—H. S. B.—W. A.—F. J.—K. Y.—H. M.—S. A.—R. E. A.—J. W.—J. M.—F. H.—C. B.—A. E. R.

MARKETS.

COVENT GARDEN, Tuesday, August 21, 1928.

WE cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in the day.—EDS.

Plants in Pot, etc., : Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz. ...	10 0-12 0
—elegans ...	10 0-12 0
Aralia Sieboldii	8 0—9 0
Araucarias, per doz.	30 0-40 0
Asparagus plumosus ...	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistras, green ...	16 0-60 0
Aspleniums, doz.	12 0-18 0
—32's	24 0-30 0
—nidus ...	12 0-15 0
Asters, white and coloured ...	9 0-12 0
Cacti, per tray, 12's, 15's ...	5 0—7 0

	s. d. s. d.
Chrysanthemums per doz. ...	15 0-18 0
Crotons, doz. ...	30 0-45 0
Cyrtomiums ...	10 0-15 0
Ericas, white, 48's. per doz.	— 30 0
— — 60's, per doz.	12 0-15 0
Hydrangeas, white, per doz. ...	24 0-36 0
Nephrolepis in variety ...	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pteris in variety	10 0-15 0
—large, 60's ...	5 0—6 0
—small ...	4 0—5 0
—72's, per tray of 15 ...	2 6—3 0

Cut Flowers, etc. : Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	6 0—8 0
—cuneatum, per doz. bun. ...	4 0—6 0
Asparagus plumosus, per bun., long trails ...	2 6—3 0
—med. sprays	2 0—2 6
short „ ...	— 1 0
—Sprengeri, bun. long sprays...	2 0—2 6
med. „ ...	1 0—1 6
short „ ...	0 6—1 9
Asters, white, per doz. bun. ...	4 0—8 0
—pink, per doz. bun.	4 0—6 0
—mauve, per doz. bun. ...	4 0—8 0
Carnations, per doz. blooms .	1 6—3 6
Chrysanthemums—	
—white, per doz. blooms ...	3 0—6 0
—yellow, per doz. blooms ...	3 0—5 0
—bronze, per doz. bunches ...	9 0-12 0
—bronze, per doz. blooms ...	2 0—2 6
—yellow, per doz. bunches ...	10 0-12 0
—pink, per doz. bunches ...	9 0-10 0
Coreopsis, per doz. bun. ...	1 0—1 6
Cornflowers, blue, per doz. bun.	2 0—2 6
Croton leaves, per doz. ...	1 9—2 6
Daisies, large white, per doz. bun.... ...	2 0—2 6
Ferns, French, per doz. bun.	10 0-12 0
Forget-me-nots, per doz. bun.	8 0—9 0
Gaillardia, per doz. bun. ...	2 0—2 6
Gladiolus, giant varieties, coloured, per doz. spikes ...	2 0—4 0
—primulinus, 6's, per doz. bun.	9 0-12 0
Gypsophila paniculata, double, per doz. bun. ...	15 0-18 0

	s. d. s. d.
Heather, white, per doz. bun.	9 0-10 0
Lily-of-the-Valley, per doz. bun.	18 0-30 0
Lilium longiflorum, long, per bun.	2 0—2 6
— — short, per doz. blooms	2 0—2 6
—speciosum, long, per bun. ...	3 6—4 0
— — — short, per doz. blooms	2 6—3 6
—lancifolium rubrum, long, per doz. ...	3 0—3 6
— — — short, per doz. ...	1 6—2 6
Marigolds, per doz. bun. ...	2 0—3 0
Myrtle, green per doz. bun.	1 6—2 6
Nigella, blue, per doz. bun. ...	8 0—9 0
Orchids, per doz.	
—Cattleyas ...	36 0-48 0
—Cypripediums	10 0-15 0
Roses, per doz. blooms—	
—Mme. Butterfly	1 6—3 0
—Columbia ...	2 6—3 6
—Golden Ophelia	1 6—2 6
—Richmond ...	2 0—3 0
—Aaron Ward	1 0—1 6
—Roselandia ...	1 6—3 0
—Hoosier Beauty	3 0—4 0
—Molly Crawford	1 6—4 0
Scabiosa caucasica, per doz. bun.	4 0—5 0
Smilax, per doz. trails ...	4 6—5 0
Statice sinuata, blue, per doz. bun.... ...	5 0—8 0
— — white, per doz. bun. ...	5 0—8 0
— — pink, per doz. bun. ...	5 0—8 0
— — yellow, per doz. bun. ...	5 0—8 0
Stephanotis, 72 pips	3 0—3 6
Stocks, white, per doz. bun. ...	8 0-12 0
—double white	9 0-12 0
— — mauve, per doz. bun.	6 0—8 0
Sweet Sultan, white, per doz. bun. ...	3 6—4 6
— —mauve, per doz. bun. ...	3 6—4 6

REMARKS.—Cut flowers are now only in moderate demand, a not unusual condition during August. The general supplies are ample for present requirements, and with the exception of Gypsophila and the large-flowered Gladioli from home-grower's prices do not show any improvement on last week's quotations, although large consignments of Gladioli are arriving from Holland, as also are Asters. Chrysanthemums are gradually receiving more attention, especially the disbudded sorts such as Debutante, Duchess and Mercedes, which are now arriving in excellent condition. Spray varieties consist of Dorothy Ashley, Mrs. J. Pearson, Phil Page, Horace Martin and Verona. Roi de Blanc will be greatly welcomed and should be on sale this week. There are no new lines of note to record in this department.

Trade continues to be quiet in the pot plant department. Chrysanthemums and Asters are the main attraction, while a few pots of Solanum are the latest arrivals. There is a good selection of Ferns and Palms of various sizes, also some very fine Codiaeums (Crotons), in forty-eight and sixty-sized pots.

Fruit : Average Wholesale Prices

	s. d. s. d.
Apples, English—	
—Gladstone ...	2 0—4 0
—Beauty of Bath	2 6—7 0
—Worcester Pearmain... ...	2 6-10 0
—Early Victoria. firsts, ½-sieve	2 0—3 0
—Grenadier ...	2 0—4 0
Apples, New Zealand—	
—Sturmer Pippin	8 0-12 0
Apples, Australian—	
—Sturmer Pippin	8 0-10 0
Bananas, per bun.	15 0-25 0
Figs, hothouse, per doz. ...	3 0—9 0
Black Currants, per lb. ...	0 8—1 0
Grapes, English—	
—Muscat, per lb.	2 0—5 0
—Canon Hall Muscat, per lb.	2 0—6 0
—Black Hamburgh, per lb. ...	1 0—2 0
Grape Fruits—	
—Cape... ...	32 6-40 0
—Florida ...	— 45 0

	s. d. s. d.
Greengages, Spanish. ½-sieve ...	13 0-20 0
—French ...	6 0—8 0
Lemons. Messina and Palermo, per case ...	30 0-50 0
Melons, hothouse, each...	1 0—4 0
—Cantaloupe, each ...	1 6—3 0
Nectarines, per doz.	6 0-24 0
Oranges, Cape Navels ...	32 6-35 0
—Jaffa	25 0-32 0
Peaches, hothouse, per doz.	6 0-24 0
Pears, Williams's bon Chretien, 48's	2 6—4 0
—ditto, per crate	9 0-12 0
Pineapples, each	2 0—5 0
Plums, Italian, per tray ...	2 0—4 0
—English, Czar	6 0—7 0
—Victoria, 12 lb. chip	5 0—6 0
—Princess, ½ sieve	6 0—7 0
—Purple Egg, ½ sieve ...	7 0—7 6
Red Currants, per lb. ...	0 5—0 9

Vegetables : Avarage Wholesale Prices.

	s. d. s. d.
Beans—	
—Guernsey, finest, per lb.	0 4—0 6
—French, ½-bush.	6 0—7 0
—Scarlet Runner, per bush. ...	6 0—8 0
—Worthing ...	0 4—0 6
Beet	5 0—6 0
Cabbage, per bag	2 6—3 0
Cucumbers, doz. 36's, 42's, 48's	10 0-14 0
Lettuce, Cabbage, English, doz.	2 0—3 0
—Cos	1 0—3 0
Marrows, outdoor, per tally ...	5 0—7 6

	s. d. s. d.
Mint, per doz. bun. ...	1 6—3 0
Mushrooms—	
—Cups ...	2 0—2 6
—Broilers ...	0 9—1 3
Onions—	
—Egyptian, cwt.	4 0—5 0
Peas, English— per bag ...	7 0-10 0
—flats, special ...	8 0-10 0
Potatos—	
—English, cwt.	6 0—7 0
Tomatos, English. pink	2 6—3 6
— — pink and white ...	2 6—4 3
— — white ...	2 0—2 6
— — blue ...	2 0—2 6
—Guernsey ...	2 0—3 0

REMARKS.—Business has been anything but brisk during the past week, the holiday season being responsible for the slump. At the time of writing we are pleased to report more activity.

English Tomatos in particular have been a poor line, prices touching lower levels than have been reached for some years. In this instance the Dutch Tomatos have probably been the main cause of the low prices. English Apples are plentiful. Large, well-graded culinary sorts and well-coloured Worcester Pearmains and Devonshire Quarrendens have sold fairly well, but medium and small Apples are difficult to dispose of, even at low prices. Plums have been the bright spot, all arrivals of Czars having sold well. Victorias, which are now arriving in large quantities, are also selling freely, and it seems that the Plum season will prove satisfactory from a grower's point of view. Hothouse fruits, such as Grapes, Peaches, Nectarines and Melons, are in moderate demand. Dutch Grapes have been plentiful and cheap. Cucumbers are in heavy supply and the poor demand has been responsible for rather disappointing prices.

Mushrooms are scarce, both cultivated and field produce, and Peas have fluctuated in value with varying supplies available. Green vegetables maintain steady conditions, but the demand for root crops is poor. The Potato section has ample supplies on offer and prices are lower.

GLASGOW.

Supplies of cut flowers were plentiful last week but the condition of a large proportion of the English-grown blooms was unsatisfactory as they had become heated and soft owing to long railway journeys. Gladioli and Chrysanthemums suffered most and were difficult to dispose of at times. Good quality spikes of Gladioli ranged from 1s. 6d. to 3s. per doz.; while medium grades were worth from 3½d. to 9d. for 6's; and 2d. to 8d. for 3's. Disbudded Chrysanthemums were offered at 2s. per doz.; but good blooms realised the following prices:—White, 1s. 6d. to 2s. per 6's; yellow, 1s. to 1s. 3d.; bronze, 10d. to 1s. 6d. per doz.; and pink, 1s. 6d. to 2s. Carnations fluctuated between 1s. and 1s. 6d.; pink Roses, 1s. 6d. to 2s.; white and red, 1s. to 1s. 6d.; Sweet Peas, 2d. to 5d. per bunch; Calendula, 1d. to 4d.; Statice, 3d. to 1s. for all colours, according to size of bunch; Stocks, 4d.; Asters, 2d. to 4d.; Pompon Dahlias, 6d.; Richardias, 1s. 9d. to 2s. 6d.; Dutch Ferns, 1s. to 1s. 6d.; Marguerites, 2d. to 3d. Smilax 1s. to 1s. 6d. per bunch; trails, 2s. to 2s. 6d.; white Heather, 1s. per bunch; coloured, 4d.

A feature of the fruit market was the abundant daily supplies of Raspberries, which were sold at 5d. to 7d. per lb. Strawberries were cheaper at 5d. to 1s. 2d. per lb., but Black Currants kept steady at 1s. to 1s. 2d. and Red Currants at 4d. to 5½d. Egg Plums were offered at 2d. per lb., but sales were very slow. Bullaces made 4½d. to 5d., and Victoria Plums 6d. to 7½d. Scotch-grown Black Hamburgh Grapes sold at 2s. per lb.; English, 1s. 3d. to 1s. 6d.; Belgian, 1s. to 1s. 2d.; Peaches, 6d. to 1s. each; Cantaloupe Melons, 6d. to 10d. each; imported yellow, 10s. to 11s. for 24's and 36's; red Gooseberries, 2s. chip; green, 3s. per sieve and yellow, 2d. to 3d. per lb. Green Apples made 14s. per bag; American Gravenstein, 17s. per case. South African Oranges declined 2s. per case on previous prices for all counts.

In the vegetable markets prices for Cauliflowers improved to 5s. and 7s. per doz. Lettuce were 1s.; Cucumbers, 5s. to 6s.; Marrows, 5s.; Mushrooms, 2s. 6d. per lb.; and French Beans, 6d.; locally grown, 9d. to 1s.; Tomatos declined to 6d. and 7d. per lb.

GARDENING APPOINTMENTS.

Mr. Thomas W. Wiltshire, formerly Assistant Superintendent of Gardens, Khartoum, as Chief Assistant at the Arboretum, Walsall.

Mr. H. G. King, for many years Gardener to the late Col. R. PEACOCK, at Charters, Ascot, as Gardener to Sir F. Young, Fowley, Liphook, Hants. [Thanks for 2/- for R.G.O.F. Box.—EDS.]

CATALOGUES RECEIVED.

D. G. PURDIE, 6, Waterloo Street, Glasgow, C. 2.—Bulb and Nursery.

DOBBIE AND CO., LTD., Edinburgh.—Bulbs, Roses, Sweet Peas, etc.

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THE
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SUPPLEMENT PLATE:

Laelio-Cattleya Profusion.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 59·1°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, August 29, 10 a.m. Bar. 31. Temp. 66°. Weather, Fine.

The August Garden.

BACON, who wrote on gardens with more tenderness than might have been expected of a Lord Chancellor—albeit in stately manner, might have chosen such a title as that which we have adopted; but in that case the accent would have been on the latter syllable of the adjective. Whereas, *we* would write of the garden in August, and in particular of the flowering shrubs which may be used to diversify the beauty of the garden at this transitive period of the year. In August the borders are gay enough, but it often happens that—with the rock garden past its best, and the earlier blossoming trees and shrubs well finished with flowering, and even when, as in this year, the Roses are continuing in bloom, making up, perhaps, for lost time—there are fewer flowering shrubs in flower in August than there might be. Buddleia variabilis there is, of course, with Red Admiral butterflies on every long, violet truss; but how much more effective this fine plant may be if it has for a background the bright yellow, honey-sweet Spartium junceum, a shrub which, where it lasts at all, lasts for many years, and makes a fine, shapely specimen and stands pruning better than do most of its kind. More graceful—indeed, the most graceful of all the Leguminous tribe—is Genista aetnensis, with its fine dependent foliage and wealth of delicate yellow blooms which this year, at all events, have lasted well into August. There are also, of course, some of the Ceanothuses which produce their blooms in August—for example, C. thyrsiflorus—and from the list must on no account be omitted the wide-spreading, glaucous-leaved, bright yellow Senecio Greyii, and its near ally, but more tender, S. laxifolius; both wonderful shrubs where they do well, liking hard pruning and attractive both when in flower and when not. Neither should Potentilla fruticosa be left out of the list. With leaves of silver and flowers of buttery-yellow, this plant is never weary of well-doing, but goes on flowering freely through July and August. Some day, the curious gardener will make a list of those shrubs whose average flowering period is prolonged. The list will be valuable, for the plant which holds its flowers for weeks deserves gratitude as lasting as its blooms. Spartium junceum, already praised, deserves especial encomium — a month even of sunshine it will endure and remain sweet and fresh. There are many other plants which merit mention—the Canadian Elder with its great flat trusses of white flowers on pink pedicels; the tall Spiraeas, for example, S. Aitchinsonii, and although only attractive because of the promise of bright winter berries, the Berberids, such as Berberis Wilsonae, which, however, seems this year to be attracting all the myriad wasps—and as it may be hoped, keeping those garden pests away from the ripening Plums and Apples. Again, although a very small one, the shrub Hyssopus officinalis var. aristatus deserves mention. It forms a charming edging plant, with deep green foliage and blue flowers. Easy of propagation and tolerant of pruning, it has the merit of being as easy of increase as any weed. Lastly, there are Tamarisks, August-flowering Tamarix hispida, with pink flowers lasting into September, and the more hardy T. pentandra. These plants, associated in the mind with seaside places, grow vigorously and flower freely in heavy soils, and if cut well back make no bare stems at all, but break out right down to the ground level. Needless to say, the list of August-flowering shrubs might be lengthened and if climbers were included, the Clematis and Polygonums would need extended reference; but enough, perhaps, has been written already to show that where flowering shrubs are grown, August should be by no means a month barren of flowers.

Our Coloured Supplement Plate.—Laelio-Cattleya Profusion is well named, as it is exceptionally free-flowering, and one spike may carry so many as five or six handsome blooms. This hybrid is the result of crossing Cattleya Hardyana with Laelio-Cattleya Serbia, the latter being derived from C. Enid and L.-C. St. Gothard. In its colour and markings—as shown in our coloured supplement plate—L.-C. Profusion possesses many of the characters of C. Hardyana, but the addition of L.-C. Serbia has broadened the segments. This fine hybrid has shown considerable variation, as might be expected in the progeny of so variable a hybrid as C. Hardyana. Many of the varieties have obtained recognition from the Orchid Committee of the Royal Horticultural Society, and several of these, named after big steamships —Adriatic, Megantic and others—have been raised and exhibited by Messrs. J. and A. McBean, of Cooksbridge. A particularly fine plant of an excellent form was exhibited last year by Fred. J. Hanbury, Esq., Brockhurst, East Grinstead, and this is the one represented in our coloured plate.

Visitors to Southport Show.—The numbers of visitors to Southport Show were as follows:—Wednesday, August 22, 22,694; Thursday, August 23, 38,505; Friday, August 24, 21,454; total, 82,653. Although the attendance was smaller than in 1927, when it was 84,087, the takings were larger, because of a greater number of visitors on the first day. The total receipts come to £11,050, as against £10,473 in 1927, or an increase of £577. We believe that the excess of receipts over expenditure will be about £2,500. Mr. Milburn from the United States was present, and also Mr. Baldwin from Mamaroneck, U.S.A. Other interested visitors were M. Louis Gentil, Superintendent of the Brussels Botanic Gardens and Editor of *La Tribune Horticole*; and M. Walland, a keen amateur horticulturist, who resides in Brussels. Some Australian visitors were present and many from France.

The Neill Prize in Horticulture.—The Neill Prize in Horticulture, which is awarded by the Council of the Royal Caledonian Horticultural Society, has been presented to Mr. Charles Webster, gardener at Gordon Castle, Fochabers, as a distinguished Scottish cultivator. It may be recalled that many years ago Mr. Webster's father, the late Mr. John Webster, whom he succeeded at Gordon Castle, was also awarded this prize.

The Karroo Flora.—A Transvaal correspondent of the *Times* states that reports received by the Agricultural Department from Burgersdorp and Fauresmith, show that those areas which were once grass veld, are now becoming karroo, and it is suggested that the aggressive karroo, flora is invading the veld owing to heavy over-stocking of sheep, which is responsible for the destruction of the veld grasses. The karroo flora is described as—botanically—one of the wonders of the world, and in the karroo areas the farmers are alarmed at the disappearance of the karroo bushes—so useful in times of drought—which are being succeeded by useless vegetation.

Dutch Dahlia Exhibition.—A special Dahlia Exhibition will be held at Rotterdam, Holland, from September 5 to 9, under the auspices of the Netherlands Dahlia Society. A tent 1,500 metres long has been erected for the show and if this does not seem to provide sufficient space, permission has been obtained to make use of a hall near the tent—the hall, in fact, in which the Boskop Rose Show was held; so that exhibitors need be under no apprehension of their groups being overcrowded. Twenty thousand Dahlias have been planted in the open, and it is hoped that, given favourable weather, these will be just at their best at the opening of the Exhibition.

Legacies to Gardeners.—Mr. Hartley Baldwin, of Winkley, near Gurst Green, Whalley, Lancs., who died on February 28, bequeathed fifteen shillings a week for life to his gardener, Mr. John Latham.—Mr. John Alfred Trumper, of Lion Gate, Kew Road, Richmond, who died on June 16, left £20 to his gardener, Mr. George Sanders.—The late Mr. Adloph Christian Ernest Howeson, of the Manor House, Ditton, Kingston, who died on May 29, left £100 to his gardener, Mr. Maurice Cannon.

Award of the Snell Memorial Medal, 1927.—The Council of the National Institute for Agricultural Botany has awarded the Snell Memorial Medal for the year 1927 to Professor Paul A. Murphy. The medal is given annually to mark eminent work in the sphere of Potato husbandy and it has been awarded to Professor Murphy in recognition of his valuable contributions to the study of the virus diseases of the Potato.

Potatos Replace Fruits.—As a result of poor fruit crops, and the small profit said to be obtained by fruit growers, several south Lincolnshire growers are clearing land of fruit trees and reverting to the growing of Potatos, which are regarded as a more profitable crop.

A Collection of Glass Flowers.—The Harvard University, Cambridge, Massachusetts, possesses a unique and extensive collection of glass models of flowers, stated to be the only one in existence. There are representations in glass of the flora of all countries, depicting in all five-hundred and-forty genera, and eight-hundred-and-three specimens. Leopold Blaschka, a Bohemian, was the originator of the collection, and upon his death in 1895 his son took his place, supplementing the work with models of insects, etc., to demonstrate the fertilisation of flowers by these agencies. The collection is a gift to the Harvard University from Mrs. Elizabeth C. Ware and her daughter, of Boston, as a memorial to the late Dr. Charles Elliott Ware, for which reason it is known as the Ware Collection.

Paris Autumn Exhibition.—The Autumn Exhibition in Paris will take place at Cours-la-Reine as usual, from October 26 to November 4. It will comprise Chrysanthemums, various flowering plants, Orchids, florists' displays, fruits, fruiting trees, ornamental shrubs and trees; and will also include horticultural educative exhibits, flower pictures and garden plans, and sundries.

Forestry in Great Britain.—Vol. II, No. 1, of the *Journal* of the Society of Foresters of Great Britain is a work that should find a handy place on the bookshelves of all who are interested in forestry and allied pursuits. It is edited by Dr. H. M. Steven and published by the Oxford University Press at 7s. 6d. Many of the articles published are of a highly technical and scientific character and demand careful study and consideration, especially those devoted to Soil Problems, Diseases and Pests of the Elm and Douglas Fir, and Researches in Wood Structure. The general reader will find interest in the articles on Post War Forestry in Central Europe, Chestnut Coppice in South-east England, Methods of Planting and Nursery Costing, Forest Problems in Switzerland, and a Bibliography of Forest Literature in Sweden. The illustrations and chart are excellent, but we should like to see more illustrations, as these would add to the appearance, interest and usefulness of a very fine publication.

Horticultural News from Rumania.—The Rumanian Horticultural Society has decided not to hold a Horticultural Congress this year, but to organise instead an educative journey abroad. The itinerary will include Prague, Vienna and Budapest, and will take about twelve days, starting in the early part of September. The proposed excursion to the Rosefields of Bulgaria has been postponed to next spring, owing to the earthquakes in that distressful country. It is hoped to organise an expedition to Belgium in 1930. The fruit outlook in Rumania is not very hopeful, the weather during the present year having been most unfavourable. The price of home-grown fruits is very high, and that of imported fruits such as Bananas, Apples, Pears and Oranges so comparatively low that the few home-grown fruits available do not find a ready sale. Strawberries, which happened to fruit during a warm spell, were abundant, but the season was very short. Even Apricots, which are usually extremely abundant, were quite scarce, but they were in great demand and the prices were correspondingly high. The Ministry of Agriculture has appointed a special commission to consider the growing and marketing of native Rumanian fruits, and the Bucarest Municipality is studying the question of the provision of special cold storage to regulate supplies. The two main problems, however, are rapid transit and low freights; until these two requirements are satisfied the future of fruit-growing in Rumania will remain doubtful.

Aged Botanist's search for Salix species.—A Swedish correspondent informs us that Johan Enander, a Swedish country vicar, well over eighty years of age, who has achieved fame for his knowledge of Salix species, has just completed a long search for rare plants in the wilds of America and Canada. He undertook an excursion into the most inaccessible parts of the Gaspé peninsula in the State of Quebec. The old clergyman now has an ambitious and strenuous programme ahead of him. He is going to Alaska and thence so far as the Behring Straits and Kamtschatka. From there he will make his way southwards along the Rocky Mountains to Los Angeles and by ship to Japan and China so far as Pekin. He then intends to go south to Calcutta, from there up to Sikkim and into Tibet, and thence to the Persian Gulf, Bagdad and Jericho, after which he proposes to celebrate Christmas in Bethlehem. From Bethlehem he will go to Constantinople and finally by aeroplane back to Sweden. His parishioners are following his adventurous exploits with interest and hope for the safe return of their shepherd to the peaceful and picturesque little parish of Lillherrdal in the North of Sweden.

Preserving the Countryside.—An important conference will be held in Leicester during October, and it will have for its main purpose the institution of a great national movement for the preservation of the countryside. A strong local committee is in charge of the conference arrangements, assisted by Sir Arthur Hazlerigg, Lord-Lieutenant of Leicestershire and Lieut.-Col. R. Martin, Chairman of the Leicestershire County Council. The National Trust, the Society for Checking Abuses of Public Advertising, the Commons and Footpaths Preservation Society, the Council for the Preservation of Rural England, the Federation of Rambling Clubs, the Rambling Federations of Liverpool, Manchester and Sheffield, the Peak District and Northern Counties Footpath Preservation Society, and the Leicestershire Footpaths Association, will be represented at the conference. Addresses will be given by Prof. Patrick Abercrombie, of Liverpool University, on "the Preservation of Rural England"; "Advertisements and Litter," by Mr. John Bailey, Chairman of the National Trust; and "The Rights of Way and Access to Mountains Bill," by Mr. R. A. Glen; Prof. G. M. Trevelyan and Sir John Brunner will also be among the speakers. Organisations desirous of co-operating with those already mentioned should write to the Hon. Secretaries of the conference, 42, St. Nicholas Street, Leicester.

MR. ALDERMAN E. WOOD.
Chairman of the Southport Show Committee.
(see p. 174).

Great Harvest Festival in Poland.—The great Polish Harvest Festival—an annual holiday—was celebrated at the Presidential estates, Spala, on August 26. No fewer than 25,000 delegates were present, representing the various Polish provinces, and these presented the customary wreaths to the President. The celebration was much more brilliant and successful than in recent years, when political differences prevented the co-operation of numerous Agrarian Societies in this national thanksgiving.

Rev. J. Bernard Hall's Change of Address.—On and after September 8, the address of the Rev. J. Bernard Hall, M.A., Hon. Sec. of the North of England Horticultural Society, will be Preston Rectory, Lavenham, Suffolk. Mr. Hall expects to be in Harrogate for the North of England Horticultural Society's Autumn Show on September 5, 6 and 7, at the Y.M.C.A. Gardens, Victoria Avenue.

War Office Enclosures on Woolwich Common.—Keen dissatisfaction is expressed by the residents of Woolwich at the action of the local military authorities in enclosing portions of the Common which have hitherto been open to the public, and a committee has been formed, consisting of representatives of the local Chamber of Commerce, the Town Planning Committee, the Council of Social Service and the Rotary Club, to consult with the military authorities as to means by which the future of the Common may be regulated to the benefit of both the military and the public. The manorial rights of Woolwich Common, together with those of the adjoining Charlton Common, were secured by the former Board of Ordnance in 1806, so that the combined areas could be used as an exercising ground for the garrison of the Woolwich barracks, but no attempts have been made until recent years to deprive the public of the right to use the Common.

A Forestry Commission Purchase.—The Forestry Commission have just completed the purchase and will take possession in November of over 1,300 acres of land at Burghead, Morayshire, formerly belonging to Mr. G. R. Mackessack, of Ardgye. The area is on the fringe, of and indeed includes rich agricultural land which has been subjected during recent years to violent sandstorms. The result has been a steady encroachment on cultivable land, and many acres lately under cereal and root crops have had to be abandoned. To avert further encroachments the Commission purpose adopting the principles at present being applied to the Culbin Sands, an area not very far from Burghead. Marram grass will be sown to stabilize the surface, and thereafter extensive planting of Scots Pines and Corsican Pines will follow. It is computed that the arrangements to be made will allow of over 100 acres to be dealt with annually. This should afford employment to a large number of men in and around the vicinity of Burghead.

Mr. Ernest A. Krelage.—We learn from the continental press that Mr. Ernest Krelage has been elected President of the Nederlandsche Tuinbouwraad in place of the late Mr. Dresselhuys. This important body is composed of a federation of societies representing the chief cultural industries of Holland, such as market gardening, fruit-growing, bulb cultivation, etc., and is in permanent touch with the Dutch Government; it is also charged with the important task of organising Dutch exhibits for exhibitions in various continental countries. Mr. Krelage's duties will be onerous, but we know of no one better able to discharge them than himself.

Scottish Potato Trials.—On the invitation of the Board of Agriculture a representative company of raisers, merchants and farmers inspected the new Potato seedlings on trial at East Craigs Seed Testing Station, Corstorphine. Mr. Miller officiated and during his introductory remarks he stated that the work of the Board, in its endeavour to obtain purity of stocks, had resulted in the inspection of 63,000 acres of growing crops last year by a staff of eighty-six trained representatives. He suggested that the only way in which healthy stocks could be obtained of such varieties as Majestic and Golden Wonder, which showed a considerable amount of mosaic, was to select apparently healthy plants and to isolate them for propagation. Work of this nature had been in progress for two years on the farms of Major Keith, Pitmeddan, Udny, and of Mr. John Hope, Drumharrow, Redgorton, and as an indication of the superiority of these selected stocks over the best commercial stocks available, the company were shown representative plots of each class grown alongside each other. It was stated that no stock of Golden Wonder in the country was perfectly free from virus disease, but it had been demonstrated at the trials that a yield of ten or eleven tons per acre could be obtained from selected stocks, whereas only five or six tons were obtained from ordinary stocks. Endeavour is now being made to secure a regenerated stock of Majestic which would be superior to the commercial stocks, with a fifty per cent. higher yield. The present scheme of testing new varieties is comprehensive, but improvements are necessary. The reaction of varieties to infection by virus diseases requires thorough investigation, not only by greenhouse tests, but also by field tests. This work has been started at the Plant Registration Station in an insect-proof greenhouse, and problems relating to blight and blackleg are to receive immediate investigation. The seedlings in the registration trials are grown on land of average uniformity, occupied last year by a grain crop. During early winter twenty-seven tons of farmyard manure were applied per acre, while seven hundredweight per acre of artificial Potato manure were distributed in the drills at planting time. The varieties in the third year trials were Doon Star and Nos. 439, 440 and 520, raised by Mr. McKelvie, Arran. The first variety is being tested against King Edward and Majestic and the other three seedlings against Epicure. The best of these early seedlings is undoubtedly No, 520, which has been proved consistently to produce saleable tubers seven to ten days before the earliest Epicures, and it was a noteworthy fact that no other seedlings had been so thoroughly tested as No. 520 before being put on the market. These results are of great importance to growers of early Potatos who have to fight against foreign competition. In every test made in early Potato districts over a number of years, No. 520 has proved the best. A noteworthy seedling in the second year trials was D. 1, raised by Mrs. W. B. Pollock, Bishopston. Samples of this early variety have been sold at £200 per stone, a record since the days of Eldorado. There was no proof that it was earlier than Epicure but it will be tested against that variety at Girvan Mains farms in 1929. It is a Potato that may displace Sharpe's Express. Another interesting seedling is named Alannah. It was raised by Sir Gore Booth at Sligo and resembles British Queen in the haulm and tuber. The most promising seedlings in the first year's trials were the series from Mr. McKelvie, bred from May Queen.

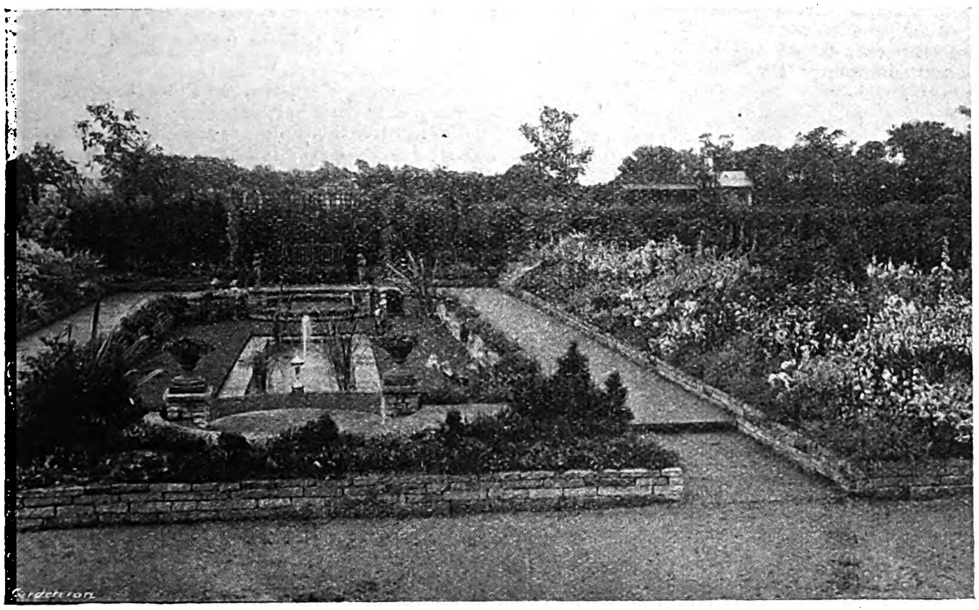

FIG. 68.—SOUTHPORT SHOW: MESSRS. KENT AND BRYDON'S FORMAL GARDEN. (see p. 174).

Antwerp Exhibition—The Antwerp, Belgium, International Horticultural Exhibition is to be held in the Salles des Fêtes, Plas Meir, from September 8 to 16. The Exhibition will coincide with a Colonial Fair to be opened at the same time. The prize list is a long one, and comprises awards of considerable value, including Prix d'Honneur, Grands Prix, and a number of special Cups and Objets d'Art.

Appointments for the Ensuing Week.—SUNDAY, SEPTEMBER 2: Wakefield and North of England Tulip Society meets. MONDAY, SEPTEMBER 3: Romsey Gardeners' Associations meet. TUESDAY, SEPTEMBER 4: Royal Caledonian Horticultural Society meets. WEDNESDAY, SEPTEMBER 5: Nottingham and Notts. Chrysanthemum Society meets; Greenock Show (two days); Helensburgh and Gareloch Show. THURSDAY, SEPTEMBER 6: Paisley Florists' Society's exhibition (two days); Dundee Horticultural Society's exhibition (three days); Abergavenny Show; Dundee Show (three days). FRIDAY, SEPTEMBER 7: National Rose Society's exhibition (two days); Bridport Chrysanthemum Society meets; Accrington Chrysanthemum Society meets; National Rose Society's Autumn Show (two days). SATURDAY, SEPTEMBER 8: Manchester and District Pansy and Viola Society's show; Barrhead and District Show; Dalkeith Show; Sociëtë Royal d'Agriculture d'Anvers exhibition (eight days).

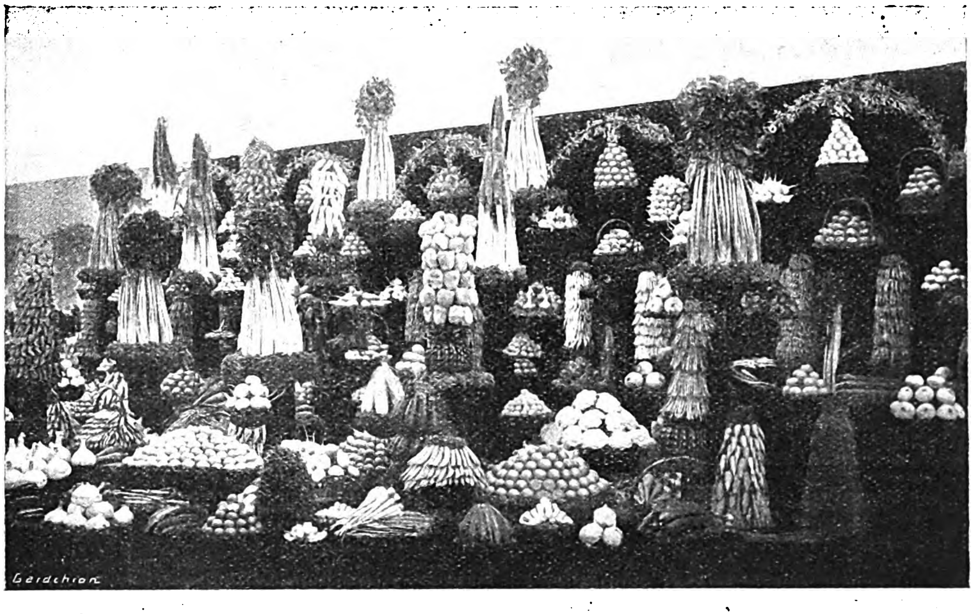

FIG. 69.—SOUTHPORT SHOW: MESSRS. SUTTON AND SONS' EXHIBIT OF VEGETABLES. (see p. 174).

"Gardeners' Chronicle" Seventy-five Years Ago.—*The Chrysanthemum.*—I need hardly say that this is a plant well worthy of general attention. Its coming into bloom during the months of November and December greatly enhances its merit, as flowers are then scarce, being the interval between the late-flowering Pelargoniums and the first show of Hyacinths and other forced flowers, and just preceding the general bloom of Camellias, Epacrises and spring Heaths. Having, for a number of years, paid considerable attention to the management of this plant, I shall give my mode in detail, adding a list of twenty of what I consider good varieties. Towards the end of March, when the plants are about eighteen inches high, cuttings are selected from the most vigorous, taking the top of each, say, six inches long. Each cutting is put into a small pot and placed in a frame near the glass, with a slight bottom-heat. As soon as the cuttings are well rooted, they are put into larger pots, and removed to a cold frame, keeping them near the glass, and giving them plenty of air. In May they are shifted into pots nine inches across. I then place a stake to each, pinch the tops out, and arrange them out of doors, along the bottom of a paling or a wall, facing the sun. If the weather be very dry and warm, the pots are plunged to the brim among sand or gravel, and a little manure put on the top of each pot. In July they are shifted, for the last time, into pots from twelve to fifteen inches across. The soil employed, is very rich, consisting of vegetable and leaf mould, with a fourth part of well-decomposed manure, either from the cow-house or sheep's droppings. This is used in its rough state as broken with the spade, not sifted. They are allowed plenty of water, as I consider a check very injurious to their blooming well. In October they are brought into a Vinery or Peach-house, and the flowers thinned a little as soon as they are formed. The plants are watered occasionally with liquid manure, and get plenty of air, without which they are sure to mildew. The following are well-known varieties, but such as I am certain none will be disappointed in, viz.:—Princess Maria, Lucidum, Minerva, General Marceaux, Hardy, Queen, Vesta, Theresa, Superb-clustered Yellow, Beauty, Annie (Salter's), Queen of Gipsies, Bride, Flechier, Orlando, Nancy de Lermot, Defiance, Count de Rentzon, Duchesse d'Aumale and Fleure de Marie.—*J. A.*—*Gard. Chron.*, *August* 27, 1853.

Publications Received.—*The Journal of The Royal Horticultural Society* (Vol. LIII, Part 2), edited by F. J. Chittenden; Spottiswoode, Ballantyne & Co., Ltd., New-Street Square, London; price 7s. 6d. net.—*The Ferns* (Vol. III), by F. O. Bower, Cambridge University Press, Fetter Lane, E.C.; price 30s. net.—*Krankheiten des Kern- und Steinobstes*, by Prof. Dr. Otto Appel; Paul Paref, Berlin.

The Week's Work.

THE ORCHID HOUSE.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

Odontoglossum, Cochliodas and Odontiodas.—With few exceptions Odontoglossums, together with Cochliodas and the by-generic hybrid Odontiodas, require similar cultural treatment. They thrive well in the cool house where the minimum temperature in summer is from 55° to 60°, and where the hot sunheat may be tempered by shading, ventilation and judicious damping and spraying. In winter a minimum temperature of 50° should be aimed at, except during very severe weather, when a few degrees lower is better than the use of excessive fire heat to keep a stated temperature. One of the most essential points in successful Odontoglossum growing is the maintenance of a free circulation of fresh air with sufficient moisture to prevent atmospheric dryness, and taking care to avoid strong draughts. Where a quantity of these Orchids are grown the flowers are in great demand the whole year round, for the graceful spikes of brightly-coloured blooms, make them general favourites for decorative purposes.

Re-potting.—There are always various plants requiring root attention, although it is not advisable to disturb specimens during the hot summer months. The present time and throughout the month is suitable for this operation, for with the genial humid weather conditions, especially at nights, their requirements are more easily maintained. New roots are generally produced freely from the developing growths just as they begin to swell and this is the best condition for potting, as more roots are then produced than when the young growths are just forming, and the plants therefore establish themselves more quickly in the new compost. Small plants and seedlings may be potted on without much root disturbance, although it is advisable to remove the centre of the ball of compost, as this becomes sour first, while the removal of it also aids the water and air to pass more easily through the compost. Large plants that have flowered well and are in need of fresh soils, should have the old compost carefully removed and the decayed roots cut away, especially from the centre. Retain two or three bulbs to each lead and pot them into receptacles of suitable size. Over-potting should be avoided. Press the soil firmly between the roots and keep the base of the bulbs about level with the pot rim; the bulbs and rhizomes should not be covered with compost, for if they are, rhizome-rot may result. Ample drainage should be used, and equal parts of Osmunda and soft A.1 fibre and one part chopped Sphagnum-moss, make a suitable rooting medium, using a little extra moss for surfacing the compost, while a few finely-crushed crocks may be added to keep it porous.

THE KITCHEN GARDEN.

By Allan Falconer, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Celery.—The varieties White Plume and Golden Queen, which were recommended for planting six inches apart in frames, are now well blanched and ready for use as salads or cooked as a vegetable; it is really surprising, provided that plenty of moisture has been given to these plants, how tender they are for salads, and they make a welcome change so early in the season. To provide a succession to these, the earliest rows should now be well supplied with water, all side growths removed, and the plants tied up, ready for the first earthing. A few inches depth of soil should be drawn up to these at first, but as growth proceeds more soil should be banked up to them at intervals of a week or so It takes from six to eight weeks to blanch Celery successfully, and the free use of lime among the plants as the work proceeds, should do much to prevent the depredations of slugs.

Brassicas.—The majority of this family should now be in robust growth, but if any plants are backward, a pinch of sulphate of ammonia should do much to assist them to catch up to the other plants, and level up the appearance of the crop; on wet, heavy land, draw soil up to the stems, after cleaning the beds of weeds, as a protection against wind, moisture and frost. Brussels Sprouts in particular respond to the use of artificial manures, even as late as October, especially if they are commencing to make sprouts.

General Cultural Details.—Continue to feed late Peas, Runner Beans, Marrows, etc. The hoe should be used freely among all crops during dry weather, and as the crops are removed from the land, all weeds and rubbish should be collected. Large areas may be ploughed shallowly not only to give it a tidy appearance but also to destroy the small weeds and allow birds to find the many pests at a time when they are numerous and near the surface. Where white fly is prevalent in Tomato houses no time should be lost to eradicate it by the use of cyanogas, which may be purchased in airtight 5-lb. tins, at a little over three shillings per pound. This is a very cheap fumigant and in my opinion one of the simplest and most satisfactory materials for eradicating this pest; strict attention should be paid to the maker's directions.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Peaches and Nectarines.—Early opportunity should be taken to remove the old fruited wood from trees that have been cleared of fruits, to facilitate the ripening of this year's growths which are to be retained for fruiting next season. When removing the fruited growths care is needed not to damage the foliage on the young growths, for at this stage the foliage is quite green and easily damaged by rough treatment. The buds need every assistance to mature and any damage that is caused to the foliage may be reflected in next season's crop. When carrying out this operation remove any superfluous growths and tie the remaining shoots loosely to the wires. If red spider or any insect pests are in evidence spray the trees well with an insecticide, but if the trees are clean it is not advisable to syringe them after this date, although the borders should still receive every possible attention, and on no account should they be allowed to dry out. Where old trees have been cropped heavily copious supplies of liquid manure should prove very beneficial, but young vigorous trees that are showing no sign of exhaustion through cropping should not be given too much liquid manure. An application of phosphate should assist the wood to mature. Admit plenty of fresh air and give such treatment as should favour the ripening of the growths.

Tomatos.—Plants which are being grown to produce fruits during the late autumn and early winter may now be placed under glass. For winter fruiting they are undoubtedly best grown in pots or boxes, which allow for better root control. The receptacles should not be filled too full, but sufficient space should be left for the application of a rich top dressing when the plants are in need of assistance to mature their fruits. For the present, the house should be kept comparatively cool; any attempt to hasten growth by closing the house early may only result in the production of sappy growths.

The Orchard House.—Apple trees that have been grown in the orchard house to furnish choice fruits for dessert should be placed outside to finish ripening their crops, and to improve the colouring of the fruits. Choose a sheltered open position that receives the maximum amount of sun. To prevent the trees being blown over by wind they should be partially plunged and means taken to protect the fruits from birds by covering them with a small mesh netting; tits are very destructive to choice fruits. The roots need stimulants and plenty of water at this stage.

PLANTS UNDER GLASS.

By J. Coutts, Assistant Curator, Royal Gardens, Kew.

Propagating Hard-wooded Plants.—Early September is a very suitable time for propagating many hard-wooded plants, as half-ripened shoots may be secured from many of them at this time. The methods adopted for South African Heaths should answer for the majority of hard-wooded greenhouse plants in general cultivation. The best rooting medium for Ericas is sandy peat, and this should answer for most of the other subjects, although many of the more robust subjects may be rooted in sandy loam. When preparing the cutting pots for Heaths and other choice subjects, they should be half-filled with crocks, which should be covered with some fibrous peat, afterwards filling the pot with the fine compost, which should be rammed very firmly and surfaced with clean, sharp sand. When dealing with Heaths, the cuttings of which are often not more than three-quarters-of-an-inch in length, it is advisable to fill and thoroughly water the cutting pots the day before they are required for use; three- and four-inch pots are generally the most suitable sizes, although smaller ones may be used where only a few cuttings are available. After inserting the cuttings, they should be watered in well, allowing the surplus water to drain away for an hour or so before placing the pots under hand-lights or bell-glasses in a cool house, preferably on a bed of ashes or sand, so that there is always moisture underneath. Remove the glasses and wipe them every morning, at the same time carefully removing any dead leaves or cuttings. When preparing cuttings of Heaths and other slender-growing subjects, only very small, twiggy growths should be used, and care is necessary in preparing them, for the bark must not be stripped off. In the case of many hard-wooded plants, of which larger cuttings are used, greater success may often be attained by taking a thin shaving off the side of the cutting, callus often developing more freely at the side than at the base of the shoot. The cuttings may, as a rule, be allowed to remain in the cutting pots over the winter. Although September is given as a suitable time for propagating these plants, it should not be supposed that this work may not be done at any other period; in fact, most of them may be propagated during the spring or summer, the condition of the wood being the governing factor.

HARDY FRUIT GARDEN.

By T. E. Tomalin, Gardener to the Earl of Bessborough, Stansted Park, Emsworth Sussex.

Peaches and Nectarines.—As each tree is cleared of its fruits, so much of the old fruiting wood as may be spared should be cut out, and this season's growths tied in loosely to replace it. The new shoots should not be tied too closely to the wall at present, for they should now receive all the air and sunshine available to develop and ripen the buds for furnishing next season's crop. The trees should never be neglected in regard to watering after the crop has been gathered, on the contrary, those trees which have borne full crops should be assisted in maturing their growths by regular waterings with dilute liquid manure, except in cases where the growth is already over strong; these latter trees should be marked for lifting and root-pruning next month.

Gathering the Fruits.—The early Apples and Pears now require constant attention so that each variety may be gathered when it is ready. Early Pears such as Williams's Bon Chrétien, Souvenir du Congrès, Doctor Jules Guyot and Triomphe de Vienne, should be gathered a few days before they become mellow. The fruits should be placed on shelves covered with wood-wool, or in boxes lined with this material. They ripen best in a fairly warm, dry atmosphere. These early varieties should be used directly they become mellow, as they only keep for a day or so when fully ripe. Fruits of the second early dessert Apples, such as Lady Sudeley, Worcester Pearmain, Kerry Pippin and Langley Pippin, should be gathered a few at a time, as they become fit for use. These varieties do not store well, but soon lose their flavour and become mealy in texture. The fruits part readily from the branch when ready, and, as those on the sunny side of the tree and at the top of the branches, usually ripen first, it is often possible to prolong the enjoyment of these over two or three weeks. Early cooking Apples also are best when used direct from the tree, for these, too, soon become mealy and spotted when stored, and it is usually a waste of time and space to take them to the fruit room. Where too many are grown for home consumption, and marketing is practised, the early cooking varieties such as Victoria, Lord Grosvenor, Grenadier and Yorkshire Beauty should be graded and packed as they are gathered from the trees, and before they lose weight and freshness.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to the Duke of Devonshire, Chatsworth, Bakewell, Derbyshire.

Plants in Garden Vases.—Unremitting care is necessary to keep plants in garden vases and other receptacles attractive to the end of the season. These garden ornaments do, of necessity, occupy prominent positions in the garden, so that weakness in any respect is very noticeable. Many plants, which are beautiful and attractive when growing in borders or beds, are not a success when used in vases, and it is important when arranging for future decorations to select such plants as are suitable for the various positions. When on garden walls, terraces or boundary walls, these plants in vases are much exposed to rough winds, consequently subjects of tender growth and delicate foliage, being very susceptible to injury, are not suitable. On the other hand, many of the less robust plants make excellent subjects for sheltered positions and enclosed corners, where they may flourish and provide variety. All decaying leaves, weeds and spent blooms should be removed regularly, and any necessary staking and tying attended to periodically. Watering is the most important item at this season, the plants being in full growth and the vases filled with roots, and it may be necessary to examine them at least twice a day, as neglect in providing sufficient moisture, combined with unsuitability of the plants used is, I am convinced, a definite reason why the furnishing of many garden vases is an indifferent success. Many plants, having been allowed to suffer a check from extreme dryness at the roots, never recover their vitality, and look unhealthy for the remainder of the season. Well-filled vases always mean that there is a mass of roots confined in a very limited space, so that not only is abundance of water necessary to their well-being, but constant feeding also is essential, either with diluted liquid manure or soot-water, or by small applications of a good artificial plant food. The latter is probably the best and certainly the least objectionable in many positions, and when applying artificial manure, I strongly recommend mixing a small quantity with a bushel of finely sifted, light soil, giving a light top-dressing of this compost and watering this in carefully with a fine-rosed can for a few days afterwards. Such plants as Marguerites, Fuchsias, Begonias, both Ivy-leaved or Zonal Pelargoniums, and Heliotropes, with Lobelias and other edging plants, are suitable for use in the average position, but in specially sheltered situations many other tender plants from the greenhouse may be employed with complete success, provided extra attention is given to their special requirements.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener at Jordanhill Training Centre, Glasgow.

Richardias.—The Richardias which are grown in most gardens should now be overhauled, and whether they have been grown on the drying-off system, or planted out in rich soil, they should now be repotted and allowed to stand outside until in danger from frost. Where large plants for furnishing tubs or vases are required, only a proportion of the plants should be broken up each year, as those comprising from five to seven flowering crowns make the best specimens, and if given a top-dressing at this time, after making sure that the drainage is in working order, they may be kept in good condition by frequent applications of liquid manure. The plants selected for breaking up should be turned out of their pots, and a selection made of the strongest crowns, which, according to size, may be accommodated in six- or seven-inch pots for the first year. The yellow-flowered kinds are very pretty subjects when well cultivated, but they require more heat, and although also requiring a season of rest, should not be placed outside but rested indoors by withholding water gradually.

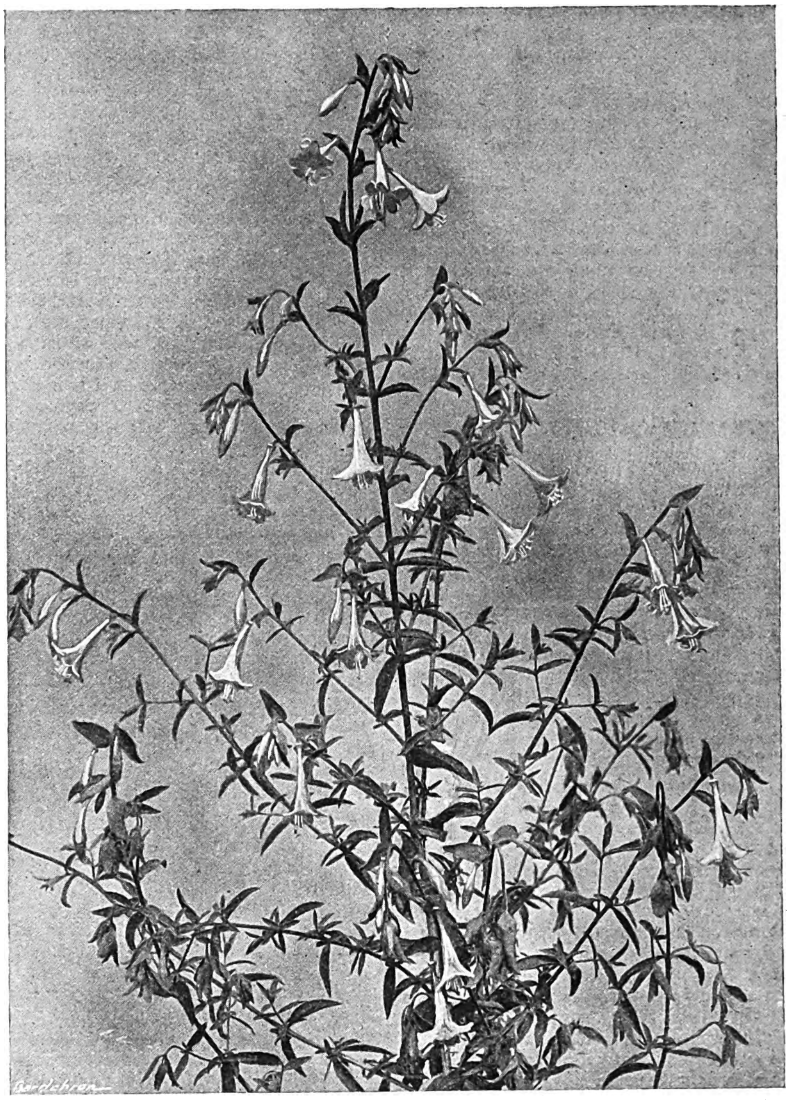

FIG. 70.—ZAUSCHNERIA CALIFORNICA.
(see p. 168).

Raspberries.—So soon as the crop of fruits has been gathered, is the best time to prune Raspberries, as by cutting away the old canes and burning them immediately, many of the diseases and insect pests are kept under control. Removal of superfluous young canes should also be attended to, and only sufficient left to furnish the trellis, and if these are thus given the maximum amount of light and air, they will ripen their wood in a satisfactory manner. Where an attack of fungoid diseases is apprehended these young growths should be sprayed with a good lime-sulphur wash, which may be repeated during the winter, at the winter strength. Where new plantations are under contemplation, the unnecessary young growths should be lifted carefully and planted in nursery rows, where, if given a good soaking of water, they should soon recover and provide useful plants for setting out later.

Strawberries.—Provided that the ground is well prepared in advance, Strawberry plants may now be planted, and where the area under this crop is extensive the work should be pushed forward while favourable weather conditions prevail. Runners which were secured some time ago should now lift with a fair amount of roots, and if carefully planted, may be expected to take a good hold of the soil in their new quarters before the winter. Plants layered in small pots for forcing should be re-potted into their fruiting pots without further delay, and set out in the open to ripen and mature their crowns. They should be watered carefully, and all runners picked off as they appear. Later, they may be removed to a frame or other shelter where the pots may be plunged in leaves or ashes to keep them from being cracked by frost which, by the way, will do the plants themselves no harm. The disease known as the Lanarkshire Strawberry disease is now very widespread, and few counties are entirely clear of it, so it is advisable, where stocks are clean, to avoid introducing new runners from infected areas, as, so far, no cure for this disease has been discovered.

TREES AND SHRUBS.

JAMESIA AMERICANA.

A NATIVE of western North America, and commemorating Dr. Edwin James who found it in 1820 while on an expedition to the Rocky Mountains with Major Long, Jamesia americana is an attractive subject for the shrub border, for although not rapid in growth it thrives in an open, sunny position in not too rich but loamy soil. It is deciduous in nature and produces the bulk of its flowers, which are about half-an-inch across, pure white or tinged with pink and slightly fragrant, in terminal clusters during the latter part of May and early June, but fresh flower heads are produced intermittently throughout the summer and even in the autumn.

It is of rather stiff habit, attaining a height of about four feet and is often more in diameter, the rather stout, stiff and pithy shoots being covered with a rich brown, downy, in fact almost felty bark, which peels off later. On the shoots devoid of flowers, the leaves, which are placed oppositely, are ovate in shape, up to three inches in length and one inch to two inches wide, coarsely and regularly toothed, hairy above and downy beneath; on the flowering growths they are considerably smaller. This shrub belongs to the Natural Order Saxifragaceae; it arrived at Kew in 1866, and is figured in the *Bot. Mag.* t. 6142.

HEDYSARUM MULTIJUGUM.

ALTHOUGH not elegant in habit, this shrub is a very welcome addition to the shrub border at the present season of the year, when flowering shrubs are none too plentiful, for it produces axillary racemes of rose-magenta, Pea-like flowers in the greatest profusion—as if to compensate for its otherwise ungainly appearance—throughout the latter part of summer into early autumn. It is a deciduous shrub, seldom attaining a height of more than three feet, with zig-zagged branches furnished with alternate, pinnate leaves up to about six inches in length, consisting of numerous small leaflets of variable shape and light green in colour, the undersides of the leaflets being downy.

H. multijugum requires a warm, sunny situation and rather light loamy soil, while propagation is best effected by layering, for I find that cuttings are by no means easy to root, and seeds are only produced in very favourable seasons. It is a native of Mongolia and was figured in the *Bot. Mag.*, t. 8091. Mr. Bean, in *Trees and Shrubs Hardy in the British Isles*, suggests that a good method of correcting its ungainly habit after a few years, is to peg down the branches to encourage them to break into new growth at the base. My specimen has not arrived at this stage yet, although even when young it may hardly be termed elegant, for when not in bloom it is rather spindly and leggy in appearance; but I shall certainly try this method when the necessity arises.

ATRIPLEX HALIMUS.

ALTHOUGH this shrub may lay no claim to floral beauty, it is certainly well worth growing for the beauty of its foliage, which is, together with the stems, a striking, silvery-grey in appearance. It is practically an evergreen subject, although during severe winters it is liable to lose a fair proportion of its leaves. Owing to the silveriness of the stems and leaves, if well placed in a shrub border the effect produced is undoubtedly striking, especially if so placed that it is against a background of dark-foliaged, evergreen shrubs.

It is amazingly free in growth, although never attaining more than about seven feet in height, and the harder it is cut back, the more vigorously does it produce fresh growths, resplendent in their silvery covering, and if during such winters as the last the branches are killed to within a few inches of their base, fresh shoots are produced with such freedom as to suggest that it revels in severe treatment. Moreover, A. Halimus revels in sunshine and is a good subject for planting in hot, dry situations. It is a native of south Europe.

Mr. W. J. Bean, in *Trees and Shrubs Hardy in the British Isles*, states that A. Brewerii, a shrub with which I, personally, am not familiar, and which was found in California, is very closely allied to A. Halimus, being similar both in foliage and habit of growth, and he raises the interesting question as to whether A. Halimus was introduced to California and became naturalised there. *Kent.*

ABUTILON MEGAPOTAMICUM.

CURIOUSLY enough, a fair-sized specimen of this shrub withstood the severities of last winter under the shelter of a wall with a west exposure, and although the growths were naturally damaged the plant is now in full growth; in fact, it seems to be more vigorous than ever, and its long, slender branches are already bearing numbers of drooping, yellow flowers, each set in a rich red calyx and looking very attractive amid the deep green foliage.

This species, and also the rather attractive variegated-leaved form, is well-known and popular as a greenhouse or conservatory subject, but it is not generally known that both the type and the variety grow and flower exceptionally well in the open, if given a sheltered position against a wall and planted in loamy soil, the flowering season being extended well on into the autumn, until their production is checked by the arrival of frosts. I do not know if it is a general habit of the variegated form to revert to type when grown out-of-doors, but a plant which was put out three years ago has certainly done so, at least, there is now very little variegation about it, and ninety per cent. of the foliage is now typical of the species. However, whether variegated or not, A. megapotamicum is a really attractive wall plant where subjects of moderate stature are required, and what is more, it is one of the easiest of shrubs to propagate for both hard- and soft-wooded cuttings may be rooted easily.

A. megapotamicum often passes under the name of A. vexillarium, in fact, it is under this name that it is figured in the *Botanical Magazine*, t. 5,717. *M. W.*

POTENTILLA FRUTICOSA VAR. MANDSHURICA.

FLOWERING cheerfully and apparently as happy in Scotland as it is on the mountains of Tibet, is the delightful shrublet still known as Potentilla fruticosa mandshurica, although one wonders whether it will eventually receive another name when we receive more of these Tibetan Cinquefoils, which appear to be so numerous. In any case, it seems hardly possible that any lover of dwarf shrubs who has grown this form will be willing to discard it for another.

It forms a low, spreading bushlet about four inches high, with branchlets bearing silvery foliage and spangled with wonderfully large, pure white flowers. They resemble those of P. fruticosa Veitchii, and I have to-day compared the two in size. Possibly, those of P. f. mandshurica are a trifle larger and perhaps not quite so rounded in outline as those of P. f. Veitchii. It is truly a delightful plant, and thoroughly deserves the Award of Merit given to it by the Royal Horticultural Society. I am growing it at the base of the rock garden, where it looks exceedingly attractive.—*S. Arnott.*

SOLANUM CRISPUM.

IT is with no little satisfaction that I add my testimony to that of other correspondents on the hardiness of this fine shrub. Last winter, although entirely unprotected, it did not suffer any injury here, and we had over 20° of frost on more than one occasion. A native of Chile, S. crispum was introduced about one hundred years ago, but it has never become common in gardens, probably owing to a popular misconception as to its ability to withstand the average English winter. That it should be classed among the half-hardy shrubs is doubtless true, but I feel sure that it would do even in the midlands if grown against a wall in really free, rather poor soil. The flowers of the type are nearly one-and-a-half inch across, bluish-purple, or lavender in colour, with the orange anthers in a cone-shaped cluster as in the familiar blossoms of the Potato. These blooms are fragrant and yielded in great abundance from the late spring throughout the summer. They are followed by small round fruits, like tiny Tomatos.

An even better shrub than the typical species is S. c. Glasnevin variety (autumnalis of some lists). This is superior in that it has a much longer flowering season. The first blooms are often expanded in early April with me, and an unbroken succession is maintained from that date until late autumn. The flowers of this form are slightly smaller than those of the type, but they are of a richer colour.

I have never seen any fruits set by this variety and this may partly explain its wonderful prolificacy in blossoming. It appears to be quite as hardy as the other, if not hardier, and my specimens retain most of their leaves even throughout a severe winter. Spring pruning is advocated for both of these Solanums, and this undoubtedly encourages vigorous growth, but if early flowers are expected it is obvious that the knife should be used with discretion. I generally find that an occasional thinning of the older branches is all that is necessary. Although rather a soft-wooded shrub, S. crispum is not short-lived. It may be propagated by late summer cuttings, but I have not found that these strike very readily. *A. T. J.*

HARDY FLOWER BORDER.

A FRAGRANT HARDY GERANIUM.

GERANIUM MACRORRHIZUM is a species that should be warmly welcomed by all who like fragrant herbs, for it is, perhaps, the most deliciously scented of its race. All parts of the plant, flower, leaf, stem and even the roots, possess that keen aromatic perfume familiar to some of its indoor allies. G. macrorrhizum is one of the oldest of our cultivated plants, it having been introduced from Italy nearly three hundred years ago, but in spite of its southern origin, it seems to be perfectly hardy, and in my garden it seeds freely, self-sown seedlings, always true to type, often cropping up in unexpected places.

An herbaceous perennial, this Geranium makes a well-rounded, shapely plant about eighteen inches high and often well over thirty inches across. The broadly and deeply lobed, dense leafage is covered by a fine, silky down, and this foliage, so well as the stems and calyces, are usually tinted with red. The flowers are not exciting, being a dull, washy crimson, but as they do not rise much above the foliage and are soon over, they are at least modest in their claims. It is the habit of growth and leafage, but, most of all, the delightful fragrance, which are this plant's most attractive features, and for these it is always worth a place.

G. macrorrhizum is said to be largely used in the manufacture of Geranium scent and other perfumes. *J.*

COREOPSIS VERTICILLATA.

OWING to the beauty and decorative value of Coreopsis grandiflora, and its several varieties, the charm of C. verticillata, sometimes known as C. tenuifolia, is apt to pass unnoticed. Yet this should not be so, for although its blossoms cannot compare in individual beauty with those of C. grandiflora, it is nevertheless an attractive subject for the border, for it is free flowering and of good habit, forming a bushy and compact plant up to about two feet high, the finely divided leaves imparting to the whole plant a light and dainty appearance which is further enhanced by the numerous flowers, about one-and-a-half inch in diameter, with narrow ray-florets of rich golden-yellow.

C. verticillata is a good summer flowering subject for planting near the front of the herbaceous border. It is free-growing, not particular with regard to soil and easily increased. *W.*

ALPINE GARDEN.

ERODIUM CHAMAEDRYOIDES.

Although Farrer told us that the moraine is "too jejune" for Erodium chamaedryoides, I am growing it in one here and very happy it appears to be. A good deal seems to depend upon the composition of the moraine and the amount of rainfall in the district. I agree with a good practitioner who has moraines to construct fairly frequently, that where there is a heavy annual rainfall there should be more drainage, and also that the composition of the soil in it should be more open and have a greater proportion of chips. With a heavy rainfall here the moraine is very open, and this little Erodium is thriving and giving an abundance of its small, white, starry flowers, which are very beautiful above the mat of heart-shaped leaves. It is a delightful little Heron's Bill, and has a rose-coloured form, var. rosea, also very charming.

Being a plant of the southern islands of the Mediterranean, E. chamaedryoides seems to call for some care, if not on a moraine. I know when I first grew it, many years ago, before the advent of the moraine in the gardens, that I lost it occasionally in the rock garden. It has also been known as E. Reichardii.

COTYLEDON SIMPLICIFOLIA.

Of the comparatively few perennial Cotyledons hardy in our climate, two stand out as specially desirable. That named C. Semenovii has been well proved, and is a good plant about one foot or a foot-and-a-half high, with scarlet flowers in the autumn. I have not had this myself, but I have seen it frequently and know of its behaviour in a garden in this vicinity, where it has been in a border for a number of years.

For the rock garden, however, the more-recently introduced C. simplicifolia is specially suited, and is quite a choice and attractive subject. I used to cultivate it on a flat terrace of the rock garden, near the base, and in a position shaded from sun for the greater part of the day. I am now, however, growing it in a sandstone double wall, where it receives a good deal of sun and, so far, have no reason to regret moving it. It is charming on the level with its flat, Stonecrop-like leaves and long, drooping racemes of yellow flowers, but it reveals its character better when it hangs these flowers from a crevice in a wall or between the stones of the rock garden. It received an Award of Merit from the Royal Horticultural Society.

Some state that this Cotyledon requires moisture and shade, but these are quite unnecessary, and even in this season, which has since March been dry in the extreme, C. simplicifolia looks happy enough and even better in a crevice than it does on the level in the rock garden. It it free growing and produces an abundance of seeds annually

POLYGONUM VIVIPARUM.

A native of high alpine pastures in Switzerland, and found also on some of the English hills, Polygonum viviparum is not too frequently seen in gardens nowadays, although well recommended by keen critics of alpine flowers. It is a modest little plant, more suited for the rock garden than for the border, although I know a very old garden where this Polygonum has been grown for many years in the front of a border. It has rather long, dark leaves and three-inch stems, surmounted by spikes of small white flowers, with little bulbils on the lower part of the spikes. These drop off and create new plants.

P. viviparum has not the rampant, spreading habit of most of the larger Polygonums, and even the production of plants from these bulbils does not give it an ability to take possession of the place where it grows, to the detriment of other flowers. This little plant is quite hardy, but Farrer states that it is sometimes not long-lived, a statement which is rather surprising to some of us who have known the plant for many years.—*S. Arnott.*

PLANTS NEW OR NOTEWORTHY.

ALTHAEA SETOSA, BOISS.

In 1925, when travelling along the coast of southern Dalmatia, I stayed for a short time at Erceg Novi (better known as Castelnuovo) just inside the Bocche di Cattaro. On a dry hill slope covered with waste ground vegetation, my wife and I noticed a mass of plants of a species of Althaea new to us. The large, purplish-pink flowers were decidedly attractive and although the plants were past their best we saw enough to realise that when in full bloom the plants should be a glorious sight. We collected a packet of fruits before proceeding to Cattaro and later into Montenegro.

Seeds were sown in the spring of 1926 in the experimental ground attached to the Herbarium at Kew. They germinated fairly well and a row of seedlings was planted, while a number were given to the late Mr. L. A. M. Riley, M.A., of Derbyfields, North Warnborough. Mr. Riley flowered two plants last year but only one plant at Kew made an attempt to flower before its shoots succumbed to the autumn wet and cold. This year, however, a plant in the Herbarium ground has made splendid growth and at the time of writing, August 16, has formed a bush of about sixteen stems covered with large purplish-pink flowers (Fig. 71).

I did not succeed in identifying the species last year either from Mr. Riley's material or from that at Kew. There is, however, now no doubt that the plant is Althaea setosa, Boiss. *Diagn*, I, viii, 107 (1849). This was described by Boissier from material collected by himself on the hills of Samaria and Galilee, in association with Althaea digitata, Boiss. In the *Flora Orientalis* Vol. I. 828–829 (1867), both these species are placed in the genus Alcea, the latter being reduced to Alcea lavateraeflora (DC.) Boiss.

So far as I am aware, Althaea setosa has not been recorded from Europe and it is extremely

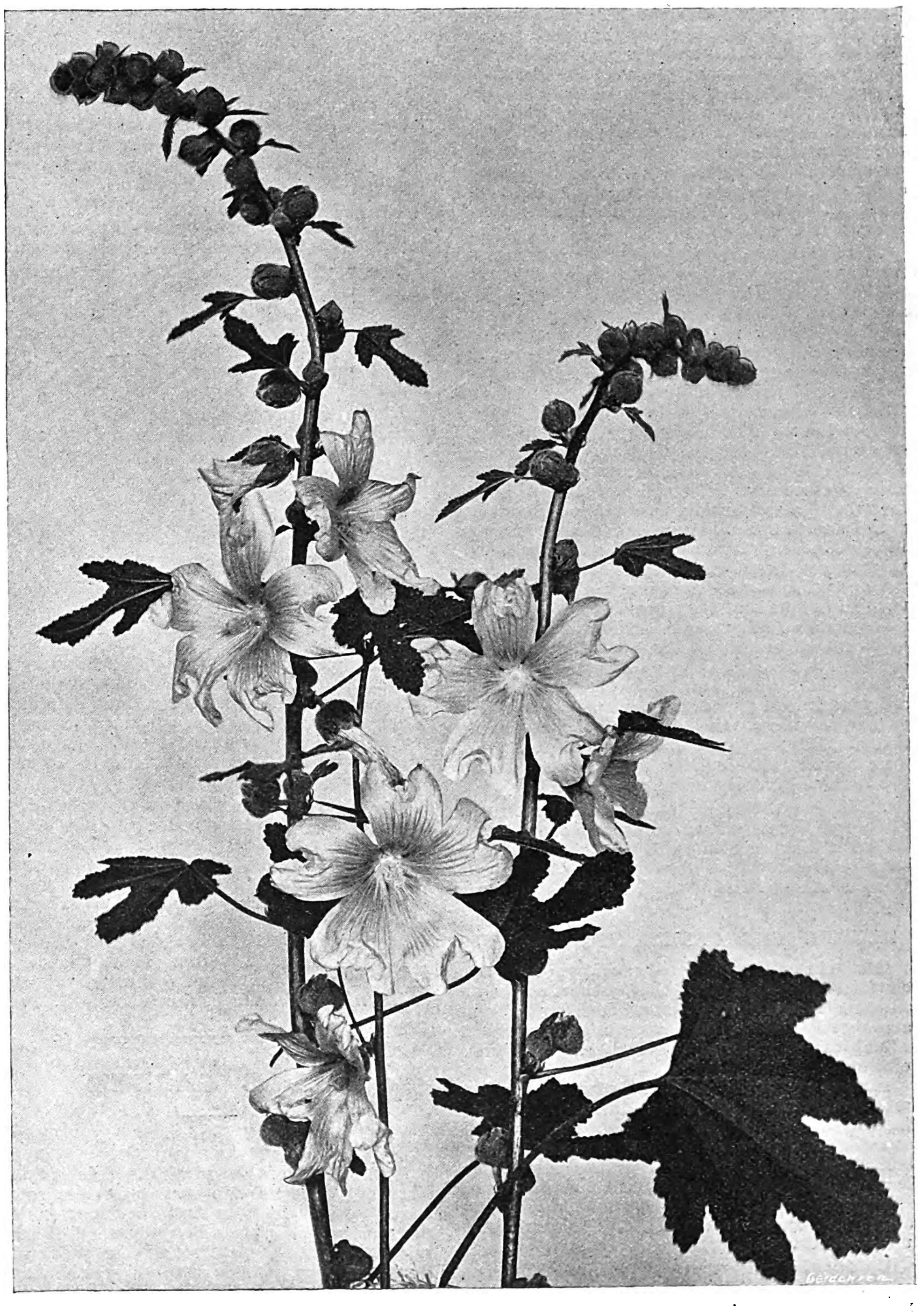

FIG. 71.—ALTHAEA SETOSA, BOISS.

unlikely that the species is a native of Dalmatia. Probably seeds were introduced intentionally from Palestine, perhaps first into a garden. When and by whom this was done it is impossible to say, although the imagination may be allowed to range back to the days of the Turks or even of the Crusaders. One question of botanical interest may, however, be raised. Visiani, in his *Flora Dalmatica*, iii, p, 209 (1852), records Althaea rosea, Cav. from "*circa moenia urbis Castelnuovo di Cattaro*." It is generally accepted that the plant he intended for one of his varieties (var. ficifolia) was not the true Althaea ficifolia, L., but A. rosea var. Sibthorpii, Hayek. Indeed, Visiani quotes the *Flora Graeca*, vii, tab. 663. We have specimens of the var. Sibthorpii at Kew from Dalmatia, although I have not seen any from Castelnuovo, and it is quite distinct from A. setosa. It is, however, possible that the latter from this locality has been passed as a variety of A. rosea, from which it is easily separated by the stem indumentum. As a wild plant A. setosa is now known from Palestine, Syria and Kurdistan.

The following description has been drawn up from the living plant, and in certain particulars supplements those published by Boissier: Main stem erect, up to six feet in height, much branched below with about fifteen secondary branches forming a bushy plant, simple for the upper three-quarters of its length. All the stems are blotched with dark, dull purple and provided with numerous small tufts of deflexed, bristly hairs. Lower leaves palmately lobed to about one-third their length, cordate, 15 cm. long, 20 cm. broad, crenate at the margins, the upper surface covered with fascicles of hairs and the lower with a well-marked stellate indumentum; petioles up to 3 dm. long with deflexed, fascicled bristly hairs; lowest leaves scarcely lobed, uppermost three-lobed with the middle lobe very prominent. Flowers one to five (generally two) in the axils of the upper leaves, the whole inflorescence being very floriferous; pedicels up to 1·5 cm. long, with the bracteoles and calyx densely stellately hairy; diameter of open flower 1·3 dm. Petals elongate-obcordate, always crinkled at the sinus, purplish-pink, with numerous veins, the claws penicillate-ciliate below. The androecial-gynaeceal column 2 cm. long. Immature carpels densely covered on the back with white, silky, adpressed hairs.

At Kew the plant has been in flower from the middle of July and will probably continue to bloom at least until the end of August. Fruits are ripening and it is hoped to distribute seeds this autumn.—*W. B. Turrill, Kew.*

ZAUSCHNERIA CALIFORNICA, PRESL.

Gardening literature of seventy years ago contains references to this genus as being suitable for use as summer bedding plants, and instructions are given regarding the methods of cultivation whereby the best results may be obtained.

Having experimented with the two forms that are usually obtainable here, namely, Z. californica and Z. californica var. mexicana, I found that results were far from satisfactory, and being aware that the botanists describe at least seven species, I appealed to an American friend for seeds of so many as could be procured and at the moment no fewer than five species are under observation.

By far the most desirable is the plant sent as Z. californica var. latifolia and under this name the plant was shown at the R.H.S. meeting of August 14, and received an Award of Merit subject to the name being correct. On referring the plant to Kew, where a thorough examination of the genus has been made, the plant has now been identified as the true Z. californica of Presl (see Fig. 70, p. 165), and is probably very rare in cultivation. The species grown in gardens and everywhere obtainable from nurseries is Z. latifolia and forms of that species.

Individual plants differ slightly in their degree of vigour, and some are more downy than others. The central stem stands up straight, forming a handsome, almost spicate head of flowers, bold and attractive. I think this is by far the most desirable form. The flowers are large, widely opened, and of the richest colour. Like all the species, it is easily propagated, either by seeds, cuttings or division.

Z. microphylla (Gray) is a particularly elegant plant with long, narrow, silvery leaves, and forms a handsome bush three feet in height—a really beautiful shrub even without flowers. Its narrow, distinct foliage makes it easily recognisable.

Z. Garretti (Nels.) is probably new to cultivation and came to me with the information that it was the most showy species of all, but as the seeds were only sown in the spring of this year it is too early to express any opinion. It has, however, one claim to attention, and that is the fact that it shows signs of being early-flowering. There is no possibility of this species being confused with any other, for its bold, oval or ovate foliage marks it as a most distinct species; in many instances the leaves are well over an inch across. It is found in Utah.

In Bailey's *Encyclopaedia of Horticulture*, the genus is dealt with by Mueller, and we are informed that there are "about seven species."

Those who have had the opportunity of growing them from collected seeds may have noticed great variations in the habits of the individual plants. Some are very erect, others lax and prostrate. They differ much in the size of leaf, some are nearly if not quite glabrous and others quite woolly or tomentose.

It would appear that there has been considerable restraint in the making of species. All, so far as described, have the same rich, scarlet flowers.—*T. Hay, Hyde Park.*

BOG GARDEN.

PRIMULA FLORINDAE HYBRIDS.

I had an opportunity of seeing the very fine collection of Chinese and Tibetan Primulas in the nursery of Messrs. Oliver and Hunter the other day. It was a great treat to see the magnificent display made by P. Florindae in bloom, of which there appeared to be many hundreds.

I was greatly interested in three hybrids of this species. One is supposed to be between P. Florindae and P. Waltoni. It is similar to P. Florindae in height and in the arrangement of the flowers, but the latter are pink. The two other hybrids have also the P. Florindae characters, but the colours are weak. The other parent of these is unknown. The pink of P. Florindae × P. Waltoni (?), although better, is rather weak also, but the three give promise of interesting results in the future.—*S. Arnott.*

BULB GARDEN.

COLCHICUMS.

Although the flowers of the Colchicums or Meadow Saffrons are somewhat less refined than those of the true Autumn Crocuses, they are well worth a place in the garden of hardy plants, for at this season of the year, when dwarf bulbous plants are not plentiful, one appreciates their large, Crocus-like flowers which carpet the ground in September and October with colours ranging from pure white to intense crimson-carmine. They are most pleasing when naturalised in grass or in the wild garden, where their flowers may be preserved from the splashing of heavy rains. If it is desired to grow them in the front of borders they should be planted among such low-growing plants as the Mossy Saxifragas, Aubrietias, etc., which support the long, slender stems and prevent them from being laid prostrate by winds or heavy rains.

Colchicums succeed in almost any soil, but they have a preference for a medium, moist loam; they do fairly well on light soils but the flowers are usually smaller than when grown in richer soil. In light soils they may be planted five or six inches deep, but if the soil is of a clayey nature three inches is sufficient. The leaves develop in the spring and any lifting and re-planting of corms should be done after the foliage has ripened.

Our native Colchicum autumnale, which is found abundantly in some English meadows, is an effective plant, producing pleasing, rosy-pink flowers with white tubes. It has also several varieties, notably C. a. roseum, with large flowers of a charming rose shade; C. a. atropurpureum, producing smaller flowers of a pretty, claret-red colour. C. byzantinum, with rose-coloured flowers of perfect form, produced in rich profusion is worth a place; as also is C. autumnale album with glistening, pure white and very effective flowers. Further, there are several varieties with double flowers which are very showy and last for a considerable time. C. Bornmülleri is a giant-flowered species with blooms of a pale lilac shade and white centre, and is among the earliest to flower; while C. giganteum is a choice species bearing immense expanded flowers of a lilac shade, with large white centres.

C. speciosum and its varieties also produce large flowers of good substance; they are somewhat later in flowering and are therefore extremely useful. The type has handsome, rosy-carmine flowers with white centres; the white variety C. s. album is an acquisition with large, ivory-white blooms of great charm, while C. s. rubrum is probably the richest coloured of all the Colchicums.

C. Decaisnei is another distinct species with narrow foliage, and produces rather small, flesh-coloured flowers in great profusion during November.—*W. A.*

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

The Privets are not a popular clan; they suffer from the use too frequently made of Ligustrum vulgare, a cheerless shrub as one sees it planted around London squares, causing one to interpret its specific name, not in the botanical sense of "common," but in one the reverse of complimentary. Howbeit, there are two or three highly desirable species, and among them I cordially endorse the opinion expressed by Mr. Bean that L. sinense is the best of the deciduous group. It flowers here a month later than at Kew, forming a cloud of milky white sprays, well worthy of association with such choice things as Eucryphia pinnatifolia, Myrtus Luma and Genista aetnensis, which, with several species of Hypericum, light up our woodland walks in August. A charming effect results from Tropaeolum speciosum running up nine feet through the Privet and winding its vermilion garlands among the white sprays.

In startling contrast with the general cool tones of late flowering shrubs is the scarlet flare lit up in August by a newcomer from China—Rhododendron eriogynum. It would be nearer the truth to express this in an optative sense, forasmuch as the only specimen we have of that fine species—a bush about five feet high—has borne but a solitary truss as yet, harbinger, we hope, of grand displays in years to come. If this should meet the eye of the generous donor of this Rhododendron, he may care to know that it has thriven well and brings him frequently to remembrance.

Another shrub well worthy of a place in the most discriminate collection is Hydrangea villosa, from western Szechuan. Growing about eight feet high, it bears freely in late summer and early autumn flat corymbs, the outer sterile flowers varying in colour on different plants—pink, violet or white—surrounding fertile flowers of a deeper hue. I have not seen this shrub anywhere except in Mr. W. McDouall's garden at Logan where it forms a fine group, whence I was allowed to take cuttings.

The Willow Gentian, Gentiana asclepiadea, deserves to be more frequently grown than it is, not only in borders, where, indeed, it is apt to become inconveniently aggressive, scattering its offspring by seeds and suppressing plants of less robust habit, but in open woodland, where it may be naturalised easily if seeds are sprinkled over any bare ground. I do not know whether it agrees with lime in the soil; but where Rhododendrons flourish it sends up stems three and four feet high wreathed with rich blue flowers in August. Would that rabbits would suffer the Evening Primrose—Oenothera biennis var. grandiflora—to bear this Gentian company; but they devour it greedily, leaving the other alone. Unluckily they have no taste for Knotweeds; well were it if they gnawed every shoot of Polygonum polystachyum and P. sachalinense to the ground. It was an evil moment for us when we set the first plants of these Asiatic terrors in our woods, where they have spread with appalling rapidity, requiring constant attention to keep them in check. P. campanulatum is not so rampant as the others, and its pretty flowers are as fragrant as those of P. polystachyum; but it is not to be trusted as a border plant, and should be set out in the woodland.

Late flowering Alliums are worthy of more favour than they receive, although they may be propagated very freely from seeds. Allium Beesianum carries its good blue flowers through August; A. sphaerocephalum, which my grand-daughters call the hat-pin plant, always attracts the attention of visitors. Another species, I am uncertain whether it is A. carinatum or A. paniculatum, bears handsome thyrses of reddish-purple flowers on two-feet stems. A kind friend sent me a root of A. odorum which differs from most of the genus, which are generally the reverse of fragrant, by bearing very sweetly-scented flowers in July.—*Herbert Maxwell, Monreith.*

LYCORIS: A GARDEN REVIEW.

In 1888, Baker in his *Handbook of Amaryllideae* listed only five species of Lycoris. During the intervening thirty years some three or four more distinct members of this genus have been introduced, making eight or nine in all, and, with the exception of the two introduced under the names of L. Sprengeri and L. incarnata I have grown and flowered them all at Isleworth.

L. squamigera is as hardy as Amaryllis Belladonna, and has established itself as a permanent denizen of my garden. In 1899 I had one-hundred-and-nine flowering scapes, and in the next year one-hundred-and-forty-three scapes, and if they are cut so soon as open, they make good vase flowers; but sun or cold causes the flowers to bleach to a bluish-grey. L. sanguinea and L. cyrtanthiflora flowered out-of-doors for a few seasons, and the latter produced seeds, but they both died out about the sixth year. L. radiata, although its foliage withstands seventeen degrees of frost, did not succeed out-of-doors. I have sometimes flowered it under glass. L. aurea does well under glass, and flowers regularly, while L. straminea, which I regard as a varietal form of L. aurea, flowers occasionally with me under glass, but is a weakling of little merit. The two Lycoris from Upper Burma, which are described below complete the list of species or forms mentioned above.

Species and Groups.

L. AUREA (*Red. Lil.* t.61i; *Bot. Mag.* t. 409, etc.). A splendid golden-flowered Lycoris carrying five or six (rarely eight or ten) flowers on a scape from two to three feet high, from August to October. Sterile. Long filaments.

(A) A variety from Amoy. Segments half-an-inch wide. Five to six flowers to the scape [*ex. hort.* Elwes.]

(B) L. straminea. This seems to be a pale-coloured, small-leaved variety of L. aurea. There is probably more than one colour variety of L. aurea, for those sent me from Amoy (with the previous variety) showed no red dots, and the pink keel was not pronounced.

(C) A variety from Upper Burma, sent by Mr. Clapham Jukes to the Royal Horticultural Society in October, 1904, which has all the segments ascending. It carries six flowers similar in other respects to L. aurea, but the foliage is distinct; "surgens" would be a descriptive name for this plant. It rarely flowers with me.

The type withstands four or five degrees of frost when in leaf, but requires heat in summer. It has been in our gardens since 1777.

L. SQUAMIGERA (*Gard. Chron.*, February 27, 1897, Fig. 38.) Hardy, with rosy-pink, slightly fragrant flowers, five to ten on a scape two feet to three feet high during July and August. Sterile. Filaments not conspicuously long. Generally some twenty to forty bulbs flower every year in my garden. After seventeen years with me, this bulb is now foliating with the Narcissi, but for many years it foliated much earlier.

(A) L. incarnata (*ex. hort.*). This carries six small, pale pink flowers with a deeper pink keel during September. It is not L. squamigera, although bearing some resemblance to it. I have not had this Lycoris under cultivation and my knowledge of it is confined to the examination of an inflorescence sent me by Mr. H. J. Elwes in October, 1903.

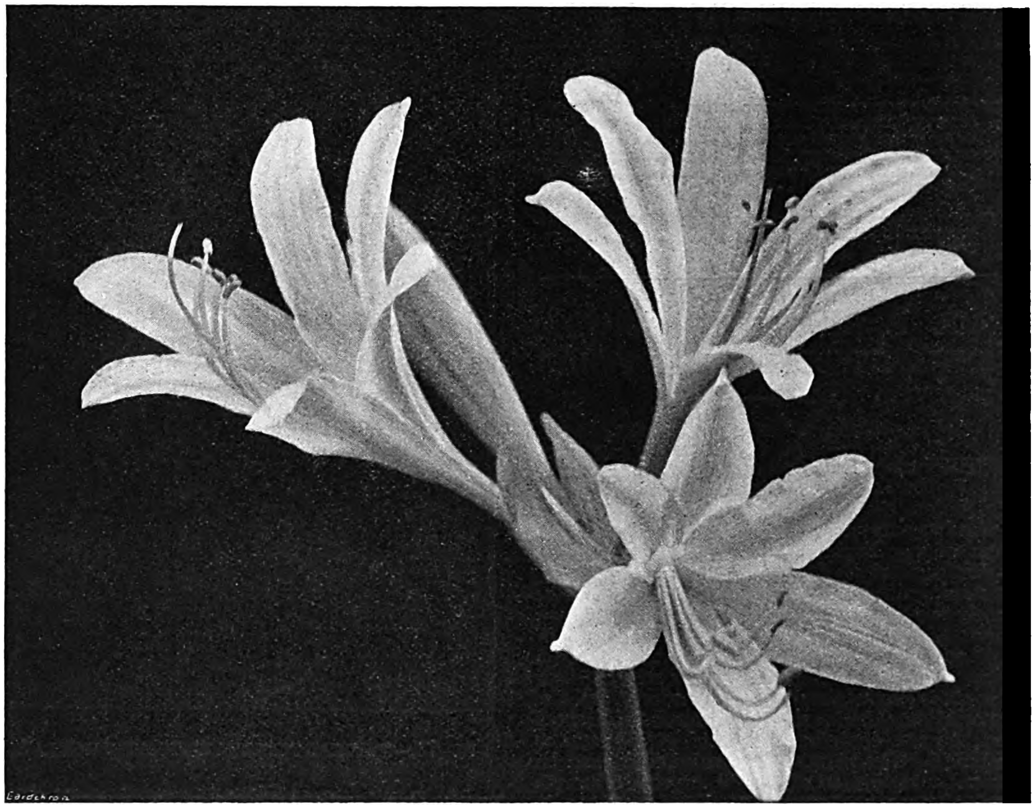

FIG. 72.—LYCORIS ARGENTEA.

(B) L. argentea. From Upper Burma, sent by Mr. C. Jukes with var. (C.) of L. aurea. It carries three or four fairly regular flowers on a scape about one foot high in July and August. In some respects the flowers resemble a small form of L. squamigera, but they are of a pale bluish-mauve colour, with a silvery sheen and some sparkle. They are keeled with a deeper mauve, but show no yellow towards the base. The leaves are similar to those of var. (C.) of L. aurea, although they are more strap-shaped than those of the typical L. aurea, are later, and are of a bluer-green colour. (See Fig. 72.)

(C) L. Sprengeri (*Gard. Chron.*, December 27, 1902, Supp. Illus.) Baker considered this as "clearly a new and distinct species," distinguishable from L. squamigera by the absence of any tube, but I have never seen this plant.

L. RADIATA (*Bot. Rep.* t. 95; *Bot. Reg.* t. 596). A striking plant, of which the filaments form the most conspicuous part. It carries four to six or more red flowers in a regular umbel on a scape about one foot high during September. The very narrow leaves grow from December onwards and withstand severe frost—ten degrees of frost for three days, and, on another occasion seventeen degrees of frost in one night, did not hurt the foliage. Yet this plant does not seem hardy about London, and rarely flowers even under glass. It likes plenty of water when in leaf and has been in our gardens since 1750.

(A) A form that flowered at the Royal Gardens Kew, in October, 1895, differed considerably from the type. It had five large, pink flowers with all the segments ascending (as in L. AUREA var. C.), and much wider leaves.

L. SANGUINEA is a beautiful little plant, carrying four to six bright-red, regular flowers on a scape one foot or more in height during autumn. The bulb is about one inch in diameter, and the filaments are not conspicuous.

(A) Var. cyrtanthiflora. This carries four reddish-apricot coloured flowers on a scape about nine inches high during August. The flowers bleach in the sun to a grey colour, but both this and L. sanguinea make charming cut flowers and do not lose colour in a room. This section is not hardy. I first flowered it at the base of a wall outside in 1897, had quite a nice show of it in the glorious summer of 1899, and an odd scape or two so late as 1901, but by 1903 all the bulbs had died. This is the only Lycoris which has produced fruits with me. Each fruit contains about three seeds, like grains of pearly Sago.

L. aurea should be grown by everyone who has a glasshouse, while the hardy species, L. squamigera, is worth its place alongside Amaryllis Belladonna. The others are only for lovers of Amaryllids. All Lycoris make first rate vase flowers, but they mostly decline to be grown in pots, so that special places have to be prepared for them. Perhaps this may account for the fact that although some Lycoris have been cultivated in English gardens for one hundred and seventy-eight years, they are still unknown to many gardeners.—*A. Worsley, Isleworth.*

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MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

VII.—TEA: A VISIT TO TOCKLAI.

THE Tocklai Experimental Station was started by the Indian Tea Association a few years before the war. Naturally, it began in a modest way, having to overcome the usual prejudices of big businesses to scientific research. Statistics show that it has entirely justified its existence, although the cost of upkeep is now nearly two-and-a-half lacs of rupees (R. 240,000 = about £20,000) a year. The staff consists of eight or ten men, most of whom, curiously enough, come from Birmingham University. The station is maintained almost entirely by the Association, the local governments of Bengal and Assam contributing only 14,000 rupees annually. The planters of south India send an annual contribution of 10,000 rupees, although Tocklai does not guarantee them anything in return for this; sure proof of the good work done for the Tea planting industry as a whole. The rest of the sum needed is raised by a levy of eight annas (half a rupee) per acre on the Tea gardens of Bengal and Assam. As there are 640,000 acres under Tea in Assam alone, it may be seen that there is no great difficulty in raising the necessary funds once the planting industry has been convinced of the benefits to be derived from research.

In addition to the laboratories, chemical and biological, where research is carried out not only into the living Tea plant and its various enemies, both fungous and insect, but also into the chemical changes which take place in the drying of Tea leaves, there are over fifty acres of experimental garden. Here tests are conducted with the different varieties of Tea plant, and with different methods of cultivation. The field work, in fact, is as important as the subsequent work in the drying sheds. Methods of pruning, of keeping the ground clean in the most economical way, of plucking and of spraying, are all dealt with minutely, patiently, comprehensively. Then there are problems connected with the selection and planting of seeds, the best shade trees to use and of course, most important of all, manuring and depth of tilth.

In order to understand what is happening, it is necessary to give a brief history of the Tea plant in Assam. In 1823, Mr. Robert Bruce and Captain Jenkins discovered wild Tea in the province—the plant now known as Assam Indigenous. Specimens were sent down to Calcutta about 1825. In 1832 the Indian Government became interested, and two years later the Tea Committee was appointed. In the same year Mr. Gordon was sent to China to bring back plants, and in 1835 the famous scientific committee was formed, consisting of Dr. Wallich, Mr. McClelland and Mr. Griffith. It will be remembered that the Tea Commission visited Upper Assam about 1836, and that Griffith went to Sadiya, thence to the Mishmi Hills, following the Lohit so far as Brahmakund, where the river issues from the mountains, and finally made the difficult journey from Assam to Burma via the Hukong valley. The first consignment of Assam Tea was sent to England at the end of 1837, and the Assam Company was formed in 1839. In 1840, nearly five hundred chests of a maund (80 lbs.) each were exported, and in 1841 it was expected that treble this amount would be exported. The above facts are taken from William Robinson's *Assam*, published in 1842, and Griffith's posthumous papers.

FIG. 73.—TYPICAL VEGETATION AT TOCKLAI.

The Tea industry was thus firmly established by the time Fortune was sent to China to secure more plants and to bring back Chinese workmen who would demonstrate the best ways of preparing the dried leaves. How many of the millions who drink tea ever give a thought to the romance of this vast tropical industry? An enormous area of once virgin jungle, and expensive machinery undreamt of by the early Chinese manufacturers, backed by a fabulous amount of capital, are now devoted to the production of Indian Tea.

But a bombshell has recently been thrown into the Assam fold by a Dutch investigator in Java, who has been studying Tea problems for a decade. Briefly his contention is this; that there is no pure Tea in India, that all the different races and varieties are hopelessly mixed up, and worst of all, that they are hopelessly mixed up and crossed with a very inferior Chinese Tea, introduced by Robert Fortune! The Chinese, it is alleged, shrewd people, sold only their worst varieties to the infant industry, scenting a rival market. As a consequence it is now impossible to obtain pure seeds of Assam Indigenous, which is generally regarded as a much more suitable variety, at least for most parts of India. Finally, it is contended that a general deterioration of Indian Tea has already set in.

The Tocklai authorities, however, are by no means prepared to accept this pronouncement, which after all comes from a rival field. At present it seems to be little more than an *ex cathedra* statement, which will be very severely scrutinised and tested at the experimental station. So far as the Assam gardens are concerned, they grow chiefly Assam Indigenous, which gives a yield of eight to twelve maunds per acre; in a few localities the yield is as high as fifteen maunds. China Tea gives only six to eight maunds in Assam, but is said to be more suitable for the Darjeeling district. It might, therefore, be a serious matter if the inferior Tea has become inextricably mixed up with the indigenous.

There are, of course, many varieties of Tea, *vide* Watt's *Dictionary of the Economic Products of India*, and they have been variously classified by different authorities. But as they are mostly based on the form and colour of the leaf, and as the leaves of each and every Tea bush vary enormously in colour and form, the botanist is a little puzzled; small blame to him if he considers the classification somewhat arbitrary. Nevertheless the Tea bush is found wild over a great area, although its distribution appears to be practically continuous from Assam to the China Sea, so that it would be stranger still if it did not vary at all. Thus we have Assam Tea, Manipur Tea (which is probably Burma Tea), Lushai Tea, Tonking Tea and China Tea, to say nothing of even more localised forms. Some of these are trees, others are bushes. A variety, said to come from an altitude of nearly 10,000 feet on the Burma-China frontier, has flowers nearly twice the usual size, although not otherwise distinct. Perhaps the Tonking variety is as distinct as any. But leaving habit and habitat out of consideration, the average botanist would probably say that all the varieties of Camellia Thea boil down to two—a broad, short-leafed form, and a narrow, large-leafed one, and that further, there are dark and pale forms of both. The question is a practical one because India in general, and Assam in particular, are concerned to grow the most suitable *jats* of Tea. Formerly, Assam was chiefly concerned to increase the bulk of its exports; now it is chiefly concerned to raise the quality. At Tocklai, too, every problem is regarded strictly from the economic point of view. The mycologists, for instance, are not concerned to devise methods for stamping out this or that endemic disease, of which there are many, but few of them serious; but to devise methods which will increase or keep up the yield per acre, while keeping down the cost. It sounds blatantly utilitarian; but progress is utilitarian.

And this brings me to the second of the two problems (interesting to the botanist) with which the Tocklai investigators are most closely closeted at the moment; the problem of blister blight. During my visit I was the guest of Mr. and Mrs. Tunstall. Tunstall is the chief mycologist to the department, and so I heard a good deal about blister blight. This disease is caused by a fungus (Exobasidium) which occurs on the Tea leaf both in Assam and in the Darjeeling district, usually making its appearance after an inclement cold weather season, when there has been more rain than usual. It appears that the same, or a very similar blight attacks some of the Rhododendrons of Sikkim; species on which it has been recognised including R. cinnabarinum, R. anthopogon, R. formosum var. salicifolium, R. arboreum and R. grande. It is also known to affect other Camellias, and a species of Pieris. This was decidedly interesting, and I gladly consented to look out for any Rhododendrons affected. So far it has not proved possible to infect Tea with the Rhododendron Exobasidium, owing to practical difficulties. Should it ever become epidemic, this blister blight, unless promptly dealt with, might prove a disastrous foe, and the mycologists are working on it continuously. Its life history is fairly well known, but until the conditions

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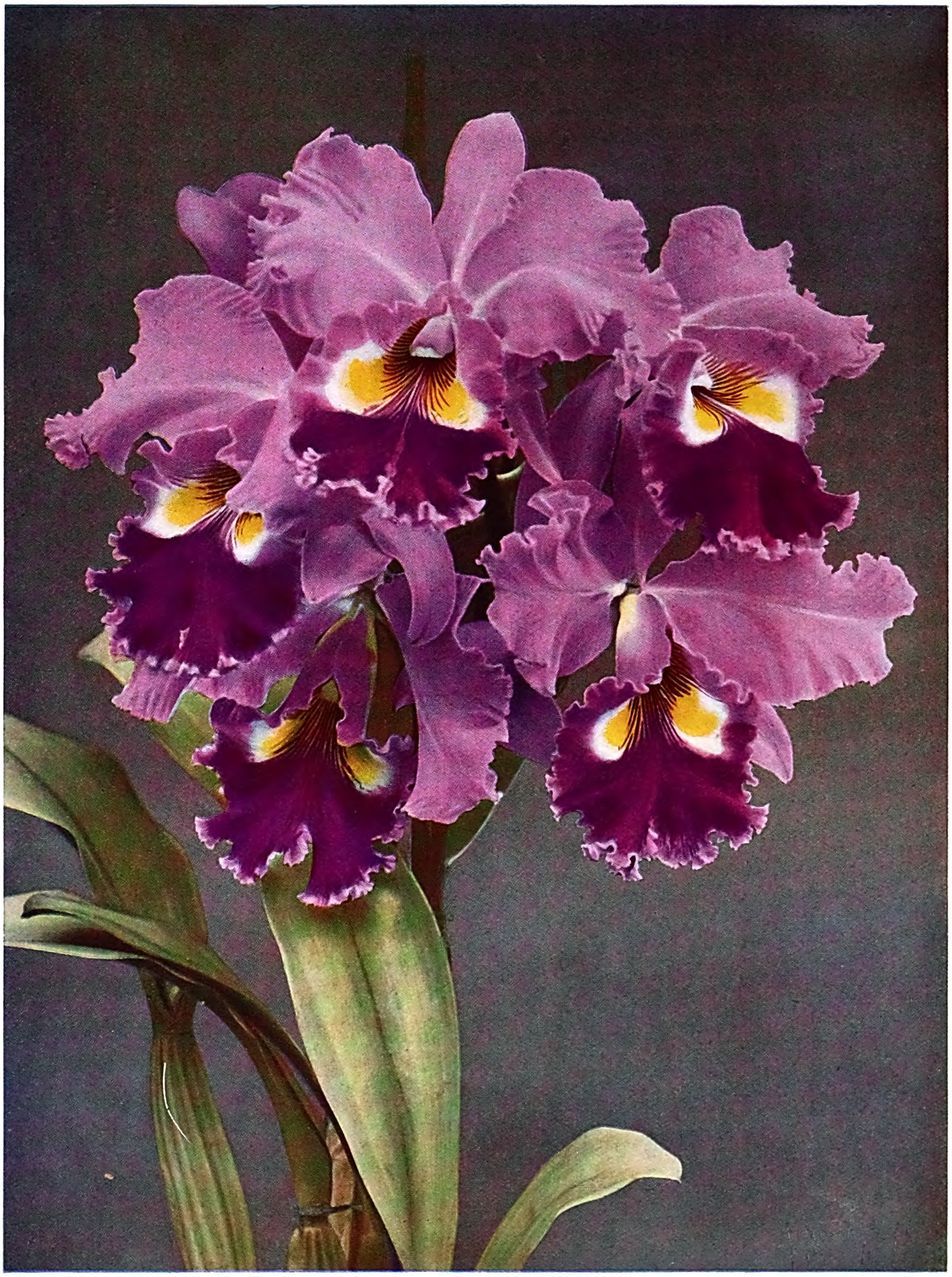
* Previous articles on Mr. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII, and July 7, 21, and August 4, and 25, 1928.



LAELIO-CATTLEYA PROFUSION.

under which it flourishes and infects other areas are better understood, remedial measures may only be more or less tentative.

The Upper Assam valley is probably one of the finest Tea gardens in the world. Tea, it appears, can withstand a fairly low temperature, the one thing it requires being a moist atmosphere at all seasons. The light soil of Assam too is admirably suited to it. Tea flourishes only in a soil which is slightly acid, and over the whole of the Assam valley, and to a depth of 150 to 250 feet, the soil is a sandy silt with an acid reaction. Soil analysis forms an important part of the work at Tocklai.

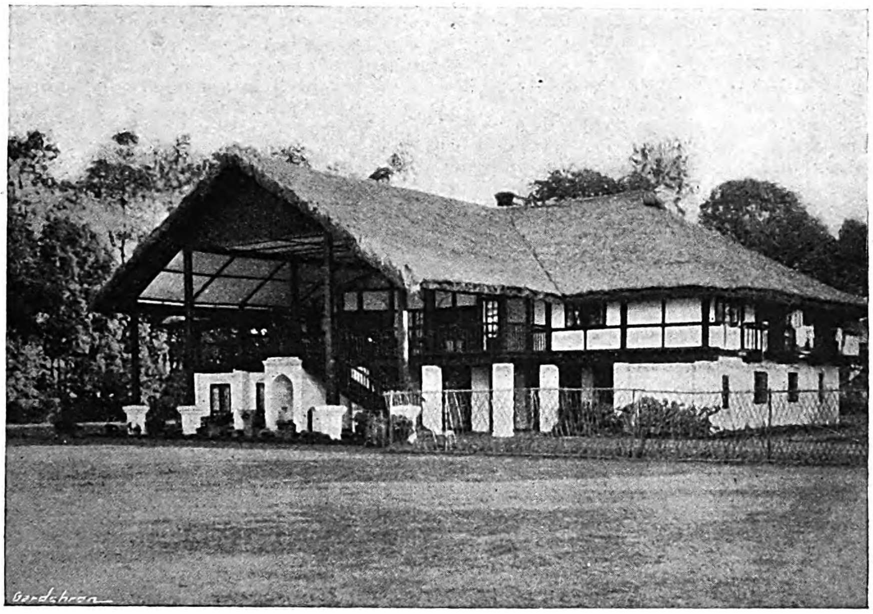


FIG. 74.—TOCKLAI EXPERIMENTAL STATION.

Then there is the work of the chemists on the fermentation of the leaf, and the changes which take place when it is dried and rolled, and on the colouring matter, and caffein and tannin; all of absorbing interest.

It came as quite a shock to me—others may share my surprise—to learn that Tea contains caffein, the active principle of Coffee. But enough has been written to show the important part played by Tocklai in one of the greatest plant industries in the Empire.

On the Sunday we went for a long motor drive to see some ancient temples in old Assam. The roads are all dirt tracks, much cut up, but if one is prepared to put up with bad surfaces and a lack of bridges, one may motor for hundreds of miles in Assam, through Tea gardens, and Paddy fields, past ancient Assamese temples and royal tanks, and quiet villages, where the scenery is monotonous, but never dull. There are trees everywhere, and especially along the roads—Cassia Fistula, C. nodosa, Dillenia indica, Alstonia scholaris, Clerodendron Siphonanthus and many others.

And then, on my last day at Tocklai, we drove to the Naga Hills and walked for miles through the forest where no motor road was, to an Ao village It was very pleasant, but it was a long way from Kohima, and I quite failed to recapture the spirit of that glorious six weeks. As we turned homewards, the red sun swam down into a seething mist, darting fiery spokes between the tree trunks, and we drove home in the cold grey vapour of the plain, reaching Tocklai late. It was February 1, and I had to be in Sadiya to meet the Political Officer next day; so after dinner I said good-bye to my friends and boarded the train, with the prospect of another disturbed night.

Next day we reached the end of the railway on the bank of the Lohit; and I was thrilled to see in the distance the high frontier mountains, calm, majestic, white with snow. I met the Political Officer here, and we crossed the river to Sadiya, where I became his guest. *F. Kingdon Ward.*

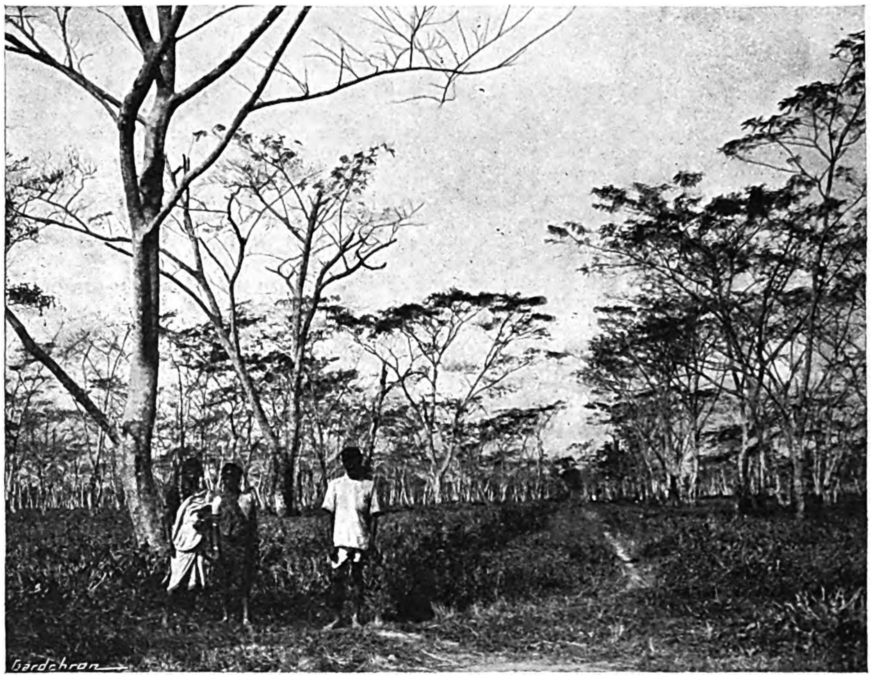


FIG. 75.—A TEA GARDEN NEAR DIBRUGARH.

NOTES FROM A WELSH GARDEN.

Spiraea arborea (syn. Sorbaria arborea) has flowered exceptionally well this season, probably owing to the abundance of moisture during the early summer, this promoting a vigorous growth of young shoots which terminate in the wonderful inflorescences for which this species is noted. S. arborea is said to be a close ally of S. Lindleyana, but it is larger in all its parts than any specimen of the latter which has ever come under my observation. The creamy-white inflorescences, often nearly two feet long, and immense pinnate leaves, are singularly elegant. The complaint sometimes made that this class of Spiraea fails somewhat owing to the comparatively brief existence of the inflorescences is not ill-founded. There is, however, a certain attractiveness in these plumes of blossom after they have faded. S. discolor is, for example, one of the most evanescent, yet its panicles of spent blossoms of a soft, rusty-brown are so light and airy that the shrub produces a cloudy effect much like that of the Wig Tree, Rhus Cotinus.

Eucryphia pinnatifolia and E. cordifolia are always among the most delightful objects of one's August garden, and although they attain to the stature of trees they often begin flowering when no more than good-sized shrubs. This applies with even more emphasis to Desfontainea spinosa, and after having had the old specimens of this brilliant Chilian destroyed by last winter's frost it is no small consolation to see youngsters of from one foot to three feet in height well furnished with blooms. Among the hybrid Ceanothuses of the C. azureus class, C. hybridus Henri Defossé is the most remarkable of a small collection, its bold, branching panicles of blossom being a deep violet-blue. Hypericum chinense, although a somewhat small and slender shrub, is always one of the most noteworthy from about mid-August onwards. It is an evergreen and not considered a hardy species, but none of my plants suffered last winter. The narrowly-oblong leaves of a peculiarly soft and delicate green of H. chinense are always distinctive, and the golden-yellow flowers unusually large. Some of these latter, just measured, were over three inches across and the stamens are very long and conspicuous. Although its blooms are small, H. aureum is also a very charming small shrub, dense and compact in habit with a well-rounded form, usually on a single short leg. This is an American species, and it has yielded some self-sown seedlings here.

For many weeks, Mutisia decurrens has been a blaze of colour, one plant having over twenty blooms fully expanded at the same time. The familiar Gazania at its best would look pale beside the glowing orange of the flowers of this Mutisia. It so happened that as the Buddleia nanhoensis, which serves as a support for this climbing Composite, was particularly well covered with blooms when the gorgeous Chilian was at its best, the colour effect was exceedingly striking without being crude or discordant. In spite of the hard winter, Ceratostigma Willmottianum was in flower here before the end of July, and in a well-known neighbouring garden I saw several fine groups which were showing their lovely blue flowers still earlier. Some of the most forward of these were, oddly enough, against the base of a north wall. Although it is worth a place for the sake of its foliage,

C. Griffithii is always too late to flower here, but it is being tried against a wall with hopes of success. Solanum crispum Glasnevin variety is still carrying a fine head of its rich lavender and orange blooms, and Romneya Coulteri is, I think, better than it has ever been. It has not reached the stature of seven to eight feet which it often attains here, but the oldest plant, nearly twenty years old, has produced a great crop of five feet shoots, and these are flowering abundantly. Abelia Schumannii is an attractive little shrub which yields quantities of rosy-lavender blooms practically throughout the season. A more striking member of this genus is A. floribunda, a native of the heights of the Cordilleras of Mexico and quite reasonably hardy. Its rich rosy-red, white-throated trumpets, which hang in clusters from the arching branches, are nearly three inches long.

Genista aetnensis, which comes from Sicily and Sardinia, is a valuable late-flowering shrub which may eventually grow to twenty feet in height. As a young plant of less than half that stature it is very delightful throughout the later summer, such specimens being less leggy than old plants are apt to be. The slender, weeping, Rush-like twigs bear small, bright yellow blossoms which are fragrant. Since this species yields seeds which germinate freely, it is not a difficult matter to maintain a stock of young plants of this charming Broom. It is perfectly hardy and flourishes in the most meagre of soils. Cytisus nigricans is another first-rate late-flowering Broom of medium stature. A free-flowering subject, it produces slender, terminal, upright panicles of yellow flowers at the tips of the growths of the current season, these giving a pleasing touch of colour to the open woodland and Heath slopes just when Spartium junceum is passing. C. Carlieri is apparently a synonym of this species, but it is sometimes listed as a variety. C. supinus is also flowering freely among the Heaths, a grey-green, silky shrub about three feet high, with clusters of pale yellow blossoms at the ends of its slender, more or less erect branches.

In somewhat cooler and shadier quarters, Philesia buxifolia has been flowering intermittently for several weeks. Here, too, is Mitraria coccinea, a semi-procumbent Chilian evergreen, with glossy, dark green foliage, which proves such a good setting for the curious flowers. These are well over an inch in length and tubular, but contracted at the mouth after the manner of those of Heaths. They are a bright orange-scarlet, and are yielded from soon after midsummer until autumn. That interesting and exceedingly beautiful plant, Deinanthe coerulea, also occupies a cool, rather shady woodland retreat, its large and bristly leaves, which might be those of Rodgersia aesculifolia on a small scale, bearing at their centre a drooping cluster of Anemone-like blossoms. The petals of these are thick and waxy and of a lovely shade of soft lavender, the anthers being a silvery French-grey. This remarkable plant was, I believe, introduced by Mr. E. H. Wilson, from Hupeh, but it was discovered earlier by Dr. Henry. It was raised and first flowered by the late Mr. Elwes at Colesborne, in 1909, but it seems to be still very uncommon. I have found it quite hardy and untroubled by pests, but spring frosts are liable to injure its young shoots.

Among the mid-season Heaths, Erica cinerea var. Frances, with flowers of a bright cerise, has always attracted the attention of lovers of hardy Heathers, and no less may be said of E. c. var. Apple Blossom, with its long, well-flowered spikes of white with a delicate flush of shell-pink. E. Williamsii, which has not done well hitherto, is this season covered with blooms of a soft rose-pink, and another hybrid, E. hybrida H. Maxwell, has been bearing an exceptionally good crop of flowers since June. This plant suggests E. ciliaris in its foliage and habit, but the large, bright pink blossoms are produced more after the manner of its other parent, E. tetralix. Good as many of them are, the Heaths of the E. cinerea set are eclipsed during the later part of their season by the flowering of the newer varieties of E. vagans. In this section, E. v. kevernensis, at its best—it often shows reversion in seed-raised plants—is still I think, without a rival in its own colour, but E. v. Mrs. D. F. Maxwell, with its redder, more cerise-coloured spikes, is also a magnificent Heath, and one that may hold its own anywhere. I find this latter an excellent companion plant for E. v. Lyonesse, which is not only the finest white of its class, but one of sufficient quality to accord it a place among the best of all white Heaths.

Although the drought of July was sufficiently severe here, the soil being thin and stony, to cut short the flowering season even of Cistuses, a few of these are still carrying-on and again proving their usefulness as later flowering subjects than most. These include C. Lorotii, the allied C. recognitus and C. crispus. With some of these, on an exceptionally dry bank, Mimulus glutinosus is flowering abundantly and among other shrubs which have proved indifferent to drought under equally trying conditions are the Potentillas and Hypericum balearicum. *A. T. Johnson, Ro Wen, Conway, N. Wales.*

THE GENUS PRIMULA.

(Continued from p. 153).

CRISPATA (Balf. f.). Crisped Capitate P.
(Capitatae.)

This plant is regarded as a sub-species of P. capitata. Leaves three to four inches long, narrowly oblong or bluntly lance-shaped, blunt; margins irregularly toothed or torn; both surfaces quite free from meal. Flower stem nine to twelve inches tall, mealy among the blossoms. Flowers violet-blue, forming a dense head. Corolla concave, about half-an-inch across, divided into five elliptic or rounded, notched, overlapping lobes. Flowers in September. Grows in mixed herbage in open damp spots near Laghep, in the Sikkim Himalayas at 11,000 feet above sea-level. *The Garden*, 1879, pl. ccx, under P. capitata.

Culture: As for P. capitata.

CUNEIFOLIA (Ledeb.). Wedge-leaved P.
(Cuneifolia.)

A choice little species with smooth foliage, quite free from meal. Leaves a quarter- to three-quarters-of-an-inch long, obovate or wedge-shaped, with short or rather long stalks; front margins furnished with coarse, saw-like teeth. Flower stem slender, four to five inches long, bearing one to six flesh or rose-coloured blossoms in an umbel, on slender stalks about half-an-inch long. Corolla five-eighths-of-an-inch to three-quarters-of-an-inch across, or occasionally more, with very deeply notched lobes; tube cylindrical, about half-an-inch long.

This plant is found in rocky pastures in eastern Siberia and the islands of the Berhing Straits.

Var. Dubyi (Pax.) is more robust that the type with longer stalks to the leaves and larger flowers; it is found on mountains of eastern Siberia.

Var. saxifragifolia (Lehm.) is more dwarf than the type, with an umbel of one to three rather smaller blossoms; also has shorter stalks. Found on islands of the Behring Straits.

Culture: As for P. chrysopa.

CUNNINGHAMII (Craib). Cunningham's P.
(Petiolaris-Sonchifolia.)

A dwarf perennial plant with thin, papery, spathulate, oblong-spathulate, or oblong-ovate leaves, about four inches long and one-and-a-quarter-inch wide, rounded at the tip, tapering gradually into narrowly-winged stalks; the margins are sharply and irregularly toothed and are furnished with minute glandular hairs; when mature the leaf is generally smooth. Flower stem not developed; flowers numerous, on rather short, downy stalks, which are slightly mealy when young. Corolla purple, about three-quarters-of-an-inch across, with broadly heart-shaped lobes rounded at the tip; tube a quarter-of-an-inch to five-eighths-of-an-inch long, slightly downy outside.

Flowers from September to November. Grows in short turf and gravelly soil in various parts of eastern Sikkim at 11,000 to 13,000 feet above sea-level, and is also found in south-eastern Tibet.

Culture: Gritty loam, in a moist but well-drained spot in full sun, is indicated.

CUSICKIANA (A. Gray). Cusick's P.
(Nivales.)

Perennial, with smooth, non-mealy foliage. Leaves about two inches long, oblong-spathulate, entire, or very slightly toothed. Flower stem three to six inches tall, fairly slender, bearing an umbel of two to four violet, rarely white, blossoms, half- to five-eighths-of-an-inch across, with rounded, retuse lobes. Flowers in April and May.

This plant is found on the mountains of Oregon, in western North America, in moist, stony places.

Culture: Good loam and leaf-soil in a damp, half-shady place, should suit it.

CYANANTHA (Balf. f.). Azure-flowered P.
(Muscarioides.)

This beautiful plant is a robust sub-species of P. Watsoni: it forms a large tuft of narrowly oval, pale green leaves, four to six inches long, very sparsely hairy above and glaucous, with a few hairs on the larger veins below; they are rounded at the tip and taper to a narrowly-winged stalk; the margins are cut into small or large, irregular teeth. Flower stem about twelve inches tall, more or less powdered with yellow meal and bearing a spike about one-and-a-half inch long, of many, somewhat deflexed, fragrant, intense blue flowers, deep purple in bud, as are the bracts. Corolla funnel-shaped, about five-eighths-of-an-inch long, externally powdered with yellow meal; the small lobes are obovate or nearly square, and slightly notched.

Flowers in July. The plant is found in moist, stony mountain meadows at Ka-gwr-pu Tsarong, south-eastern Tibet, at 14,000 feet above sea-level.

Culture: Plant it in good light loam and a small quantity of leaf-soil in a damp, half-shady spot in the rock garden. Protect from damp in winter.

CYANOCEPHALA (Balf. f.). Blue capitate P.
(Denticulata.)

This plant forms a spreading tuft of smooth, oblong, or nearly lance-shaped, blunt leaves, about four inches long, which are but little developed at flowering time; the wavy margins are obscurely toothed; the leaves taper gradually into narrowly-winged stalks. Flower stem stout, six to eight inches tall, densely covered with white meal above. Flowers very numerous, in a dense globular head. Corolla rich, deep purple with a yellow eye, a quarter- to three-eighths-of-an-inch across, with a cylindrical tube and very deeply cleft obovate segments.

Flowers in April. Found in moist mountain meadows near Tong Tchouan, in eastern Yunnan.

Culture: As for P. capitata, of which it is a sub-species.

CYCLIOPHYLLA (Balf. f.). Circular-leaved P.
(Dryadifolia.)

A tiny, tufted species with a short, prostrate stem, and leaves about five-eighths-of-an-inch long; the blade is nearly circular in outline, tapering to a stalk about equal in length. Flower stem about three-quarters-of-an-inch to one inch long, bearing two pale rose-red blossoms about five-eighths-of-an-inch across, both facing the same way. The foliage and flower stem are more or less powdered with yellow meal. Flowers in August and September.

This beautiful little plant forms mats of foliage in moist, stony meadows, on the Chimile Alps in north-eastern Burma, and in south-eastern Tibet; it reaches a height of 14,000 feet above sea-level.

Culture: Fibrous loam and limestone chips in a moist, half-shady spot, or in a limestone and granite moraine; with protection from damp in winter, should suit it. *A. W. Darnell.*

(To be continued).

GARDEN MANURES FOR SEPTEMBER.

Although the majority of so-called artificial manures may be used with greater advantage during the season of active growth, there are two classes of fertilising agents which should be employed during the less active season. These are, manures which are very slow in action, and those which have caustic properties, and they may be applied, as occasion arises, from now onwards.

One of the best known of these slow-acting agents is basic slag, an excellent, mild phosphatic manure which may be used with advantage in the cultivation of flowers, fruits and vegetables. On grass, also, its action is to improve the texture of the lawn by causing the coarser grasses to disappear, to the advantage of the finer ones, but it has a powerful influence in increasing Leguminous plants, and should therefore be used sparingly on lawns where Clovers are not wanted. To get the greatest advantage from the use of basic slag during the following season of growth, however, it is essential that applications should be made so early as practicable in the autumn. This is a point which many growers overlook, and they appear to expect as good results by applying it early in the spring as they would from autumn application. On the other hand, it may be noted that no permanent loss of material results from late applications, for the phosphoric acid in basic slag is not soluble in water, and there is thus no danger of loss through being washed out in the drainage water. In some cases, good results have been observed from its application over a period of several years. Besides its phosphatic value, basic slag usually contains from forty to fifty per cent. of lime, and is thus particularly adapted to strong soils deficient in lime, and on all soils containing a large proportion of organic matter, on the acids of which the lime acts as a neutralising agent. On account of this relatively high lime content, basic slag should not be used in direct conjunction with sulphate of ammonia, guano, stable manure, sewage or blood manure, or the lime would liberate some of the ammonia and result in its loss.

Every grower knows that superphosphate should be applied during the growing season, but there is a form of it known as basic superphosphate which may only be applied with beneficial results during the autumn and winter months. It is a non-acid form of precipitated phosphate which has special affinities for soils in certain conditions, and there is considerable evidence to show that it is specially suitable for gravelly, sandy and peaty soils.

Another phosphatic manure which is very slow in action is ground rock phosphate, a cheap manure resembling basic slag in its action, and only fully efficient when applied during the autumn and winter months.

Kainit is a highly valuable potassic manure, but in its crude state it generally contains salts of magnesium and sodium, and other substances which may be detrimental to plant growth. If applied late in the spring these substances may seriously depress the growth of the crop, whereas when applied during autumn and winter anything of a corrosive nature becomes toned down or washed out, and the potash becomes available for the crop as growth becomes active. The value of potash in plant nutrition is generally recognised, and under some conditions the application of kainit during the autumn and winter months offers a more convenient means of supplying this element than that of applying sulphate of potash or muriate of potash during the season of active growth. Kainit absorbs moisture and soon becomes lumpy if stored in bags, and it should be thoroughly crushed before use to enable uniform distribution.

Green manuring as a means of enriching soils with organic matter could be practised much more generally than is usual, with advantageous results to many soils, particularly those of a light, sandy nature. It is frequently possible at this time of the year to grow Mustard as a catch-crop on vacant plots and dig it in before frost destroys it. Sowing should not take place later than early September, however, as unless good growth is secured before frosts set in, the bulk of tissue to dig in is too small to be of much service. But on light, warm soils, the growth of this plant is very rapid during September and October, and it is probably the most useful for the purpose. Plots that become vacant later in the month may be sown with Rye or Vetches, which may remain until early spring, when they should be dug in. *W. Auton.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante. pp. 112-118.)

(*Continued from p.* 156).

ENGLAND, E.

Suffolk.—On the whole, the fruit crops in this district are better than one hoped for after the trying period of cold winds, frosty mornings, hail and snow showers, with bright intervals occurring during the week ending April 21. Apples on bush trees are a good crop, especially Worcester Pearmain, Cox's Orange Pippin, Allington Pippin, Blenheim Orange and Bramley's Seedling. Newton Wonder cropped well last year and not so heavily this season. Warner's King and James Grieve are poor, and the fruits are badly scabbed. Plums are a partial crop where exposed, Victoria and Czar being the most promising varieties. Bush fruits have been plentiful and good, Black Currants making low prices, but they were quickly finished by the hot weather of July. *E. G. Creek, Horticultural Instructor, Abbey Ruins House, Bury St. Edmunds.*

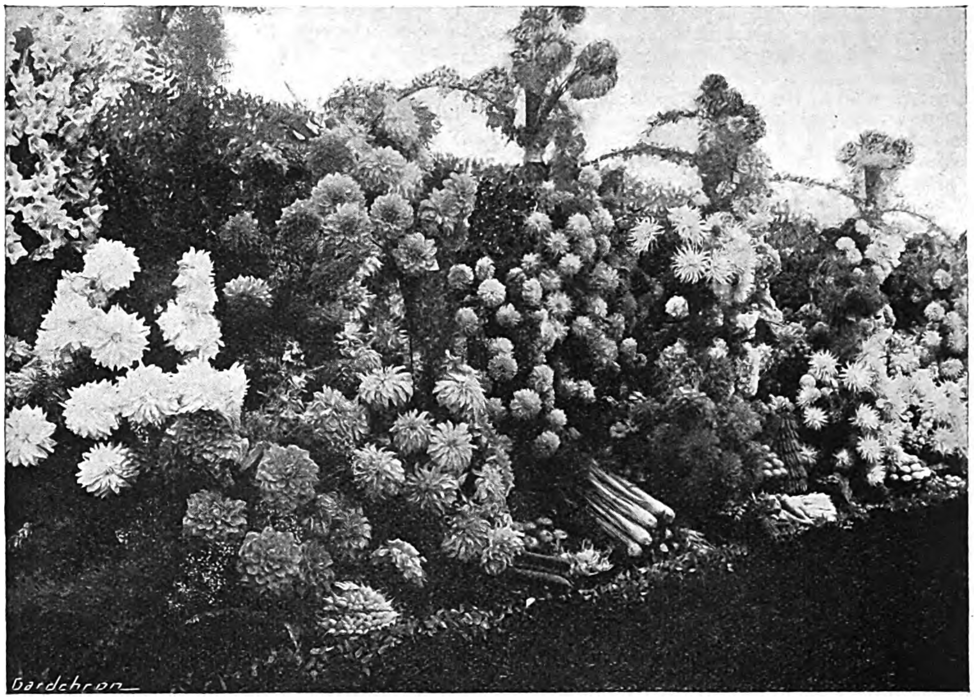


FIG. 76.—SOUTHPORT SHOW: MESSRS. DICKSON AND ROBINSON'S EXHIBIT OF DAHLIAS.
(see p. 174.)

MIDLAND COUNTIES.

Bedfordshire.—The season promised a wonderful crop of Plums, but owing to a very cold spell in April, when the trees were smothered with flowers, the prospects were shattered. We have a fair amount of Victoria and Monarch, but other sorts are very scarce. Apples, of all varieties, are splendid, especially Cox's Orange Pippin and Laxton's Superb, and a good crop promises, unless the present drought thins the fruits too much. Pears of all varieties promise well; Peaches are also good, and Figs promise a full crop. Strawberries have been very good, The Duke cropping very heavily, while the old Sir Joseph Paxton variety has fruited better than it has done for years; Laxton's Latest has also been very good, and all varieties seem to have grown out of red leaf after treatment. Black Currants have been extra good with no running off. Red and White Currants are also excellent, and Gooseberries have been well up to the average. Aphis, owing to the cold winds and cold nights, has been very troublesome. *William Warner, Chicksands Priory Gardens, Shefford.*

Buckinghamshire.—The fruit crops generally are good, especially small fruits, including Strawberries, which are being picked in good condition. Aphis is very troublesome—in spite of frequent sprayings—and Apples and Plums, which set heavy crops, are dropping heavily, although the fruits generally are of good size. The soil here is a medium loam, over chalky gravel and sand. *G. H. Emmett, Taplow Court Gardens, Taplow.*

—— The soil is of a light nature in this district, the subsoil being chalk. Owing to the frosts experienced during April, the wall fruit trees suffered to a great extent; on the nights of April 17 and 18, six and nine degrees of frost were registered in the walled-in kitchen garden, and a lot of damage was done, especially to the stone fruits. Apple trees are bearing heavy crops, as also are the bush fruits, while Strawberries are also very good. Aphis was very troublesome in May owing to the cold east winds, and trees and bushes had to be sprayed constantly to keep it in check. *W. A. Bright, Hughenden Manor Gardens, High Wycombe.*

—— The frosts and east winds which occurred during May and June did much damage to the fruit crops. *Philip Mann, Education Sub-Office, Aylesbury.*

—— Prospects for a good fruit season in this locality were very favourable, but the late frosts and dry, harsh east winds, upset the promise of large yields. Severe attacks of aphis and blight have also affected the fruit trees, Apples and Plums in particular, suffering considerably. Fruit trees in this neighbourhood present a stunted appearance due, undoubtedly, to the check caused by unfavourable climatic conditions and insect pests. The soil here is stiff loam and heavy clay, and is not an ideal medium for successful fruit culture. *G. F. Johnson, Waddesdon Gardens, Aylesbury.*

—— The fruit crops in this district are, on the whole, very satisfactory. Apples and Pears are plentiful and of good quality. Strawberries and Raspberries have been good, as also have Cherries and all bush fruits. Peaches and Nectarines are good in places, but Plums are a disappointment with the exception of those on walls, which are very good; Plum trees in the open garden are almost devoid of fruits, for severe frosts during the flowering period destroyed all hope of a good Plum crop. Damsons are cropping heavily. *F. Reid, Dropmore Gardens, Burnham.*

CHESHIRE.—Generally, the fruit crops in this district are disappointing, for a continuation of sharp frosts during April seriously affected Pears, Plums and all bush fruits, except Raspberries. The weather was more favourable for the Apple blossom and on the whole this crop is very satisfactory at present. Strawberries, extensively grown in this district, have been disappointing for several years. For ten months past I have adopted a regular system of spraying Strawberry plants with an approved mildew specific, and they are now much stronger and are showing cleaner growth. I am hopeful that, if this is continued, we shall rid our plants of the dreaded disease. *N. F. Barnes, Eaton Gardens, Chester.*

—— The soil here is variable, with a clay subsoil. Good results are obtained with the stronger growing culinary varieties of Apple, but dessert varieties are not so successful, and this year birds played havoc with the buds during early spring. Frosts were very prevalent during flowering time and thus further reduced the crops. Choice Pears do well on the extensive wall space and this year they are bearing fairly good crops. Strawberries were slightly better than last year, especially some of the more robust growing continental varieties, which, however, are somewhat lacking in flavour. Raspberries were very good, especially The Devon. Red Currants were a complete failure and Gooseberries nearly so, a condition due to the ravages of birds and late severe frosts. *T. A. Summerfield, Alderley Park Gardens, Chelford.*

(*To be continued.*)

HOME CORRESPONDENCE.

Triptilion spinosum.—The first species of Triptilion to be introduced to this country was T. cordifolium in 1824. In recording it, Loudon stated that there was a fine species in Chili with bright blue flowers. No doubt he was referring to T. spinosum, which was duly introduced in 1927, and again introduced by Mr. Comber, jun., and shown by his father at a recent meeting of the Royal Horticultural Society. At least six species have been collected in Chili and described as annuals or perennials. The generic name was given by Ruiz and Pavon, the authors of *Flora Peruviana*, on account of the three divisions of the pappus which are dilated at the apex and furnished with ciliae, which, being white, make a fine contrast with the blue corollas. The species have been variously described as hardy annuals or biennials, yet they were either reared in heat and bedded out, or grown in airy greenhouses from which frost was just excluded. Under those conditions, Loudon stated that T. cordifolium flowered all through the winter months. This aspect of T. spinosum might well be kept in view by those who require dwarf and ornamental flowers in their greenhouses and conservatories during the winter. Doubtless it would also succeed in an alpine house. The inhabitants of Chili used to gather any or all of the species and dry them as everlasting flowers, for which their dry nature rendered them very suitable.—*J. F.*

Cytisus Dallimorei.—What capricious things are plants! With both Mr. A. T. Johnson and Mr. S. Arnott that charming Broom, Cytisus Dallimorei, proves somewhat tender; yet in my own experience it has withstood successfully in a garden near Oxford, seven winters, of which one, the last, was hard on many plants. This Cytisus grows but slowly and likes to have all its dead wood cut out so soon as it has flowered. In spite of its slow growth—or because of it—Cytisus Dallimorei makes each year, with me, a brave show of blooms.—*K.*

SOCIETIES.

SOUTHPORT SHOW.

AUGUST 22, 23 AND 24.—So far as our experience goes we believe that the Southport authorities can fully justify the statement that their show is "the world's largest annual horticultural exhibition." We have never seen a more extensive display in this country, and certainly the show just held was finer than any of the four that preceded it. The popularity of the function has progressed with its size and attractiveness and it has become the chief annual advertisement for a seaside town that has been made beautiful by the free planting of trees, shrubs and flowers. Southport is a "Garden City" and as such the great flower show is the correct complement to its other horticultural attractions—its Hesketh Park, its promenade gardens and its half-mile herbaceous border that is both beautiful and wonderful.

As most of our readers are aware, the Southport Show is managed by a special Committee of the Corporation. Mr. Clayton, Chairman of the Committee for four years is still actively interested in the work. Mr. Alderman Wood, formerly Vice-Chairman, is now chairman, and Mr. Crankshaw, the vice-chairman. Mr. Alderman Aveling, who was Mayor during the first year of the show, continues to help and encourage everybody connected with the exhibition, while the present Mayor, Mr. Wilkinson, was an original member of the show committee. All these gentlemen, however, and the other members of committee, stewards and officials, are prepared to admit that the great bulk of the work of this huge enterprise falls upon the shoulders of Mr. W. Clark (Parks Superintendent) and Mr. T. E. Wolstenholm (Publicity Manager) who are, respectively, Superintendent and Secretary, and carry out their duties admirably and pleasantly; the general organisation appears to be perfect.

The schedule of the show contains 299 classes, and the cash prizes offered amount to over £4,000, in addition to valuable trophies, cups and medals. Forty-seven judges commenced their duties at 8.45 a.m. on the opening day and some sections had a difficulty in completing their work by the opening hour—10.30—so numerous were the competitors and so keen the competition.

The weather was not altogether kind during the show days, indeed there were rainy periods on each day, but, in spite of this, the attendance was great and we believe the total receipts were greater than in 1927, consequently the enterprise is now a financial success.

The groups of miscellaneous plants, of foliage plants, of Dahlias, of Carnations, of hardy flowers, of British Ferns, of Gladioli, and of Roses were particularly good and have now become strong and increasing attractive features of this wonderful show. Although it is not the best time of the year for Orchids there was a good display of competitive and non-competitive groups, but the general effect was spoiled by the multiplicity of large cards placed upon them. These cards represented certificates, awards and medals granted by the Manchester and North of England Orchid Society, plus the class cards and award cards in connection with the Southport Show proper. One complaint, made by a visitor, was to the effect that there were as many cards, as flowers—this, of course, was an exaggeration but it serves to emphasise our own criticism.

The rock gardens were good although we believe that as a whole they were not quite so interesting as on some former occasions, but we are prepared to admit that when such a high standard has been set it is not easy to carry in one's mind from year to year all the special features.

Fruits and vegetables were exhibited extensively and well, and the premier exhibit in the show was composed of splendid vegetables arranged with exquisite taste and skill by Messrs. SUTTON AND SONS (fig. 69). Another fine display was made by our coadjutor, Mr. A. FALCONER, gardener at the Cheadle Royal Mental Hospital, and which was awarded *The Gardeners' Chronicle* Silver-gilt Medal as the best non-competitive display made by an amateur. Grapes and choice fruits were presented in capital style and in this section the Scottish growers obtained a goodly proportion of the awards. The two large displays of fruit trees in pots also deserve special mention. The Apples and Pears from the KING'S ACRE NURSERIES were exceptionally good. Messrs. T. RIVERS AND SON's group contained splendidly-cropped Plums, Peaches, Nectarines, Vines and Citruses.

The traders rose to the occasion and provided a display that, alone, would have made a big show. In addition to the non-competitive exhibits already referred to there were others of special interest or merit. Messrs. JAS. CARTER AND CO.'s exhibit of Liliums and Gloxinias (fig. 78) was an imposing group that was greatly admired. Messrs. DICKSON AND ROBINSON's huge decorative Dahlias drew forth expressions of admiration from the specialists and of amazement from the general public. Messrs. DOBBIE's Potatos and Sweet Peas; Messrs. ROBT. BOLTON AND SON's Sweet Peas and Mr. W. J. UNWIN's large and artistic group of Gladioli, were all very fine. Rare plants shown by the DONARD NURSERY and by "SMITH OF NEWRY," the aquatics so admirably staged by Mr. AMOS PERRY (fig. 79) and the big group of stove and greenhouse plants arranged by T. MOORE, Esq. (gr. Mr. J. McGoogan), Douglas, Isle of Man, proved sources of interest to lovers of the less common plants; the last named display contained Nepenthes, Alocasias, big Anthuriums, well-grown Dracaenas and many other fine foliage subjects. Messrs. KENT AND BRYDON's formal garden (fig. 68) was in good taste and had many admirers. The popularity of Carnations was admirably demonstrated by the crowds of admirers always in front of the fine exhibits made by Messrs. C. ENGELMANN, Ltd., and Messrs. ALLWOOD BROS.

The Southport authorities are mindful of the educational value of an exhibition to children, consequently they provide classes for wild flowers. The competition is wonderfully keen both in collections, designs and decorative vases and baskets. Several of the exhibits of two-dozen kinds of British flowers were so good that they were worthy of a prominent position in the big tent. The premier set came from Scotland, and was shown by ROBERT HOGG, of Castle Douglas. The flowers were arranged in goodly bunches, and vases, and the setting-up was first-rate, while the botanical and popular names of the flowers were given in each instance. We would suggest, however, that notwithstanding the numerous prizes offered, the judges should be empowered with fair liberality in regard to the award of Very Highly Commended and Highly Commended cards to excellent exhibits that just failed to gain prizes; such awards would be appreciated immensely, especially in the days to come, while they would afford encouragement to those who "did run well."

Horticultural sundries were displayed freely and constituted a very large and attractive feature; two judges were occupied the whole day prior to the show in appraising the merits of various items and they had no easy task. The horticultural press was well represented and *The Gardeners' Chronicle* kiosk, directly opposite the main entrance, attracted a good deal of attention and favourable comment, by reason of its display of horticultural books and its Cupressus-hedged garden and beds of double Begonias.

ROCK GARDENS.

The general public, so well as professional and amateur gardeners, take a vast amount of interest in the rock garden competition at Southport. The schedule requires a rock or rock and water garden arranged on an area of 750 square feet. Judgment is by pointing; 8 points for design, proportion and shape; 20 for simplicity, direction and continuing of the main lines produced by ridges of stone; 14 for the setting of the stones with regard to natural and quiet effect; 10 for the proportion of each colour used in planting the garden; 18 for colours chosen in planting and their relative placing in harmony with one another; 6 for skill in regard to grass laying, careful planting, hiding cement, background, etc.; total maximum points, 100.

The perpetual Challenge Cup presented by the Southport Corporation, value £100, and £75 in cash, constitutes the premier award and this was won once again by Messrs. J. R. Hayes and Sons, Ambleside, with a very satisfying, quiet and very pleasing arrangement made on the first site, immediately inside the main entrance. The whole scheme centred about the main feature—a mountain stream with four lakelets, the water running over water-worn, moss-clad stones. The background of Pines was very suitable; the principal planting was on the high ground near the source of the stream, where the spreading rocks provided spaces for pleasing drifts of Campanula mutabilis, C. Warley, C. turbinata vera, C. Tymonei, Achillea King Edward VII, A. tomentosa, Calluna vulgaris cuprea, C. v. Hammondii, C. v. Alportii, Erica vagans alba, E. v. kevernensis, Daboecia polifolia and D. p. alba, Sedum Ewersii var. Hayesi, Roscoea cautleoides August Beauty, a late-flowering form; Gentiana septemfida, G. Farreri, Linaria alpina rosea and other charming subjects. Well placed dwarf shrubs added interest and point to the scheme and included the erect Juniperus communis compressa, Ilex crenata Mariesii and Cupressus obtusa nana. Some of the rocks were very delightful and many of them had tiny Trichomenes growing in their mossy surfaces. The points for this exhibit were (in the order as given above), respectively, 4, 13, 13, 7, 18, 6 and 23; total 84.

The second prize was won by Mr. K. Thirkildsen, Kew, Southport, with a bold design that had an irregular stream and several lakelets for its central feature. The planting was very bold on the higher ground and perhaps a trifle too free for a rock garden, but it was nevertheless very bright, pleasing and effective, consisting principally of drifts of Campanula Miss Willmott, C. pumila alba, C. turbinata, C. White Star, Viola cornuta alba, V. Thirkildseni, deep bluish-purple; Oenothera Fraseri, Primula Loczii, which makes runners like a Strawberry and is thus easily propagated; Sedum Middendorfii, Heathers and Callunas in pleasing variety, New Zealand Veronicas, and at the edge of the water, Primula Florindae. Mr. Thirkildsen's points were 3, 13, 11, 10, 18, 5 and 23, respectively; total 83.

Third prize was awarded to Mr. E. J. Rigg, Kew Nurseries, Southport, for a capital effort, which also had a stream and one fairly large lakelet as a central feature; the stones were good but lacked the ancient appearance that a mossy surface gives. Mr. Rigg had charming plantings of various Campanulas, Sedums, Ericas, Callunas and Berberis, together with well-placed alpine shrubs, but the Heathers were the great feature of floral display; total points, 79.

Fourth prize fell to Mr. P. Gardner, Addingham, Yorks., with 78 points; and the fifth to Messrs. Bees, Ltd., with 77 points. The cash prizes in this class amount to £190, but as about twenty-five tons of stone were used in each of the six exhibits, the competitor's costs must have been very heavy.

Groups.

Probably the most striking feature of the Southport Show was the wide avenue, running the whole length of the big tent, and containing five groups of miscellaneous plants on the one hand and six foliage groups on the other, with several fine trade displays at each end. The beauty of this scene can be better imagined than described; for colour and elegance, and for charming arrangement it would be difficult to conceive anything finer.

For an artistically-arranged display of flowering and foliage plants arranged on an area of 300 square feet, the premier award is a fine Challenge Cup, provided by the Southport Theatres, and £50. This award was won by Messrs. Jas. Cypher and Sons in a keen competition. Codiaeums, finely-coloured; graceful Humeas, and Palms were the principal attractions, and these were associated with Lilium speciosum and L. Henryi, standard Fuchsias in the back and centre, bold Laelio-Cattleyas towards the front, and long, arching spikes of golden Oncidiums here and there, while further colour was provided by Haemanthus Katherinae, Gesneras, Clerodendron fallax, Cypripediums, Vallota purpurea and Nerine Fothergillii. It was a beautiful exhibit and the foreground was pleasingly finished off with trails of Abutilon megapotamicum.

Mr. W. A. Holmes, Chesterfield, secured the second prize, and showed grandly grown and finely coloured Codiaeums, together with Oncidiums, Laelio-Cattleyas, Liliums and Clerodendrons, but the group lacked that extra touch of elegance seen in the premier display. The third prize fell to Sir G. H. Kenrick (gr. Mr. J. Macdonald), Whetstone, Edgbaston, Birmingham, who used Codiaeums, Humeas, Orchids, Ixoras, Liliums and Francoa ramosa to great advantage; fourth, Mr. W. Manning, Dudley; fifth, Mr. T. M. Petch, Bradford.

The Bean Challenge Trophy and £35 offered as first prize for a group of foliage plants, arranged for effect on an area of 250 square feet, was won by Mr. W. A. Holmes whose brilliant Codiaeums, Alocasias and Nandina domestica secured for him an advantage over his competitors. Messrs. Jas. Cypher and Sons were placed second and as already suggested, their display was a little lacking in colour; third Mr. W. Manning; fourth, Royal Cheadle Mental Hospital (gr. Mr. A. Falconer), Cheadle; fifth, Sir G. H. Kenrick; sixth, Mr. T. M. Petch.

A new class was for a group of hardy British Ferns arranged on a space of 100 square feet. In this class the judges had to give due consideration to cultural skill and artistic arrangement. The Abol Trophy and first prize were worthily won by W. B. Cranfield, Esq., East Lodge, Enfield, who showed beautiful specimens of Polystichum angulare plumosum divisilobum, P. a. percristatum, P. a. divisilobum grande, Athyrium Felix-foemina clarissima, A. F.-f. plumosum, A. F.-f. Victoriae, Polypodium vulgare cambricum, and a selection of choice varieties of the Hart's Tongue Fern, There were no fewer than seven entries, thus demonstrating the great interest that is being taken in hardy Ferns. Second, Mr. Walter Taylor, Grimshill, Shrewsbury; third, Mr. George Oliver, Yarrow Terrace, Hawick, who had small plants arranged in a very pleasing and artistic fashion.

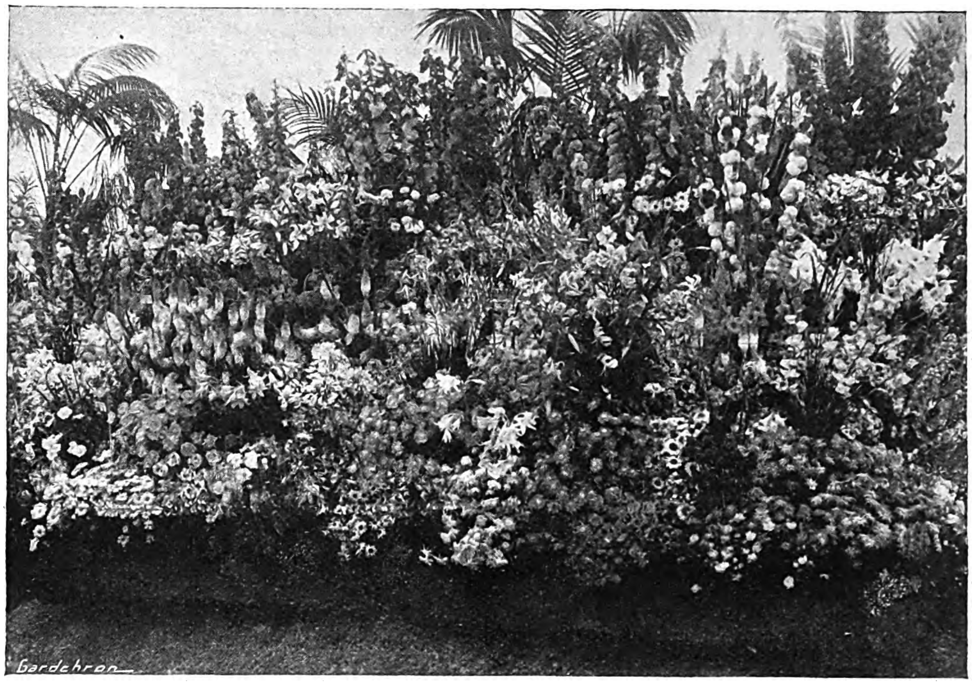


FIG. 77.—SOUTHPORT SHOW: MESSRS. BEES, LTD.'S EXHIBIT OF HARDY FLOWERS.
(see p. 176).

The best group of Begonias was from Mrs. Rushton (gr. Mr. J. C. Waters), Barnacre Lodge, Garstang, and her plants were very finely grown and the flowers of splendid size; second, Mr. W. Dodd, Sussex House, Formby; third Hon. G. E. Vestey, Birkdale.

Orchids.

J. B. Adamson, Esq. (gr. Mr. Howes), Blackpool, again won the Trophy presented by Hon. G. E. Vestey, for a group of Orchids that contained good examples of Cattleya Canberra, C. Hardyana, Laelio-Cattleya Eleanor, Oncidiums, Miltonias and Odontoglossums.

For a smaller display G. V. Llewelyn, Esq., Southport, won the Potts Trophy with a pleasing group wherein Vanda coerulea, Miltonias, Laelio-Cattleyas in variety, and Oncidiums were well represented; second, J. Macartney, Esq. (gr. Mr. Potts), Bolton.

The last-named exhibitor showed the best three Orchids, while J. B. Adamson, Esq., Townley Grove, Blackpool, had the best six Orchids, these including Laelio-Cattleya Carmencita, L.-C. Hassalii alba and Cattleya Lorna; second, J. Macartney, Esq.

Roses.

Messrs. Bees continued their run of successes by winning a trophy and first prize for a representative group of cut Roses, arranged on a space forty feet by four feet. They won with a brilliant display of pillars and baskets of such effective varieties as Lady Inchiquin, Margaret D. Hamill, Los Angeles, Mme. E. Herriot, Queen Alexandra, Joan Howarth, Shot Silk, Golden Emblem, Betty Uprichard, Mable Morse, K. of K., Mme. Butterfly and Etoile d'Holland—a glorious display of beautiful flowers. Second, Mr. S. McGredy and Son, Portadown, Ireland, who had a fine exhibit in which big baskets of W. F. Dreer, Eva Eakins, Desmond Johnsons, Patience, Marion Cran and Mrs. A. Barraclough were fine features.

A glorious mass of colour and fragrance was provided by the entries in the class for a display of Roses arranged on a space of thirty feet by four feet. The premier award (including a trophy), was won for the fifth time in succession by Mr. J. Robinson, Nottingham, with a very colourful effort in which the varieties Mabel Morse, W. F. Dreer, Mme. Butterfly, Los Angeles, Emma Wright, Souv. de Claudius Pernet and Lady Inchiquin were grandly represented by fine pillars of blooms; second, Messrs. Wheatcroft Bros., Gedling; third, Mr. R. U. Roger, Picking; five entrants.

Mr. George Marriott, Eastmoor House, Carleton, had the best representative group of cut Roses arranged on a space four feet by five feet. This was a capital exhibit, with bold pillars and baskets of W. F. Dreer, Emma Wright, Lady Inchiquin, Shot Silk, Los Angeles, Mabel Morse, K. of K.; second, Mr. A. J. Blair, Mossley, Congleton.

The Southern Growers' class for a representative display of cut Roses arranged on a space twenty feet by four feet, brought out a good competition. Mr. J. Mattock, New Hendington, Oxford, secured the first prize with a very pleasing display in which Red Letter Day, Mabel Morse, Joanna Bridge and Irish Elegance were particularly good.

In the same section but for a larger display, Mr. Frank Cant and Co., Colchester, led with baskets of beautiful blooms of Shot Silk, Lady Inchiquin, Angele Pernet, Los Angeles and Mabel Morse.

Mr. J. Mattock won first prize for three baskets of decorative Roses, with Betty Uprichard Los Angeles and Mdme. Butterfly; he also won premier awards for two dozen exhibition Roses (in the Southern division), and for one basket of Roses, showing Dame Edith Helen in the latter class. Messrs. Frank Cant and Co. were second in each case.

Mr. Pilkington, Thornton-in-le-Fylde and Mr. G. Garrett, Leicester, were among the successful exhibitors of Roses in the smaller classes.

Mr. W. Ferguson, Dunfermline, beat Messrs. T. Smith and Son, Stranraer, for three baskets of Roses, showing Betty Uprichard, Mrs. H. Morse and Queen Alexandra, but the positions were reversed in the class for twenty-four Roses, where the Stranraer firm had a fine set of blooms. They were also successful in the class for one basket of Roses, with George Dickson; Mr. W. Ferguson coming second with Mrs. C. Lamplough.

Hardy Flowers.

Hardy flowers were displayed in good style, and in the class for a display arranged on an area of 300 square feet, Messrs. Bees, Chester, led, and also secured the special cup offered for the best competitive exhibit in the show. Their display (Fig. 77) consisted of magnificent sheaves of Hollyhocks at the back, with bold groupings of Lilium tigrinum, L. auratum, L. speciosum, Gladioli, Kniphofias, Montbretias and Crinum Powelli in the centre of the foreground. Phloxes, Scabious, Pyrethrums, Gaillardias and herbaceous Lobelias were used between the bolder subjects and were slightly crowded, nevertheless the group was a magnificent one and everything in it was grown in first-rate style.

Messrs. Harkness and Son, Bedale, Yorks., won the second prize with a lowlier but very bright display wherein Kniphofias, Verbascums, Gladioli Sidalceas and Heleniums were used effectively; third, Mr. W. Sydenham, Melbourne, Derby; fourth, Terra Nova, Birkdale.

In another big class for hardy flowers, but wherein Gladioli, Liliums and Montbretias were to be a feature, the trophy and first prize were won by Messrs. M. Prichard and Sons, Christchurch, with a bold and brilliant group in which the most notable subjects were Crinum Powellii, C. intermedia, Lilium tigrinum splendens, L. speciosum, L. auratum, Gladiolus Salmon Beauty, Orange King, King George, Atalanta, and Hesperia, Kniphofias in grand form and variety; with Poterium obtusum, Thalictrum dipterocarpum, splendid Montbretias, Phloxes, Hemerocallis Dr. Regel, Liatris pycnostachya and Alströemeria psittacina. Second, Messrs. G. Gibson and Co., Leeming Bar; third, Messrs. P. Johnson and Sons, Birkdale; fourth, Mr. J. W. Forsyth, Putteridge, Luton.

Several competitors came forward in the open class for a display of a dozen distinct varieties of hardy flowers, but Messrs. Bees again proved unbeatable, showing fine sheaves of Gladioli, Liliums, Kniphofias and other popular subjects. Messrs. Harkness and Sons were the most successful exhibitors of Lupins.

Violas and Pansies were once again shown extensively by members of the National Viola and Pansy Society; the competition in the numerous classes was very keen and very fine flowers were shown by Mr. Jas. Paul, Killearn; Messrs. Swanson and Upton, Sheffield; Mr. G. Shepperd, Sheffield; Mr. H. Bairstow, Bradford; Mr. R. W. Harrison, Bradford; and Mr. H. Robertson, Kelty, who appeared to be the leading prizewinners.

Dahlias and Gladioli.

Mr. H. Woolman, Shirley, Birmingham, won the Crankshaw Trophy and first prize, offered for the best display of Dahlias arranged on a space of forty feet by four feet, with a good display of blooms of high quality well arranged with just sufficient Asparagus and Gypsophila to display them satisfactorily. A few outstanding sorts in this brilliant exhibit were Mabel Lawrence, Ballet Girl, Berengaria, E. Van de Veer, Essex (golden yellow), Torchlight, Andreas, Hofer, W. D. Cartwright Jersey Beauty, Trentonian and Buccaneer. Second, Messrs. Jarman and Co., Chard; third, Mr. H. Clarke, Taunton.

Another trophy—the Aveling Cup—and premier award fell to Mr. H. Woolman and this was in the class for a collection of Dahlias of any varieties, but the flowers had to be set up without any such artificial supports as wiring. This display was not quite so imposing as the larger one, but it was very attractive, outstanding sorts being Ardreas Hofer, Shining Sun, B. Rowlands, Golden Rod, Sydney Jones, Titan, Mabel Lawrence and Rose Elegance; second, Mr. Ed. Clegg, Temple Road, Dewsbury.

Messrs. Bees won the Stephenson Trophy and first prize for Primulinus Gladioli, with a gorgeous group arranged on a space thirty feet by four feet. The grouping was very fine and the spikes well grown; L'Oise, Salmonea, Salmon Beauty, Orange Queen, Scarletta and Alice Tiplady were a few outstanding varieties; second, Messrs. W. Artindale and Son, Sheffield; third, Mr. H. Prins, Wisbech.

For a group of large-flowering Gladioli, Messrs. Bees were again the first prize winners and showed bold masses of Flaming Sword, Capt. Fryatt, Giant White, and Crimson Glow; second, Mr. H. Prins; third, Mr. E. J. Bayley, Shrewsbury.

Carnations.

Mr. W. B. Feeny, Blundellsands, is an excellent cultivator of perpetual-flowering Carnations and was successful in winning the Rudolf Trophy, offered for three vases of blooms, ten flowers in each vase. Mr. Feeny also had the best vase of pink Carnations, but Mr. R. Bibby, Prestwich, had the best vase of red Carnations. For six plants in bloom Mr. Feeny showed very fine specimens, and was followed by the Hon.G.E.Vestey and Mr.E. Roscoe Harpin.

Floral Decorations.

A great deal of interest was taken in the various exhibits in the class for a group of floral designs, where Messrs. Felton and Son, Hanover Square, won first prize with some charming bouquets; a cross in which Vanda coerulea was used daintily; a mirror of Asters and Cattleyas; a bowl of Vanda coerulea, white Cattleyas and Cypripedium Maudiae; and a delightful basket of Francoa ramosa and Cattleyas. Second, Messrs. Bees, Ltd., whose bolder display of fans, pillars, ships, bouquets, baskets, and shields, was very attractive third, Mr. C. Vickers, Leicester.

Messrs. Felton and Son won the first prize for a table decoration of Orchids with a brilliant arrangement of Odontoglossums, Oncidiums, Laelio-Cattleyas, Cypripediums and Oncidiums; the upper part of the central stand would have appeared a trifle heavy but for the skilful use of graceful Oncidium spikes, and the pendant tassels of golden Platyclinis; second, Miss Nellie Gibson, Stamford Hall Gardens; third, Messrs. W. J. Garner and Son.

The best bowl of Orchids was the one arranged by Messrs. Arlington, Hull, and it consisted of a very pleasing design wherein spikes of Vanda coerulea were associated with yellow Laelio-Cattleyas and Cypripediums. The same competitor led for a bowl of Carnations, a bold design in blush-pink and deep crimson flowers. Messrs. Arlington were also the most successful competitors in the class for a basket of cut flowers—a bold and handsome exhibit of yellow Carnations, Anthurium Andreanum and Agapanthus umbellatus; and in the class for a bowl of flowers (Orchids, Roses and Carnations, excluded), winning with a very charming arrangement of Gerberas and Anthuriums. For three bouquets and one bouquet, the Hull firm was again successful in a keen competition.

For a bowl, basket or stand of garden flowers, suitable for table decoration, Messrs. Bees won first prize with a bold combination of Gladioli, Dahlias and Kniphofias; they also won a similar award in the class for a basket of Dahlias in a very attractive class.

Mr. J. Mattock led for a bowl of Roses with a very bright design in which the varieties used were Mrs. Oakley Fisher, Irish Fireflame, Golden Emblem, and a sport from Queen Alexandra. In the "trade excluded" class for a bowl of Roses, Mrs. L. Courtney Page, Earldoms, Enfield, was placed first for a handsome arrangement of Roselandia, while for a vase of Roses the best exhibit was set up by Mr. J. A. Sissons, Freshfield.

Miss Newsham, Messrs. W. J. Garner and Son, Altrincham; Mr. Emmott, Miss C. Lupton, Blackburn; and Mrs. Blair, Congleton, were other successful exhibitors in this section.

Tables of Fruits.

There were five competitors in the class for a decorated table of fruits. Twenty-four dishes in not fewer than nine kinds were required and the space allowed was ten feet by four feet. The Southport Hotels Cup and first prize was won by the Marchioness of Tweedale (gr. Mr. Alex. McBean), Yester, Gifford, East Lothian, with a total of 175½ points. The leading dishes were of Muscat of Alexandria, Alicante, Gros Maroc and Lady Downe's Grapes in fine form; Cox's Orange Pippin and James Grieve Apples; Royal George and Bellegarde Peaches; Pineapple and Humboldt Nectarines, Figs and Plums. Altogether a very fine effort.

The second prize fell to the Duke of Newcastle (gr. Mr. S. Barker), Clumber, Worksop, who obtained 155½ points; third, Lord Belper (gr. Mr. J. McCartney), Kingston Hall, Derby, with 149 points; fourth, Mrs. T. S. Hall (gr. Mr. T. Richardson), Cricket St. Thomas, Chard, with 136½ points.

Messrs. W. Wright, Ltd., Southport, led in the class for a decorated table of British and (or) foreign fruits. The space allowed was ten feet by four feet. The winning exhibit contained fine Pineapples, Muscat of Alexandria, Alicante, and Black Hamburgh Grapes, Canteloupe and Netted Melons, fine Peaches and Nectarines, Apples and Pears, Plums, Grape Fruits and Oranges; second, Mr. T. Mawdsley, Southport, who had a very pretty exhibit; third, Messrs. Hallam and Badderley, Birkdale.

Grapes.

The premier award for a dozen bunches of Grapes was won by the Earl of Strathmore (gr. Mr. D. McInnes), Glamis Castle, Forfarshire, with a splendid set that secured 101½ points out of a possible 121. The clusters were heavy, shapely and, on the whole, the colour and finish were good. The varieties shown were Muscat of Alexandria (four bunches), Chasselas Napoleon (two), Muscat Hamburgh (two), Mrs. Pince (three), and Madresfield Court (one). Second, the Duke of Newcastle, with 97½ points out of a possible 123; his best bunches were of Muscat Hamburgh and Madresfield Court. Third, the Kippen Vineyard Co., Kippen; fourth, Capt. W. H. France-Hayhurst (gr. Mr. A. H. Hall), Bostock Hall, Middlewich.

Mr. W. Tizzard, Kirklinton Gardens, Newark, led for four bunches of Grapes, with very heavy clusters of Alicante and Muscat of Alexandria; second, Lord Belper.

The Duke of Newcastle showed the best pair of bunches of Black Hamburgh Grapes; second, Col. M. Hughes (gr. Mr. T. Holland), Sherdley Hall, St. Helens; third, Messrs. T. S. Hall. Lady Juliet Duff (gr. Mr. H. Weaver,) Coombe Court, Kingston, Surrey, had the best single bunch of Black Hamburgh Grapes.

For the best pair of bunches of Black Muscat Grapes, Edmund Lord, Esq. (gr. Mr. J. Wright), Belmont, Rossendale, led with Muscat Hamburgh. Mr. Tizzard had the best two bunches of Alicante, while for any other black sort the Duke of Newcastle led with finely finished Gros Colman. The Duke of Newcastle led for two bunches of Muscat of Alexandria Grapes, showing nicely finished clusters; second, Lady Juliet Duff; third, Hon. G. E. Vestey.

The Earl of Strathmore showed the best single bunch of Muscat of Alexandria, followed in order by the Duke of Newcastle and Capt. France-Hayhurst.

Buckland Sweetwater, in fine form, was the variety with which Mr. Tizzard won first prize in the class for two bunches of "any other" white Grape; second, the Duke of Newcastle, with Chasselas Napoleon. For one bunch of Black Grapes shown for "bloom," the Earl of Strathmore led with beautifully-finished Gros Moroc.

Vegetables.

In the open championship class for twelve distinct kinds of vegetables there was a keen competition that resulted in a win for Messrs. John Jones and Son, Ammonford, S. Wales, who had a superb lot of produce, including Leeks, Cauliflowers, Potatos, Broad Beans, Carrots, Peas, Onions, Tomatos, Cucumbers Celery and Parsnips, all in perfect condition; second, Mr. Jas. Gibson, Stamford Hall Gardens, Loughborough; third, Mr. W. Robinson, Sunny Bank, Garstang; four entries.

Mr. Jas. Gibson led in the class for nine distinct kinds of vegetables, where Messrs. Sutton and Sons, provided the prizes; he had a fine set in which Early Giant Cauliflowers were unusually fine; second, The Royal Cheadle Mental Hospital (gr. Mr. A. Falconer), whose Cauliflowers were also of exceptional quality; third, Mr. F. Emmott, Leicester; five entries.

The Challenge Trophy for the best six kinds of vegetables grown within a radius of twenty-five miles from Southport Town Hall, was won by Mr. Wm. Robinson, Sunny Bank, Garstang, who was also first prizewinner for collections of vegetables in two other classes. He showed superb Ailsa Craig Onions, Leeks and Prize Pink Celery; second, Major Pilkington (gr. Mr. L. R. Wood), Fairfield House, Crank, St. Helens.

Highest Aggregate Awards.

A number of the medals granted by the Royal Horticultural Society to affiliated Societies were awarded to amateurs on this occasion as follow:—

Silver-Gilt Medals.—To Mr. W. B. Feeny, Blundelsands, for Carnations; Mr. J. F. Marsden, Darwen, for Dahlias; Mr. W. B. Cranfield, Enfield, for hardy British Ferns; Mr. Walter E. Samuel, Wrexham, for Gladioli; and to Mr. J. B. Adamson, Blackpool, for Orchids.

Silver Medals.—To Mr. Arthur Mason, Ripon; to Mr. W. H. Stirzaker, Fleetwood; and to Mr. J. Coulbourne, Formby, for fruits.

Bronze Medals.—To the Cheadle Royal Mental Hospital (gr. Mr. A. Falconer), for vegetables; and to Mr. R. Sutton, Southport, for allotment produce.

Trophies and Medal Awards.

"*People*" *Trophy.*—Offered for the best non-competitive exhibit in the show; to Messrs. Sutton and Sons, for a magnificient representation of finely-grown vegetables, arranged most artistically and as colourful as a display of flowers (see Fig. 69,, p. 163).

Challenge Trophy.—Offered for the best non-competitive display of fruit trees in pots; to Messrs. T. S. Rivers and Son, Sawbridgeworth, for a very fine and representative collection of well-cropped trees.

Boothroyd Cup.—For the best non-competitive formal garden: to Messrs. Kent and Brydon, Darlington (see Fig. 68, p. 163).

Large Gold Medal.—To Messrs. Sutton and Sons, for vegetables; to Messrs. Jas. Carter and Co., for Lilies, Gloxinias, etc.; to Messrs. Dickson and Robinson, for Dahlias, Gladioli and fruits; to the King's Acre Nurseries for a fine lot of fruit trees in pots; to Messrs. Kent and Brydon, for a formal garden; to Messrs. John Peed and Son, for stove and greenhouse plants; to Mr. Amos Perry, for Water Lilies and other aquatic plants; to Messrs. T. Rivers and Son, for fruit trees in pots, including Vines and Citrons; and to Mr. W. J. Unwin, Histon, for a grand lot of Gladioli.

Gold Medals.—To Messrs. Allwood Bros., for Carnations and hybrid Dianthuses; to Messrs. Blackmore and Langdon, for Begonias. to Messrs. Robert Bolton and Son, for Sweet Peas; to Messrs. Charlesworth and Co. for Orchids; to Messrs. Dobbie and Co., for (1) Sweet Peas, (2) Potatos; and (3) Dahlias and Roses; to Messrs. Alex. Dickson and Sons, Newtownards, for Roses; to the Donard Nursery Co., Newcastle, Co. Down, for rare flowers, trees and shrubs; to Messrs. C. Engelmann, Ltd., for Carnations; to Mr. J. Evans, Colwyn Bay, for Orchids; to Mr. A. J. Keeling and Son, for Orchids; to Messrs. Maxwell and Beale, for a Heath and rock garden; to Mr. Jas. Macdonald, Harpenden, for a grass garden; to the Ravenhead Pipe and Brick Co., St. Helens, and a "Rus" formal garden; to Mr. T. Smith, Newry, Ireland, for rare trees and shrubs; to the Hon. G. E. Vestey, Birkdale, for Orchids; and to Messrs. E. Webb and Sons, for hardy flowers.

Silver-Gilt Medals.—To Messrs. Backhouse's Nurseries, York, for miniature Rock Gardens; to Messrs. W. Brown and Son, Ormskirk, for a formal garden and rockery; to Messrs. Bees, Ltd., for an outside garden; to Mr. R. E. Baker, Formby, for a beautiful lot of herbarium specimens of British Ferns; to Messrs. R. H. Barr, Ltd., for Gladioli; to the Churchtown School, Southport, for flowers, fruits and vegetables; to Mr. C. J. Clucas, for Celery, Peas and Leeks; to Messrs. W. and W. Croll, Dundee, for a collection of Potatos; to Messrs. Daniels Bros., Norwich, for Gladioli and Montbretias; to Messrs. E. F. Fairbairn and Sons, Carlisle, for Phloxes; to Messrs. John Forbes, Ltd. Hawick, for Phloxes and other hardy flowers; to Messrs. Hewett and Co., for Delphiniums and Phloxes; to Messrs. P. Johnson and Sons, for alpine plants; to Messrs. J. Kelway and Son for Gladioli; to Mr. J. Klinkert, Richmond, for topiary specimens; to Mr. Robt. Lawrie, Carnworth, for Begonias; to Messrs. George Mair and Sons, Prestwick, for large-flowered Gladioli; to Messrs. J. Middlehurst, Ltd., for Gladioli, vegetables and grasses; to Messrs. L. R. Russell, Ltd., for Clematises and an aquatic garden; to Messrs. W. H. Simpson and Son, for Antirrhinums; to Mr. W. Wells, junr., for Delphiniums; and to Mr. H. J. Jones, Lewisham, for Phloxes.

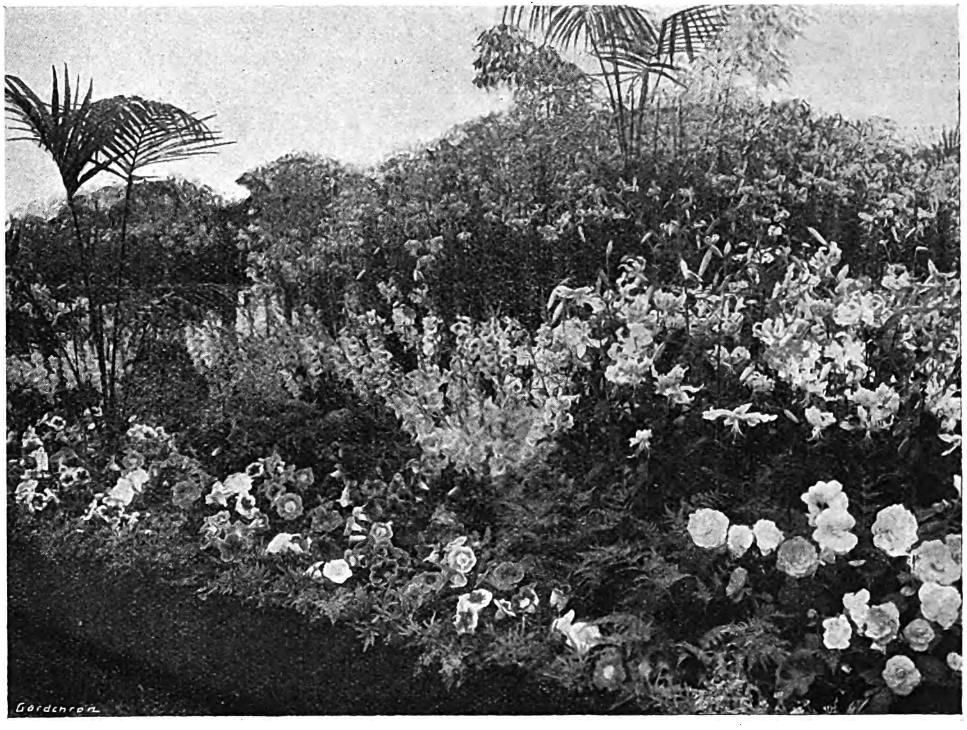


FIG. 78.—SOUTHPORT SHOW: MESSRS. JAMES CARTER AND CO.'S EXHIBIT OF LILIUMS.
(see p. 174.)

Large Silver Medals.—To Messrs. Bakers, for hardy flowers; Messrs. Blackmore and Langdon, for Delphiniums; to Mr. E. J. Bayley, for Gladioli and annuals; to Mr. H. N. Ellison, for Ferns; Messrs. Isaac House and Son, for Scabious, etc.; to Mr. Robt. Hayes, Grasmere, for alpine plants; to Mr. John Jones, Wem, for Violas, etc.; to the King's Acre Nurseries, for (1) Roses and for (2) Dahlias and Chrysanthemums; to Mr. R. Johnson for Roses; to Mr. E. J. Rigg, for Alpine plants; to Messrs. C. J. Redgrove and Son, for hardy flowers; to St. Stephen's Schools, Southport, for plants and vegetables; to Mr. S. Smith' for Cacti; to Mr. C. H. Taudevin, Willaston' for rock and water garden; to Mr. W. H. Walters, Colesborne, for rare hardy flowers; to Mr. B. Waterhouse, for Roses and Gladioli; and to Miss Worth, for Cacti.

Silver Medals.—To Messrs. W. Artindale and Son, for hardy flowers; to Messrs. Bowell and Skarratt, for alpines; to Mr. H. Clarke, for hardy flowers; to Garden Supplies, Ltd., for hardy flowers; to Messrs. Jones Bros., for hardy flowers; to Messrs. Lowe and Gibson, for Gladioli; to Messrs. Leightons, for alpines; to Mr. F. Rich, for hardy flowers; and to Messrs. Rowlands and Co., for Gladioli.

NATIONAL SWEET PEA.

August 22, 23 and 24.—On the invitation of the Southport Flower Show Committee, the National Sweet Pea Society held a special provincial show at Southport on these dates, in conjunction with the *Daily News*. It is many years since the Society held a show in the north and the date of the great flower show at Southport is rather late generally for Sweet Peas, but the management and all concerned are to be congratulated on the great success which attended their efforts. The whole of the considerable space allotted for Sweet Peas was filled, and the many blooms were of exceedingly high quality. As was expected, the majority of the exhibits were grown in the midlands and the north of England, but the southern counties of Hampshire, Dorset, Essex, Hertfordshire, Oxford and Glamorgan were represented. While the competition in most of the thirty-nine classes was very good indeed, and the judges awarded a number of extra prizes, the Scottish Section, in which liberal prizes were offered, did not reach expectations and there was no exhibit from Ireland.

The principal class in the Amateurs' Section carried as first prize three Silver Vases, presented by the *Daily News*, valued at fifty guineas, and £5. This prize was won by Mr. J. Haycock, Wagoners Inn, Gyfelia, Wrexham, with a superb exhibit of twelve distinct varieties. Not only were the individual flowers of exceptional size and freshness, but they were perfectly placed on long graceful stalks and were of great substance. The varieties were What Joy, Royal Pink, Susan, Mammoth, Youth, Grenadier, Powerscourt, Gold Crest, Royal Mauve, Model, Pinkie and Mrs. A. Searles. The second prize was won by Mr. J. A. Grigor, Banff, with an even collection of very good quality in which Royal Pink, Mrs. Arnold Hitchcock, Charming, Avalanche and Powerscourt were prominent varieties. Mr. James Paul, Drumbeg, Killearn, Stirlingshire, was a good third and his outstanding varieties were Hero, Chieftain, Youth and Avalanche. Mr. William Smith, Dunecht, Aberdeen, was fourth.

Although there were not so many exhibits in the class for six distinct varieties, the competition was very close and there could not have been many points between the first prize exhibit of Mr. J. A. Grigor and the second prize collection of Mr. James Paul. The former showed Glorious, Gleneagles, Venus, Lilac Queen, Magnet and Royal Scot, while the latter had magnificent vases of Austin Frederick Improved, Freda and Highland Mary. Mr. J. R. Relph, Whinfield Holme, Brougham, Cumberland, was third and he had lovely vases of Grenadier, Sybil Henshaw and What Joy. Competition was also keen with three distinct varieties and here the first prize was won by Mr. Jack Robeson, Banbury, Oxfordshire, with magnificent blooms of Grenadier, Model and Powerscourt. Mr. J. A. Grigor was second with Constance Hinton, Charming and Horace J. Wright. Mr. J. R. Relph was third.

The counties of England were divided into three sections and each required six vases of distinct varieties. In the Northern Section, Mr. J. Pilkington, Thornton-le-Fylde, was first, and he included Ivory Picture, Magnet and Charming of high quality. Mr. W. A. Weston, Keighley, had good vases of Sunkist and Grenadier in his second prize exhibit. Mr. R. W. Stockhill, Knaresborough, was third. Mr. H. E. Welch, Belper, Derbyshire, was the most successful exhibitor in the Midland Section and the best of his very good vases were Pinkie, Model and Powerscourt. Mr. F. J. Ambrose, Derby, included Model and Olympia in his second prize collection. Mr. Jack Robeson had another excellent exhibit in the Southern and Western Section and this included Venus, Mrs. A. Searles and Charming of great merit. Mr. Walter Martineau, Boxmoor, Herts., was a very good second and his very best vases were of Mrs. A. Searles and Pinkie. Mr. Allan P. Marshall, Havant, Hants, was third.

As we have remarked, the competition in the Scottish Section was disappointingly small, but the quality generally was very good indeed. The best twelve vases were set up by Mr. John A. Grigor, who included Miss California, Elegance, Mrs. A. Searles, Delightful, Purple Monarch and R. F. Felton of great merit. Mr. James Paul was a very good second and his best vases were of Olympia, Sunkist and Venus. Mr. J. D. Dixon, Dumfries, who was third, had fine spikes of Mrs. A. Searles, Pinkie and Chieftain. In the class for six varieties, Mr. A. S. Robertson, Liberton, Edinburgh, was first and he included Chieftain, Magnet and Powerscourt of very high quality. Mr. George Smith had Grenadier, Sybil Henshaw and Britannia of merit in his second prize exhibit. The best single vase of three varieties in this section was shown by Mr. J. A. Grigor, who used Majestic, R. F. Felton and The Beacon. Mr. J. D. Dixon was second.

In the class open only to members residing in Wales, the first prize was won by Miss K. A. Hughes, Wrexham, whose six varieties included Model, Magnet, Powerscourt and Youth of particularly good quality. Mr. J. Haycock was second, and Mr. Alan Gibbs, Lisvane, Glamorgan, was a good third.

The classes for small growers were well contested except that for twelve vases, in which there had been four entries but only Mr. H. J. Hughes, Whitchurch, exhibited. In the class for six vases the best of the seven collections was staged by Mr. J. Weaver, Haford, Mold, N. Wales, who had splendid vases of Lilac Queen, Victoria, Sybil Henshaw and Purple Monarch. Mr. H. J. Hughes showed, in his second prize set, Model, Princess Elizabeth and Royal Mauve of very good quality. The first prize exhibit of three vases staged by Mr. J. Weaver were of splendid quality and he showed Sunkist, Olympia and What Joy. Mr. H. J. Hughes was again second and Mr. H. M. M. Warbrick was third. The class, open only to members who had not previously won a first prize, was well contested and here Mr. Allan P. Marshall, Havant, was first with six excellent varieties which included Sunkist, Advance, Royal Mauve and What Joy, of exceptional quality. Mr. H. J. Hughes had lovely sprays of Grenadier and George Shawyer in his second prize exhibit, and Mr. J. O. Smith, Shrewsbury, was third.

The Novices Section brought many exhibit of commendable quality. The best six vases were shown by Mr. J. Norman Cullen, Poynton, Stockport, who included excellent examples of Charming, Elegance and Youth. Mr. J. Pilkington was second. Mr. B. H. Hull, Feering Hill, Kelvedon, Essex, was first in the class for three vases with splendid vases of Gleneagles, Olympia and Pimpernel. Mr. J. N. Cullen was second. The best vase of any distinct variety was that of Hebe shown by Mr. J. Pilkington, and Charming, shown by Mr. Norman Bell, Burton, Carnforth, was the second best. Mr. B. H. Hull was also first with a very good vase of mixed varieties. In the special Southport class Miss Isa Scholefield won the first prize with three especially good vases of Magnet, Ivory Picture and Mrs. A. Searles. Mr. E. O. Hall, was a good second and he showed Chieftain, Model and Sybil Henshaw.

In the Ladies' Classes, Miss K. A. Hughes won first prizes with artistically arranged displays in the classes for a bowl and a vase of Sweet Peas, and Miss Gladys Burt, Grange Hill, Coggeshall, Essex, was first with a charming basket of Sweet Peas.

Open Classes.

The only exhibit of six varieties shown by the raiser was well worthy of the first prize awarded to Messrs. E. W. King and Co. This was of Jack Hobbs, Gladys, Olympia, Leslie Rundle, Guardsman and Pimpernel. Mr. J. Stevenson had the best three vases of seedling Sweet Peas and showed Treasure, Lilac Time and Lustre. Messrs. E. W. King and Co., who were second, had International, Vectis and Tom Webster: they were first with International in the class for one seedling variety and Mr. J. Stevenson was second with Charm.

The single bunch classes filled a considerable stretch of tabling and included many excellent vases. Miss K. Allington Hughes was the most successful exhibitor and was first with Model, white; Powerscourt, lavender; Royal Mauve; What Joy, cream; Gold Crest, orange; Grenadier, scarlet; Youth, picotee-edged; Mrs. Tom Jones, blue; Royal Purple, and Mrs. A. Searles. Mr. John A. Grigor won first prizes with Pinkie, pink; Sybil Henshaw, crimson; and Warrior, maroon.

Non-Competitive Exhibits.

A splendid group of Sweet Peas arranged by Messrs. Dobbie and Co. was rewarded with Gold Medals from the Society and the Southport Flower Show judges. The many admirable varieties included large stands of Blue Bird, Hero, Sunkist, Grenadier, Youth, Mrs. A. Searles, Olympia, Charming, Picture, Flamingo and Pinkie.

Messrs. E. W. King and Co. received a Silver Medal for a smaller collection which, at this season, was very meritorious. They staged vases of some of their best novelties and standard varieties. A selection includes Vectis, 2LO, Huntsman, Leslie Rundle, Gladys and Derby Day.

The novel and very interesting exhibit of Mr. J. Stevenson's fully deserved the Silver Medal which was awarded. He set up very attractively entire plants of a number of varieties bearing heavy crops of seed pods and these were supplemented with vases of their flowers and saucers of their seeds. The varieties included the glowing Charm which a week or so previously had been awarded the Gold Medal at the Scottish Sweet Pea Society's Novelty Trials; Fair Lady, Venus, Stevenson's White, Powerscourt and Magnet.

Southport Classes.

Four Sweet Pea classes which carried challenge trophies were retained in the Southport Flower Show schedule to preserve the continuity of the competitions. The displays on separate tables were a very attractive feature of the Sweet Pea Section. Liberal prizes were offered and the competition was very keen. The trophy and first prize were won by Messrs. Walter Scott and Son who excelled in artistic arrangement. Their chief varieties were Royal Pink, Valentine, Powerscourt, Jessie and Picture. Messrs. Herd Bros., who were second, had better Sweet Peas, but lost points in arrangement. Their varieties were of very high quality, and perfectly timed. The principal sorts were Grenadier, Doreen, Valentine, Model, What Joy, Youth and Cecily. Mr. Arthur Leigh was third with a group that was admirable in conception, and contained very good flowers, but was a little weak in the finish. He included Mammoth, Magnet, Grenadier, Model and Gold Crest of high quality. Mr. W. Weaver was fourth, Mr. W. E. Sands was fifth, and Mr. Robert Wright was sixth in this important class, all with attractive displays.

In Class 194, Mr. E. O. Hall, Ainsdale, was first with six particularly good vases. His very best were of Grenadier, Powerscourt and Jack Cornwall. Mr. G. H. Brooks, Hough, Crewe, won the first prize in Class 294 with magnificent vases of Youth, Ivory Picture, Royal Mauve, Powerscourt, Model and Royal Pink. Mr. Brooks was also first with an equally good vase of Susan, and Mr. Simon Richards, Bryn Tiriorn, Cefn Mawr, was equally successful with a superb vase of Picture.

ROYAL HORTICULTURAL.

August 28.—It was rather a small show at this fortnightly meeting of the Society in the Horticultural Hall, Westminster, on this date. The special feature of classes for early fruits did not induce great competition, although the quality of the fruits, especially the Peaches and Nectarines, was particularly good. There were several small collections of Orchids and the Orchid Committee recommended one First Class Certificate and one Award of Merit to novelties. The Floral Committee recommended six Awards of Merit to novelties and selected two Gladioli for trial at Wisley. The Fruit and Vegetable Committee selected a new Apple for trial at Wisley and recommended it for the Bunyard Cup.

Orchid Committee.

Present: Mr. Fred J. Hanbury (in the chair), Mr. Gurney Wilson (Hon. Sec.), Col. Stephenson Clarke, Mr. Richard Thwaites, Mr. Stuart Low, Mr. R. Ashton, Mr. Lionel de Rothschild, Mr. T. Armstrong, Mr. A. McBean, Mr. Robt. Paterson, Mr. J. Cowan, Mr. A. Dye, Mr. Fred. K. Sander, Mr. Charles H. Curtis, Mr. Hatcher, Mr. G. Shill and Mr. Baldwin (a visitor from the United States).

First-Class Certificate.

Laelio-Cattleya Canberra, Exbury var. (*L.-C. Litana* × *C. Venus*).—A gloriously beautiful form of a hybrid that has greatly increased in popularity. The flowers are of large size and substance; sepals and petals deep orange gold; lip deep ruby crimson with purple tinting at the margin. Shown by Lionel de Rothschild, Esq. (Orchid grower, Mr. B. Hills), Exbury, Southampton.

Award of Merit.

Brasso-Laelio-Cattleya Ballantineana (*B.-L.-C. The Baroness* × *L.-C. Sunbeam*).—A beautiful Orchid of exquisite form and proportions. The sepals and petals are soft canary-yellow, the former a trifle deeper in shade than the petals,; lip rounded and frilled, rosy carmine with light ruby shading towards the gold-blotched and gold-lined throat. Shown by Baron Bruno Schröder (gr. Mr. G. Shill), Dell Park, Englefield Green, Surrey.

Groups.

Vanda coerulea, V. suavis and V. s. virginalo were strong features in Messrs. Sander's group, but other interesting subjects were Oncidium Lanceanum, Cypripedium Godefroyae, Galeandra Baueri, Dendrobium purpureum album, Cattleya Thebes var. Pharoah, Coelogyne speciosa albens, Laelio-Cattleya Mrs. Medo and several pretty Cirrhopetalums.

Messrs. J. and A. McBean showed the handsome Laelio-Cattleya Profusion, Cattleya Enid alba, C. Aeneas and C. Sibyl, both with yellow colouring, and Brasso-Cattleya Ilene. Messrs. Cowan and Co. exhibited Cypripedium Rossetti var. Goliath, the dark Cattleya Princess Royal, the deep orange-yellow Laelio-Cattleya Canberra and the equally-attractive L.-C. Heliodor.

Robt. Paterson, Esq. (gr. Mr. Merry), Stonehurst, Ardingley, had good examples of Laelio-Cattleya Iris, Stonehurst var., with a spike of eight flowers; Cattleya Aeneas var. Mrs. Paterson; C. Loma var. Empress, with white sepals and petals; C. Adula; and L.-C. Heatherwood.

Mrs. Carl Holmes (gr. Mr. W. J. Penton), Welwyn, sent a good form of Laelio-Cattleya Aulange, and the Duke of Wellington (gr. Mr. Beckingham), Ewhurst Park, Basingstoke, showed the old Laelia crispa with three spikes and an aggregate of fourteen flowers.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. Arthur Turner, Mrs. Ethel M. Wightman, Mr. C. F. Langdon, Mr. William Howe, Mr. J. M. Bridgeford, Mr. Donald Allan, Mr. J. B. Riding, Mr. W. B. Gingell, Mr. A. E. Vasey, Mr. A. B. Crane, Mrs. Helen Lindsay-Smith, Mr. H. R. Darlington, Mr. Charles E. Pearson, and Mr. W. D. Cartwright, Secretary.

Section B.—Mr. Charles T. Musgrave (in the chair), Mr. G. Reuthe, Mr. E. H. Wilding, Mr. G. Yeld, Mr. A. Bedford, Mr. T. Hay, Sir William Lawrence, Bt., Mr. Clarence Elliott and Mr. N. K. Gould, Secretary.

AWARDS OF MERIT.

Caryopteris mongolica.—This is a graceful little flowering shrub of uncommon appearance. The opposite, ovate-lanceolate leaves are a shining green on the upper surfaces and silvery-green below. The young shoots and flower buds are lightly covered with tomentum. The blue flowers are in short axillary clusters and one corolla segment is curiously extended and toothed. Shown by Messrs. Robert Veitch and Son.

Gentiana stragulata.—A prostrate Gentian which produces long, tubular blue flowers, which have white longitudinal lines. It was stated to be a native of Yunnan, China. Shown by Andrew Harley, Esq. (gr. Mr. T. Doig), Devonhall, Dollar, Perth.

Hippeastrum reticulatum.—This delicately-beautiful species, which was introduced from Brazil in 1675, is now a rare plant. The illustration in *Bot. Mag.* t. 2113, as Amaryllis reticulata, which was given with reserve, appears to be of a florid variety and fails to give an adequate impression of the charms of the species. The glistening white perianth is lined and veined with bright pink and the leaves have a definite milk-white midrib. Shown by Col. R. Stephenson Clark, C.B., Borde Hill, Cuckfield, Sussex.

Hydrangea quercifolia.—This deciduous species differs from all other Hydrangeas in its large lobed leaves which have distinct ornamental value. It rarely becomes more than five feet in height and bears large panicles of white flowers which become tinted with purple with age. The species was introduced from the United States of America in 1803. Shown by Col. Stephenson Clark.

Solanum sp.—This was shown as a tender flowering shrub. The fleshy, pinnate leaves are a shining green and the clusters of violet flowers are graceful. It is a native of Chili. Shown by Lt.-Col. Messel, O.B.E., Nymans, Handcross, Sussex.

Sphaeralcea acerifolia.—The award was given to a plant named Sphaeralcea rivularis, but the specimens appear to be identical with S. acerifolia, *Bot. Mag.* t. 5404. This uncommon half-hardy shrub was introduced from North-West America in 1861, and may well be described as having the foliage of a Maple and the flowers of a Mallow. The rounded, rosy-lavender flowers are about two inches across and are borne in a rather dense terminal spike. Shown by Mr. T. Hay, Hyde Park, London.

FOR TRIAL AT WISLEY.

Gladiolus Col. Sir Denniss Bowles.—A pretty spike of a large-flowered variety which has white flowers, heavily tipped and flushed with bright red.

Gladiolus Queen of Somerset.—A very large spike of white flowers, faintly lined with carmine at the base. Both varieties were shown by Messrs. J. Kelway and Son.

NEW DAHLIAS.

The Joint Dahlia Committee selected the following new seedlings for trial at Wisley:—

Fire Fly.—A Cactus variety with revolute orange-scarlet florets.

Mrs. C. Bradley.—A large, pale lilac decorative variety, lightly stippled with carmine.

Radiant.—A large decorative variety of rich scarlet colour, broadly tipped with white.

Lord Lambourne.—An immense round decorative variety of rich amber colour, lightly flushed with peach in the centre.

Mrs. John Crowther.—A white Cactus variety.

Rev. T. Marriott.—A large, ruby, decorative variety, heavily flushed with plum-purple.

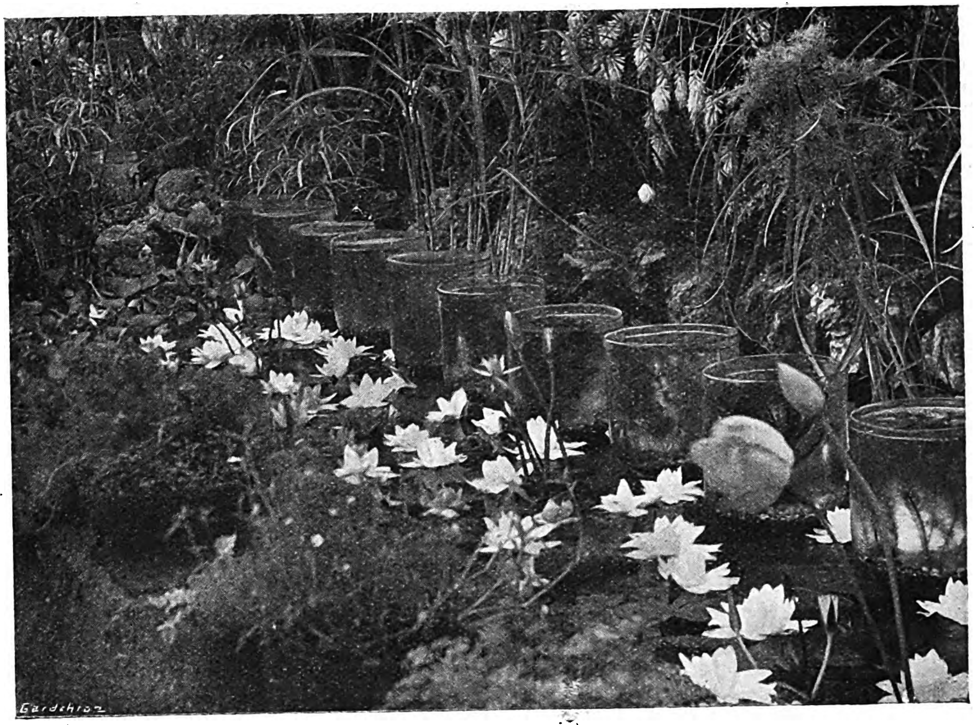


FIG. 79.—SOUTHPORT SHOW: MESSRS. PERRY'S EXHIBIT OF AQUATIC PLANTS.
(see p. 174.)

The above varieties were shown by Messrs. J. Stredwick and Son.

Yvonne Scarlet.—A pretty miniature Paeony-flowered variety of glowing orange-scarlet colour. Shown by Mr. A. J. Cobb.

Mrs. Looker.—A small, shapely decorative variety, heavily lined and flushed with glowing rose-pink on a golden-yellow base. This and the two following were shown by Messrs. J. Cheal and Sons.

Pilatus.—A medium-sized, scarlet Paeony-flowered variety.

Lady Snagg.—A medium-sized, rosy-salmon decorative variety.

Sunflower.—A yellow star Dahlia. Shown by Mr. C. Turner.

GROUPS.

A large collection of very good Montbretias was staged by Messrs. M. Prichard and Sons. The brightly-coloured varieties, which were prominent, were represented by Red King, Pocahontas, Princess and Carmineus. They also showed good spikes of Crinum Powellii album and C. intermedium.

Sidalceas of merit were shown by Mr. H. Hemsley and Messrs. Jones Bros., and the former also staged Dahlias. Messrs. B. Ladhams, Ltd., had a good selection of tall Lobelias, Coreopsis, Lavateras and other border flowers' Messrs. W. Wells, Junr., grouped Delphiniums with Lupins and Erigerons. Mr. T. Carlile, had an attractive circular group of Delphiniums, and Messrs. Burkwood Bros. associated several varieties of Ceanothus and Lonicera nitida with other shrubs.

Well-flowered Clematises in relatively small pots were grouped by the Hollamby Nurseries. Messrs. L. R. Russell, Ltd., had an attractive group of Lilium suphureum, Begonia Rex and various other stove and greenhouse plants. Messrs. Robert Veitch and Son set up a collection of the rarer plants which included Hedychium Greenii, Watsonia Hobart, Watsonia Sydney and a plant of Erythrina Crista-galli.

An extensive collection of Marigolds staged by Messrs. Dobbie and Co. included the African varieties, Legion d'Honneur, Golden Gem and Golden Ball. Mr. George E. P. Wood and the Misses Hopkins showed seasonable border flowers. Messrs. J. Cheal and Sons had collections of good Pentstemons and Dahlias and the latter flower was associated with Gladiolus by Messrs. H. Langridge and Co.

A large collection of Gladiolus was arranged by Messrs. J. Kelway and Son. The large-flowered varieties included Heber, Snowbird, British Lion, Duke of Richmond and Orby of very good quality. In their attractive collection of Gladiolus, Messrs. R. H. Bath, Ltd., showed large vases of Crimson Glow and Madame Moumet Sully. Mr. H. Yandell again set up a good collection of Violas. Excellent Roses were staged by Messrs. B. R. Cant and Sons, while Messrs. Allwood Bros. and Messrs. C. Engelmann, Ltd., set up their accustomed collections of fresh Carnations.

A particularly well-grown plant of Brunsvigia gigantea, bearing two spikes of flowers, sent by Mrs. Henderson (gr. Mr. J. Nuddell), Sedgwick Park, Horsham, and placed among the new plants in the whiskey box in which it apparently travelled, attracted considerable attention.

Fruit and Vegetable Committee.

Present: Mr. A. H. Pearson (in the chair), Mr. W. Poupart, Mr. H. S. Rivers, Mr. H. V. Taylor, Mr. J. Cheal, Mr. H. A. Prince, Mr. T. Pateman, Mr. E. Neal, Mr. A. Bullock, Mr. J. Wilson, Mr. F. Jordan, Mr. F. Bostock, Mr. P. C. M. Veitch, Mr. G. F. Tinley, Mr. W. H. Divers, Mr. H. Markham, Mr. E. A. Bunyard, Mr. J. C. Allgrove, Mr. E. Laxton and Mr. A. N. Rawes, (Secretary.

Messrs. Laxton Bros., Bedford, showed a new seedling Apple named Epicure, which was recommended for the Bunyard Cup, subject to the recommendation being confirmed next year. This Apple was also recommended for inclusion in the commercial fruit trials in progress at Wisley.

The fruit is of medium size, round, and flattened at the apex and base, with a small, closed eye and a slender stalk about one inch in length, set in a rather deep cavity. The skin is pale yellowish-green, flushed red on the side exposed to the sun, while the flavour is pleasantly sweet. This variety is the result of a cross between Wealthy and Cox's Orange Pippin.

Competitive Classes.

The competition for early Apples, Peaches, Plums and other fruits, held at this meeting, could hardly be termed a success, although the general quality of the fruits, and especially of Peaches and Nectarines, was high.

There were several fine individual dishes of fruits in Class 1, for a collection of Peaches and (or) Nectarines, Lord Swaythling (gr. Mr. F. G. Rose), Townhill Park, Hampshire, being placed first. The fruits which he exhibited were of first-class quality and all beautifully coloured. They included examples of such Peaches as Peregrine, Goshawk, Gros Mignonne and Dymond; and Nectarines Pineapple, Lord Napier, Improved Downton and Early Rivers.

Col. Howard-Vyse (gr. Mr. F. S. Cooke), Stoke Place, Slough, was the only exhibitor in the class for one dish of Peaches, showing well-shaped fruits of Violette Hâtive, for which he was awarded a first prize; Lord Swaythling was awarded the premier prize for three varieties of Nectarines, and Col. Howard-Vyse was first for one dish.

Lord Swaythling showed the best Melon, a fine example of Superlative, while in the class for four varieties of Plums, Lord Swaythling was again first, with examples of Jefferson, Victoria, Pond's Seedling and Washington. Mr. A. P. Thomas, Castle Street, Abergavenny, was first for a dish of dessert Plums, showing well-coloured fruits of Kirke's, while H. W. Warner, Esq. (gr. Mr. A. Humphrey), Henfield, Sussex, showed fruits of Diamond as the best of the cooking varieties.

Lord Swaythling was the sole exhibitor in the class for one dish of any Sweet Cherry, showing a dish of Late Duke; A. H. Pullen, Esq., Wallington, was first for a dish of any sour variety, showing good fruits of Morello.

For one dish of Loganberries, Blackberries and Hybrid Rubi, one dish of any one variety, Lord Swaythling was successful with Blackberries; also for one dish of Raspberries, with good fruits of Pyne's Royal.

In the class for six early varieties of Apples, cooking and, (or) dessert, J. A. Stidston, Esq. Bishopsteignton, was first with well-shaped and coloured examples of Lady Sudeley, Langley Pippin, Charles Eyre, Rev. W. Wilks, Baron Wolseley and Peasgood's Nonsuch; Mr. Calley (gr. Mr. B. Thompson), Swindon, showed the best dish of Apple Beauty of Bath; Col. Howard-Nyse the best fruits of Red Quarrenden; Mr. A. P. Thomas was first for examples of Irish Peach; and Mr. W. West, Crabwood House, Winchester, was first for Keswick Codlin.

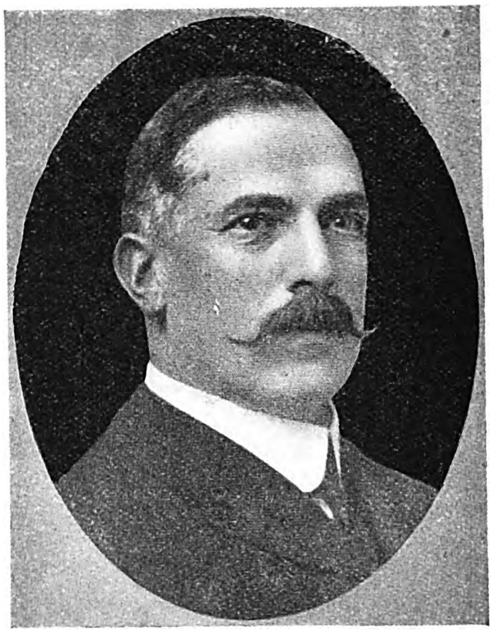
In Class 24, for any variety of Apple other than those in Classes 18 to 23, Mr. C. E. Danks, Carshalton, was first with fine fruits of Lady Sudeley, while in the next class, for twelve dishes of the fruits mentioned in the schedule, Lord Swaythling was first with an extremely good collection consisting of Nectarines, Pitmaston Orange, Newton, Pineapple and Improved Downton; Morello Cherries; Washington and Jefferson Plums; Hero of Lockinge and Superlative Melons, and Peregrine and Goshawk Peaches.

Groups.

Messrs. Laxton Bros., Bedford, showed heavily fruited sprays of the Veitchberry, a hybrid between the Raspberry and Blackberry, with well-shaped fruits about an inch in length, and nearly as much in diameter, while Messrs. Daniels, Bros., Ltd., displayed their ate-fruiting Black Currant, Daniel's September which has fruits of good size and quantity, borne in fairly large trusses; together with Kirke's, Belle de Louvain and Victoria Plums; and Red Victoria, Lady Sudeley, Worcester Pearmain and Beauty of Bath Apples, all of good quality.

Obituary.

Frank Cant.—On August 22, Mr. Frank Cant, one of the most prominent growers and exhibitors of Roses of modern times, passed away peacefully at Colchester, and his remains were laid to rest on Saturday, August 25, at St. Leonard's Church, Lexden. He was seventy-one years of age. Mr. Cant established the famous Braiswick Rose Nurseries nearly fifty years ago and since its inception the firm of Messrs. F. Cant and Co. has enjoyed uninterrupted and almost unparalleled success, winning cups, medals and other trophies at all the important shows throughout the country. Throughout these successes, Mr. F. Cant was the guiding genius, and the prominent position which the firm holds to-day in the horticultural world is mainly due to Mr. F. Cant's skill as a business man, as a Rose grower and as a raiser of new varieties, for which he received many awards, both from the Royal Horticultural Society and from the National Rose Society, of which, at the time of his death, he was one of the oldest members. A man of quiet and imposing dignity, yet withal of a charming disposition, he won the respect and affection of all with whom he came into contact, not only in the realms of horticulture, but in the many social circles in which he moved, for his activities and energy were not devoted solely to Rose culture. He took a prominent part in local affairs and especially for Colchester; he was a magistrate, a member of the Town Council, and in 1910 was Mayor of Colchester. All who knew him, and horticulturists in general, will join with us in expressing our deepest and sincerest sympathy to the relatives who are left to mourn his loss.



THE LATE FRANK CANT.

Le Comte t'Kint de Roodenbeke.—We regret to learn of the death, on August 10, of a celebrated Belgian statesman, M. le Comte t'Kint de Roodenbeke, at the advanced age of seventy-five Although educated for a legal career, his activities were almost entirely official, and as early as 1872 he took part in a special mission sent to The Hague on the occasion of the twenty-fifth anniversary of the accession of the King of the Netherlands. His political life began in 1878, when he was elected a Provincial Councillor of East Flanders, and he was subsequently in turn Secretary and Vice-President of the Council. In 1891 he became Deputy for the division of Eecloo, which he continued to represent until 1900. While in the Chamber, he chiefly occupied himself with agricultural, commercial and social questions, being especially interested in the subject of industrial housing. On May 27, 1900, he was elected Senator, and in 1922 he became President of the Senate. He resided chiefly in Brussels and in his château of Oydonck, at Bachte-Maria-Leerne, of which place he was Burgomaster. He was always interested in the horticultural activities for which Belgium is so famous, and was Hon. President of the Fédération Royale des Sociétés Horticoles. The funeral took place on Thursday, August 16, at Oydonck; by his own desire the service was of the simplest character, but the greater number of the members of the Senate and a delegation from the Federation mentioned above, attended to pay a valued friend and colleague the last honours.

W. H. Massie.—We regret to record the death of W. H. Massie, senior partner of Messrs. Dicksons and Co., of 20, Charlotte Square, and Craigmillar Nurseries, Edinburgh, whose bi-centenary will occur next year. Born in Aberdeenshire, seventy-four years ago, Mr. Massie served his apprenticeship with Messrs. Dicksons and Co., becoming a partner some forty-three years ago on the death of Mr. James Welsh, Senior. At the time of his death he had been a member of the Council and Convener of the Finance Committee of the Royal Arboricultural Society for a number of years, and he also served on the Councils of both the Royal Caledonian Horticultural Society and the Scottish Horticultural Association (now incorporated with the Caledonian Society) of which he was President for two years. The business will be carried on by Mr. John H. Alexander and Mr. James Welsh, who have been connected with the firm for many years.

ANSWERS TO CORRESPONDENTS.

Chrysanthemums Blind.—*E. A. G.* There is no disease on your Chrysanthemums that we can trace. The injury seems to be caused by some insect, as many of the leaves are badly punctured; the injury may be duo to the presence of one of the capsid bugs. Examine your plants for a large, green, aphis-like insect. If such insects are present, hand-pick them, and also spray the plants with a nicotine spray or Volck.

Elm Tree Diseased.—*A. B.* The section of the branch of Elm received for examination is infested with coral spot fungus, Nectria cinnabarina. This fungus usually obtains a footing through wounds, or it may pass from dead to living wood. It is very common on dead wood in many parts of the country, and unhealthy trees are very liable to attack. All that can be done is to cut out and burn affected wood and protect all wounds with coal-tar.

Lime Tree Failing.—*G.M.* From the appearance of your Lime tree shoots, your tree seems to be in want of food material. Harm has been done by banking-up the ground above the roots, and you would be wise to remove all the soil and clinkers to the original ground level. Then lightly fork over the ground to the full extent of the branch spread. If the ground seems to be dry give a good soaking of water, then apply a surface dressing six inches deep of good loam and well rotted farmyard manure or decayed leaves and farmyard manure, keeping the dressing twelve inches from the trunk. At the same time remove all dead wood from the tree, and tar the wounds. Also fill up any cavities in the trunk, etc., with cement.

Names of Plants.—*W. H.* Impatiens Noli-tangere.—*A. H.* Probably Salvia patens.—*A. Z.* We cannot undertake to name florists' flowers and would advise you to have it identified by a local nurseryman.—*A. B. H.* 1, Veronica parviflora; 2, Veronica epacridea.—*J. C. and Co.* Alchemilla conjuncta.

Communications Received.—J. M.—A. W.—H. W.—C. H.—J. E.—T.—S. O.—A. J.—A. T. H.—A. F.—F. W.—E. B.—H. A.—W. L.—L. B. C.—J. S.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 55·1°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, September 5, 10 a.m. Bar. 30·1. Temp. 69°. Weather, Fine.

Forest Tree Nurseries. Gardeners, no less than nurserymen, will be grateful to Dr. H. M. Steven, Research Officer to the Forestry Commission, for the admirable *Bulletin* on "Nursery Investigations" recently issued by the Forestry Commission.* The raising of trees from seeds is a fascinating but sometimes a disappointing pursuit, and the extensive experience which Dr. Steven has gained and published should prove very acceptable to those who perforce cannot work on seed raising so intensively and extensively as he can with the large resources of the Forestry Commission's nurseries at his disposal. British forestry has, in the past, relied almost entirely on planting—direct sowing of forest trees in this country having been but little practised. Nor is there likelihood that the better method will gain favour, and therefore the Commission has had to lay down a large scheme of tree raising in nurseries. The number of trees planted since 1919 shows year by year a steady increase. Last year it amounted to over thirty-seven millions, nearly all of which are Conifers. Of the trees planted Scotch Pine (Pinus sylvestris) heads the list with thirty-six per cent.; Corsican Pine (P. Laricio) and Common Spruce (Picea excelsa) came next with fifteen per cent. and Douglas Fir (Pseudotsuga Douglasii), 11·5 per cent. Larch seems to be falling out of favour; European Larch amounting to only 8·8 per cent. and Japanese (L. leptolepis) to 1·7 per cent. The usual practice in this country is to transplant from nurseries and to use for planting seedlings of fairly large size—from nine to eighteen inches high. This practice is illustrated by the fact that the ground to be planted is not generally in a good enough state to allow either of direct seeding or of the planting of smaller seedlings. The planting stock is nearly all raised in State nurseries. Central nurseries supply the first seeds of a new forest area, but as that area develops, local nurseries—which take some time to lay out—are established. Two years ago the total area of forest nurseries belonging to the Forestry Commission amounted to seven-hundred-and-twenty acres. Of this area fifteen per cent., or about one hundred acres, consisted of seed beds, the larger area being, of course, for the reception of the plants transplanted from the seed beds. Most of the nurseries are on the light soil, for experience has shown that when nursery work is attempted on heavier land, difficulties arise in transplanting during the winter owing to the state of the ground. The sowing of Coniferous seeds takes place in spring—from mid-April to May. The seeds are either soaked for from one to fourteen days in water before sowing, or they are "pre-germinated." The latter method is practised in two ways. In one, the seeds are placed in trays, exposed to the sun and kept moist, under which circumstances germination in May in the South of England generally takes place in about fourteen days. In the other method, seeds are soaked for from seven to fourteen days and kept at a temperature of about 60°F. The seeds are usually treated with red lead before sowing. Sowing is done either broadcast or by drilling. For broadcast sowing the soil of the beds, each three to four feet in width, is drawn from the middle to each side by a "cuffing board," and after the seeds are sown and rolled in lightly, the soil is drawn back with it. Drilling, however, effects a sensible economy of seeds. Protection against high temperature and drought is sometimes necessary and winter protection against frost-lift and frost damage is essential, at all events for such species as the Sitka Spruce. Seedlings are graded according to size and root development into two classes. Transplantation, which used to be practised only in spring, now goes on from November until April, or even May, in the north. The usual method of transplantation is by the open trench and spacing between the lines of the plants varies from nine to twelve inches, with one-and-a-half inch to three inches in the rows. The beds, of course, are kept free of weeds and when the transplants are lifted, those of grade 1 are used for permanent planting and grade 2 are re-planted or destroyed. Pests have to be guarded against. Red lead keeps the mice in check, but wire netting is also needed, three-eighths-of-an-inch mesh and eighteen inches wide, sunk six inches in the soil and with the top bent outward; this keeps the seed bed free from ground vermin. String netting, twelve to eighteen inches above the seed bed, keeps away birds. Moles sometimes play havoc, but wire netting three feet wide, sunk two feet in the soil, keeps them away. So much by way of general remarks. The *Bulletin*. however, contains a vast quantity of experimental data, much of it extremely valuable; but for a summary thereof we must await another occasion. Two suggestions may be made. One, that an index be provided; the other, that the Forestry Commission should endeavour to ensure that their *Bulletins* reach the largest possible number of readers, by issuing them at a lower price. That of the present *Bulletin* of some 181 pages, with six plates, is 3/6. It is well worth the money, but the information which it contains is so valuable that it would be wise, if it could be done, to issue the *Bulletin* at a more popular price; failing that, a cheap summary should be published.

New Exchange and Telephone Number for "The Gardeners' Chronicle."—In common with many other businesses in the London, W.C. 2, district, we have, for telephonic purposes, been transferred from the Gerrard to the Temple Bar exchange, and our number has been changed from the familiar 1543 to 7818, so in future—until the G.P.O. orders otherwise—our telephone address will be Temple Bar, 7818.

London's Sunny Summer.—During the months of June, July and August Londoners enjoyed over seven hundred hours of sunshine as compared with four hundred and sixty hours in the three corresponding months of 1928.

Control of Cabbage Caterpillars.—Experiments carried out recently at the South-Eastern Agricultural College, Wye, Kent, demonstrate that the safest and most efficient method of ridding Cabbages of the larvae of the large Cabbage White butterfly (Pontia brassicae) is to spray the plants with a salt solution (two or three ounces of common salt to one gallon of water). The solution was tried on various Brassicae, Tropaeolums, Stocks and Pelargoniums, and no material damage was done to any of them. On large areas the solution may be applied easily with the aid of a knapsack sprayer.

Imports and Exports of Fertilizers, 1927.—According to the report issued by the Ministry of Agriculture and Fisheries, imports of fertilizers into England and Wales during the year 1927 were generally larger than in 1926; 79,000 tons of basic slag were imported as compared with 48,000 tons in 1926; the export trade in basic slag diminished from 28,000 tons in 1925, to 14,000 tons in 1927. Imports of superphosphates in 1927 amounted to 167,000 tons, 31,000 tons more than in 1926, and 62,000 tons more than in 1925; the receipts of phosphate of lime and rock phosphate were also heavier, 404,000 tons in 1927 as against 292,000 tons in 1926. Imports of nitrate of soda amounted to 118,000 tons, an increase of 79,000 tons on the total for 1926, and the receipts of potassium compounds also showed an increase. Practically no sulphate of ammonia is imported, but large quantities are exported, the figures for 1927, 1926 and 1925, being 265,000 tons, 162,000 tons and 262,000 tons respectively.

Mr. Alexander D. Harrison.—We are very pleased to learn that Mr. A. D. Harrison, son of Mr. A. T. Harrison—formerly of Culzean Castle Gardens and now gardener at Jordanhill Training Centre, Glasgow—has been appointed Instructor in Horticulture under the Glamorganshire Agricultural Committee.

Orford Castle.—Sir Arthur Churchman, M.P. for the Woodbridge division of Suffolk, who recently presented to the people of Ipswich the Chantry Estate, extending to about two hundred acres, for the purpose of a public park and playing fields, has now purchased Orford Castle with the Town Green—altogether about eight acres—and proposes to present it to the Orford Town Trust.

Antirrhinum Disease.—Mr. Fred J. Chittenden, Director of the R.H.S. Gardens, Wisley, writes: "The dire disease of Antirrhinums referred to in page 136 by Mr. Cuthbertson is a rust due to the fungus Puccinia antirrhini. I have seen this disease only in California. The havoc it works there is extremely serious, and all attempts to check the outbreaks have so far proved futile. The danger of importing the fungus with seeds is probably less than with many rusts of cultivated plants, for the true seeds are imported instead of the fruits, on which the fungus is more likely to occur, but its importation with seeds is not impossible. There seems, however, little need to import Antirrhinum seeds from California or from any place in which the disease occurs at all, for seeds are freely produced here. The disease may have occurred in Europe, but I know of no authentic records. That it can spread very rapidly, however, when once imported into a new country is very evident, for as recorded in the *Transactions of the British Mycological Society*, the rust was seen for the first time in two gardens in Bermuda by Professor Whetzel, in 1922. He states: 'The following year it became destructive in several places in the islands. It has since become generally epiphytotic and very destructive.' If it should appear in England it would be wise to destroy the plants affected out of hand. Burn them; do not dispose of them upon the rubbish heap. The disease is easily recognised by the deep brown spots formed by the groups of spores on the foliage."

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British Association.—Illness having prevented the attendance of Professor R. N. Yapp, Dame Helen Gwynne-Vaughan (a Vice-President) presided over the Botany Section of the British Association, which opened its proceedings at Glasgow on Wednesday. Her opening address deals with Sexuality in Fungi. Dr. J. S. Jordan, Professor of Agriculture in Northern Ireland is President of the section devoted to agriculture.

London Allotments and Gardens Show.—Taking into consideration the number of allotment societies there are in and around London, it is surprising that this show, held at the Royal Horticultural Society's hall on August 31 and September 1, was not more popular, so far as exhibitors are concerned. The general quality of the exhibits, and especially of the vegetables, was good, but there was room for expansion with regard to the number of entries in practically all the classes. Potatos were greatly in evidence and much good produce was displayed, the Beckenham Allotment Society being placed first in the inter-society competition for the best collection of six sorts, while the Southgate Chase Allotment Society staged the best collection of twelve distinct kinds of vegetables. Onions were shown well, although the majority of the bulbs lacked a finished appearance; Beetroots were much in evidence, and Runner Beans were notable for their size. Flowers were only a secondary feature of the show, but the table decoration class was very popular; there were nineteen entries in this class, and some of the floral arrangements were extremely creditable. In the inter-society competition for a collection of flowers and foliage, grown out-of-doors, the premier place was secured by the West Ham Allotment Holders' Union. Fruits were not in evidence, but there were the usual popular classes for home-made bread and cakes, and for honey.

Solanum pinnatum, Cav.—The plant which received an Award of Merit as a greenhouse flowering shrub when shown by Lt.-Col. Messel, O.B.E., at the Royal Horticultural Society's meeting on August 27 as Solanum sp. C. E. 11 (see p. 179) has been identified at the Royal Botanic Gardens, Kew, as Solanum pinnatum, Cav.

Nurserymen's Compensation Claim. — We understand that Messrs. Mizen Brothers, the well-known nurserymen and market growers of Mitcham, have claimed the sum of £47,185 from the Mitcham Urban District Council as compensation on account of the compulsory order made by the Ministry of Health to surrender some seventeen acres of land at Bordergate for Mitcham's new housing scheme. The price asked by Messrs. Mizen Brothers is £2,700 per acre. The Council decided to offer one half of this amount, and, failing acceptance, the matter will be referred to arbitration.

International Horticultural Congress, 1930.—On the occasion of the International Horticultural Congress, to be held in London in 1930, the Royal Horticultural Society intends to organise a special show in its New Hall, on Thursday and Friday, August 14 and 15, 1930. The Council of the Society desires to give this early notice to all British Dominion and foreign horticulturists in the hope that on this occasion an exceptional display of new plants and new flowers of recent introduction may be exhibited. The space available for the display of such plants and flowers must of necessity be restricted, and the number of specimens of individual new plants or flowers will be limited. The Council trusts that this long notice will afford ample time for the preparation of exhibits worthy of the occasion. All firms and persons desirous of having the opportunity of exhibiting new and rare plants or flowers are invited to communicate so soon as possible with the Secretary, Royal Horticultural Society, Vincent Square, London, S.W.1.

Rev. Rollo Meyer.—As a successful exhibitor and raiser of Narcissi, the Rev. Rollo Meyer, of Watton Rectory, Hertfordshire, is well-known, especially at the Royal Horticultural Society's Hall, at Vincent Square, where, during recent years, he has been responsible for the staging of many fine displays. However, his interests are not confined to Narcissi, for he is keenly interested in all branches of gardening, and his beautiful garden at Watton Rectory speaks highly of his skill and love of horticulture, for when he went to Watton Rectory the garden was the least interesting part of the residence; this year the Rev. R. Meyer was able to throw it open to the public in aid of the District Nursing Fund, and many availed themselves of the opportunity of inspecting his large and varied collection of plants. He is extremely fond of Tulips and Irises, both of which he has been very successful with, while Roses also occupy a prominent position in his garden, and rock plants and flowering shrubs in general are all favourites of this keen amateur. But the Rev. Rollo Meyer's first love was the Narcissus, and it is in connection with this flower that he is known best. He owes a great deal of his success in connection with the raising of seedling Daffodils to the late Mr. Worsley, the raiser of Bernardino. It was from Mr. Worsley that Mr. Meyer learnt much that has been of use to him as a hybridist, and he also received a number of Mr. Worsley's seedlings and named varieties with which to start his collection. He was also fortunate in being given by the late Mr. E. Jekyll, a brother of Miss G. Jekyll of present-day fame, about ninety varieties of Narcissi. Mr. Jekyll sent him a list of his varieties with the instruction to mark all that he would like; there were about one hundred names in the list and the Rev. Rollo Meyer secured ninety of them and these, with those from Mr. Worsley, formed the nucleus of his now excellent collection. The Rev. R. Meyer attributes a large portion of his success to his gardener, Mr. Izzard, who came to him nearly thirty years ago, in answer to an advertisement for a young man not afraid of work, and with the only qualification that he had dug for two hours; Mr. Izzard has been with him ever since. The Rev. Rollo Meyer is a member of the R.H.S. Narcissus and Tulip Committee, and during his career as an exhibitor he has secured many medals and other prizes for Narcissi, Tulips, and bulbous and Bearded Irises.

REV. ROLLO MEYER.

Importation of Fruit and Rose Stocks into America.—The Ministry of Agriculture is informed that as a result of a Conference called at Washington in June last by the Federal Horticultural Board of the United States Department of Agriculture to consider the advisability of placing further restrictions on the importation of fruit and Rose stocks, Apple, Pear, Quince and Mazzard Cherry stocks will be excluded from entry into the United States on and after July 1, 1930. No additional restrictions on the entry of Rose stocks will be imposed until another conference has been called at some future date to consider the sufficiency of domestic supplies. English exporters of Manetti and other Rose stocks will accordingly be free for the present to continue their trade as heretofore, subject, of course, to the usual permit being obtained by the importer and the consequent examination and certification of the stocks by the Ministry's Inspectors prior to shipment.

Bermuda Lilies in Hyde Park.—Without doubt, one of the most attractive displays in Hyde Park this season was that provided by the magnificent bulbs of Lilium longiflorum Harrissii, a gift from the Bermuda Department of Agriculture, which filled a large bed near the fountain, and bird bath enclosure (Fig. 82). All the plants were magnificent specimens, demonstrating the skill of those who cultivated them, and the high quality of the Bermuda-grown Lily bulbs.

Forest Reservation and Planting in South Australia.—Concerned with the necessity for conserving its timber resources, the Government of South Australia has established forest reserves in various parts of the State. The total area of these plantations exceeds 202,000 acres. The Minister of Agriculture (Hon. J. Cowan, M.L.C.) stated recently that planting operations, principally in the south-east, were proceeding satisfactorily. It was anticipated that this season an additional 5,413 acres would be planted. The Conservator of Forests had reported that an early start was made, and that the season was proving exceptionally favourable. A contract had been let for clearing 2,137 acres of the Penola forest for next year's planting, and tenders would be invited for the whole work of clearing for the 1929-1930 areas on Mount Gambier and Mount Burr reserves in the south-east, covering approximately 12,000 acres. That South Australian Pinus insignis can be profitably utilised for the making of paper pulp has been proved by recent investigations. Local authorities, too, advocate the more extensive use of timber from the Government forests for building purposes.

Sweet Pea Novelty Trials. — The Secretary of the National Sweet Pea Society informs us that Messrs. Robert Bolton and Son have kindly consented to grow the Society's trials of Novelty Sweet Peas in their grounds at Halstead, Essex, next year. Raisers who wish their novelties to be included in the trials should send not fewer than thirty-six seeds of each variety to the Secretary, 19, Bedford Chambers, Covent Garden, London, W.C.2, to arrive not later than September 23, next. Seed packets and all particulars may be obtained from the Secretary of the N.S.P.S.

National Marks for Home-grown Apples and Pears.—The new scheme for the grading of home-grown Apples and Pears came into force on September 1. It is the first scheme under the Agricultural Produce (Grading and Marking) Act of last Session which recently received the Royal assent. Its intention is to assist home farmers in marketing their fruits in competition with that from abroad. It is claimed for the scheme that it will create a bigger demand for home-grown fruits in both wholesale and retail markets, as under it such fruits will be much more simply and easily marketed and distributed and will be better recommended to the consuming public. The Act operates by permitting national grade standards to be defined for any agricultural produce and by securing that any produce offered for sale as being of a certain defined grade shall actually be of that grade. In addition, the Act authorises the Minister to prescribe external marks, to be applied to the commodity or to its container, which shall represent the specified grades. The marks for Apples and Pears will be three in number, and known as "Extra Fancy," "Fancy," and "C" grade. For each grade a distinctive bright-coloured label will be used, viz., for "Extra Fancy" grade, blue; for "Fancy" grade, red; and for "C" grade, yellow. In the centre of each label is the common national mark of a silhouette map of England and Wales with a representation of the Union Jack in a circle in the middle of it. This will be applied, so far as possible, to all produce graded under schemes set up under the Act. Distributors and consumers may be assured that packages of home-grown Apples and Pears carrying such marks and labels under the new scheme will be of the quantity and quality declared on the label.

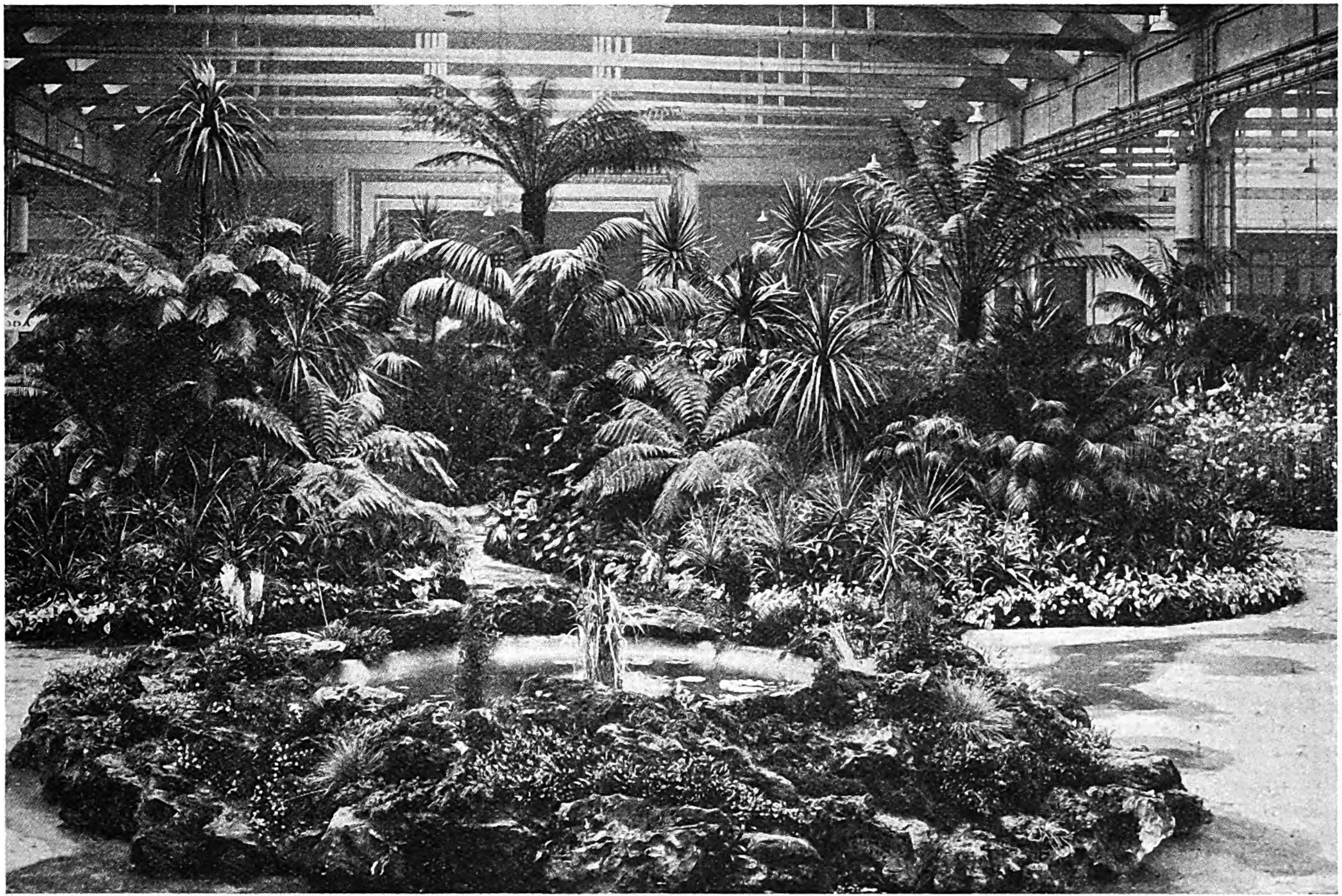

FIG. 80.—GROUP OF PLANTS EXHIBITED AT THE GLASGOW SHOW BY THE PARKS DEPARTMENT OF THE CITY OF GLASGOW.
(see p. 199).

Gold Medal Vegetables at Southport.—By a curious oversight, we omitted to state in our previous issue that a Gold Medal was awarded to Mr. A. Falconer, gardener at the Cheadle Royal Mental Hospital, for his exhibit of one hundred dishes of vegetables, at Southport, for which he also received *The Gardeners' Chronicle* Silver-gilt Medal (see p. 174).

National Dahlia Society.—The exhibition of Dahlias to be held at the Royal Horticultural Society's Hall on Wednesday, September 12, will be opened by Lord Lambourne.

Memorial to the late Sir Isaac Bayley Balfour.—On Saturday, September 8, Sir Herbert Maxwell will open the rest house which has been built at Puck's Glen, Benmore, as a memorial to the late Sir Isaac Bayley Balfour. The building commands beautiful views above a gorge where "the singing waters fall to the Eachaig River from lofty heights through woods of towering Pines." As our readers are aware, the Benmore estate was given to the Forestry Commission by Mr. Younger, and is destined to become a training and demonstration ground for State forestry in Scotland, and also a great national arboretum—the hope and desire of Sir Isaac. "It is to the memory of Bayley Balfour, his great personal charm and scientific genius, and his lifelong service to a science which is the ministrant to natural beauty, as much as to the utilitarian ideals of farmer and forester, that the Forestry Commission has dedicated the most charmingly poetical feature—Puck's Glen."

Appointments for the Ensuing Week.—SUNDAY, SEPTEMBER 9: The International Exhibition, Place de Meir, Antwerp (eight days). MONDAY, SEPTEMBER 10: United Horticulture Benefit and Provident Society meets. TUESDAY SEPTEMBER 11: Royal Horticultural Society's Committees meet. WEDNESDAY, SEPTEMBER 12: Sheffield Chrysanthemum Society meets; National Dahlia Society's exhibition; Royal Caledonian Horticultural Society's exhibition (two days). FRIDAY, SEPTEMBER 14: Royal Horticultural Society of Ireland meets; Dundee Horticultural Society lecture. SATURDAY, SEPTEMBER 15: Haddington Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Flowering Chrysanthemums in Small Pots.*—I have had great success in cultivating the Chrysanthemum in the following manner:—About the middle of June I select strong cuttings of Pompone and the short-growing Chinese varieties, make them short, and strike them quickly in heat, either in a thumb pot or three or four round a larger one, to be turned out when struck, and carefully potted singly in large sixty-sized or three-inch pots, placing them in a close cold frame, shaded from the sun for three or four days, in order to set the roots in motion. As soon as the roots reach the sides of the pots, those struck in thumbs should be shifted into the same size (large 60's), treating them like the others. Inure them gradually to the air, and after a day or two leave the lights off altogether, sprinkling the plants overhead night and morning, to prevent the sun turning the lower leaves yellow. As soon as they want shifting, which will be in about three weeks, use five-inch pots, and treat them as before, with liberal sprinklings overhead. They will now, of course, take up more room; place the pots quite close on a bed of coal-ashes, with a board turned against the outer row, to prevent drying too quickly. The advantage of giving them two shifts is, that as soon as roots reach the sides of the first pots they begin to break back, and by shifting them the shoots grow stronger than if put into five-inch pots at once, and they are not so apt to break two or three shoots at the top, and leave three or four joints at the bottom bare. In about three weeks after shifting the plants will touch each other, and, if not allowed more room, they will draw up leggy; place them three inches apart each way, in order to allow a circulation of air among them, and at the same time the pots will be kept partially shaded by the plants; by treating them thus, you will obtain plants from six inches to fifteen inches high, according to the habit of the variety, with blooms down to the pot, the cutting leaves being still upon them. The best soil for them is two parts turfy loam and one part good dung from an old hotbed, if the loam is heavy a little road or other grit may be used. When the buds are formed a little clear liquid manure may be given with advantage, and at no time must the plants be allowed to suffer for want of water. *F. Bester, Clifton. Gard. Chron., September 3, 1853.*

Publication Received.—*Some Results of Pruning Experiments with Deciduous Fruit Trees*, by O. S. H. Reinecke; The Government Printing and Stationery Office, Pretoria.

The Week's Work.

THE ORCHID HOUSE.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

The Cattleya House.—The plants in this house are now in various stages of growth, some are flowering and others are producing sheaths and will flower later on. A good supply of water is required by these plants as growth is nearing completion and so much sunshine as the foliage will stand without injury. This, with plenty of fresh air, should help to build up good flowering growths and enable them to pass through the winter months in good condition, with less danger of damping off. If a house is devoted to this group of Orchids, their requirements are maintained more easily, as those kinds which are completing their growths may be placed together and given more light and air, to discourage the production of secondary growths, which are often formed where the Cattleyas have to be grown with those Orchids that require more atmospheric moisture and shade than is necessary for the Cattleyas and other closely related Orchids. Where this latter practice obtains they should be grown together so much as possible, where plenty of light and air can reach them, and when growth is complete, if a more airy and sunnier situation may be found for them in a house where a night temperature of about 60° is maintained, they should be removed there and just enough water given to prevent the bulbs shrivelling. Should secondary growths appear they should be encouraged to develop so much as possible before the short days arrive. With the lessening hours of sunlight, less syringing and damping is required, especially in the afternoon, while the heavy atmospheric conditions generally experienced at this season during the early mornings should also be taken into account, and the supply of moisture regulated accordingly. It is not advisable to heat the pipes excessively, as when the sun appears the house quickly becomes hot, and often the blinds have to be lowered to keep the temperature down when the plants should be receiving the benefit of the sunshine and fresh air. Well matured growths are needed for the production of good flowers and to carry the plants in good condition through the winter; for this purpose light and air are essential. Cattleya gigas and some of the hybrids derived from it generally produce roots freely from the newly-made bulbs, and at this stage re-potting, if necessary, may be done safely, using well-drained receptacles and the usual fibrous compost advised for Cattleyas. Apply water sparingly until the roots are well established and then only sufficient should be given to keep the bulbs normal.

THE KITCHEN GARDEN.

By Allan Falconer, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Onions.—Generally, by this time in the southern and midland districts, the Onion crop is ready for lifting, but in northern districts the ripening process is not so far advanced and consequently they have to be left for a few weeks more. It is an advantage to partially lift Onions by inserting a fork underneath them, some time previous to gathering them, so that the ripening process may be hastened. At the same time the rough outer skins may be taken off. Care should be taken not to damage the bulbs in any way or decay may set in; if possible, the ripening process may be completed under glass, either by hanging them up in bunches or laying them on stages in a greenhouse or frame. While this method suits the southern grower admirably, quite a different method has to be adopted in some of the northern districts. For example, near Manchester, the tops of Onions are usually quite green at the end of September, with no prospect of suitable weather to ripen the bulbs; therefore recourse has to be made to other methods with a view to harvesting the bulbs to keep. A week or so previous to lifting, a fork should be inserted underneath the bulbs, and after this the tops turn yellow, and the necks shrink; advantage should be taken of a dry day to lift the bulbs and lay them out on the ground to dry, when they may be tied in bunches of six or eight, two bunches being tied together ready for hanging on the outside of a building, preferably the gable end facing south, so that the sun and wind may finish the ripening process, no further attention being necessary until the Onions are ready for storing. An illustration appeared in *Gard. Chron.*, of November, 1927, fig. 222, of a method which, if adopted in unfavourable districts, proves equally as good as methods which are serviceable in more favoured districts where the bulbs ripen naturally.

Autumn Onions.—Since my remarks on the variety Autumn Triumph I have received many enquiries as to the source of supply of seeds of this particular variety, and am somewhat surprised to hear that there is a great dfficulty in procuring them. I believe this particular variety was introduced by Mr. Beckett, and Mr. A. Dawkins, of Chelsea, supplies seeds of the true strain. Having noted the great possibility of this particular Onion some few years ago, I saved some bulbs, and every year I send sufficient of these and other good strains to a reputable grower in Somersetshire to grow for seed, where the climatic conditions are usually good enough to produce enough seeds for my own requirements by this means I am able to retain the true strain and recommend this method to those who, like myself, have to adopt methods to get over the many difficulties peculiar to districts where there is a lack of sunshine.

Root Crops.—When Beetroot, Turnips, Carrots, etc., have attained a useful size it is advisable to go through the beds and take out those which are likely to become coarse, this often happens if the largest are left until the whole crop is taken up at the usual time for storing. If laid in sand they will keep quite well and may be used before the main crops are dealt with.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Peaches and Nectarines.—Peaches and Nectarines in border, which may need root pruning, should be dealt with without delay. By carrying out this operation now, fresh roots may be produced and these roots should assist the trees to recover from the check. In cases where old trees have ceased to be fruitful, they should be removed and replaced by young specimens. Specimens of large size growing on walls which have been kept in good condition by annually restricting their roots, should lift quite easily and may be planted in the house and cropped lightly next season. Before lifting them it is most important that the soil should receive one or two good soakings of water a day or so before. When performing this operation, cut a deep trench about four to five feet from the bole of the tree, moving the whole of the soil a little distance away to give plenty of room to work beneath the ball of the tree to sever any roots growing downwards. If so treated, specimens of large size may be removed with little danger of disturbing the soil about their surface roots The trees should soon recover and produce a fair crop next season. After planting, the soil should be watered fairly heavily with tepid water to settle it about the roots of the trees, and the foliage should be syringed twice daily. Tie the trees loosely to the overhead wires and, should the weather prove hot and dry, shade the roof glass for a short time. Cut out old, fruited growths as well as any surplus shoots. The work should be carried out as quickly as possible, but with every care. The soil for the border should consist of good turfy loam, with plenty of old mortar-rubble, wood ash and charcoal added, but no manures of any description should be added.

Late Grapes.—It is most essential that these should be well coloured by the end of the present month. Plenty of fresh air should be admitted, both day and night whenever the climatic conditions allow; artificial heat should be dispensed with on bright sunny days, but during dull sunless weather and at night a little warmth from the hot water pipes will tend to dispel dampness and maintain a dry atmosphere. The borders should receive adequate supplies of water and occasional supplies of liquid manure, or an approved fertiliser recommended for vines. Soot water assists the colouring of the berries considerably. Water the border so early as possible in the day so that the atmosphere may become fairly dry before night. Keep all lateral growths removed so that the shoots do not become crowded. It is of the greatest importance that the foliage be retained well into the autumn if the fruit is to colour properly; good foliage is a great factor in the production of Grapes of good quality.

PLANTS UNDER GLASS.

By J. Coutts, Assistant Curator, Royal Gardens, Kew.

Sweet Peas.—If it is desired to grow Sweet Peas in pots, seeds should be sown in cold frames towards the end of the month, sowing five or six seeds in a forty-eight-sized pot. The seedlings may then be grown, without division, into specimen plants for conservatory decoration, or they may, when large enough, be separated and grown on singly, either in pots or planted out in borders in a large airy house. Whatever method is adopted ultimately, it is important to get the young plants well established in five-inch pots before winter arrives. It is also important to grow them under perfectly cool conditions during all stages of their cultivation. When weather conditions permit the frame lights may with advantage be removed for a few hours during the day, but attacks from sparrows should be guarded against.

Darwin Tulips.—These are well suited for decorative purposes, either for the conservatory or for the supply of cut flowers. They should be potted up so soon as possible to allow them plenty of time to become well rooted. Many failures with Darwin Tulips are due, I am sure, to the fact that they are grown in too small pots; with their ample foliage they require plenty of room, and five or six bulbs may be placed in a seven-inch or eight-inch pot. When potted, they should be stood out-of-doors and covered with ashes until well rooted. This class of Tulip does not, as a rule, withstand hard forcing so well as the early-flowering varieties do, also they are not all suitable for forcing. It is therefore important that suitable varieties be selected for this purpose. A few of the best are Wm. Copeland, one of the earliest and most popular varieties for market work; Anton Mauve, Carmen, Centenaire, Europe, Farncombe Sanders, Glow, King Harold, Lenôtre, Madame Krelage, Pride of Haarlem, Princess Elizabeth, Prof. Rauwenhoff, Sieraad van Flora, Sir Harry and William Pitt. Many of the Breeder Tulips are very beautiful and deserving of more general cultivation, as most of them may be grown successfully in pots, and with gentle forcing may be had in flower during March.

HARDY FRUIT GARDEN.

By T. E. Tomalin, Gardener to the Earl of Bessborough, Stansted Park, Emsworth Sussex.

Bush Fruits.—The laterals or side growths on bushes of Red and White Currants, and Gooseberries, may now be shortened back to two or three leaves from the base, if time did not allow of this being done during the summer. The admission of sunlight and air to the inner parts of the bushes greatly assists the development and maturing of the buds which are to bear fruits next season. The leading shoots which are to extend existing branches or form new ones, should not be stopped at present, for it is not wise to deprive a bush or tree of all its growing points during the season of active growth, although the necessity may arise sometimes, for instance, when Gooseberries are attacked by American Gooseberry Mildew. This disease appears during the first season always on the tips of the young growths, during the months of May and June, in the form of a white powdery mould. Directly it is observed the affected growing tips should be cut off well below the mildewed portion, and burnt before the spores have had time to ripen. If neglected, this disease often renders the whole crop useless, especially in a season when a warm damp period occurring during the month of May provides favourable conditions for the quick spread of the fungus.

Black Currants.—Old bushes may now be thinned by the removal of some of the older branches, the object being to secure an even distribution of vigorous young growths over the bush, and the removal of the older wood now should help the ripening of those shoots which are to carry next season's crop.

Cultivation.—The crops having been cleared, and the necessary pruning and thinning done, the bush fruit quarters should benefit by cultivation, and a general clean-up. The ground should be hoed thoroughly over, and all weeds and dead leaves cleared off and burnt. In places where the ground has been trodden down hard by the fruit pickers, the surface may be forked lightly, but, as a general rule, anything in the nature of deep digging among the roots of fruit bushes is to be deprecated. A mulching of short manure should be very beneficial to plantations of mature bushes which have cropped well, and should be applied now.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to the Duke of Devonshire, Chatsworth, Bakewell, Derbyshire.

Standard Fuchsias and Heliotropes.—Flowering plants trained as standards are much in favour for flower beds nowadays, and few plants are so well adapted for growing under this system than are Fuchsias and Heliotropes. They are much used for planting thinly in beds and borders over a groundwork of dwarf plants, and when well selected—and good cultivation is given—excellent effects are obtained. They can be used in a variety of ways to suit their immediate surroundings—a very effective combination being to use standards or large pyramid Fuchsias or Heliotropes with dwarf plants of suitable varieties, and they are especially attractive with Violas of the lighter shades beneath them. If it is intended to start with them next season, cuttings of both Fuchsias and Heliotropes should be taken now in order to get young plants established and growing well before the winter arrives. Strong, healthy shoots should be selected, and dibbled into small pots of light, sandy compost, consisting of leafsoil and light loam. Water them in well, and place them in the propagating case of a warm house. Under these conditions they root quickly, and when this has taken place, stand them on the staging for a few days before disturbing them, and then pot them singly into sixty-sized pots in a similar compost to that used for the cuttings. Pick out sufficient of the strongest plants, according to the number required, and do not stop them until the desired height is attained. A light, warm house is an ideal place in which to grow them. When tall enough, pinch the tops out, and repeat this operation so soon as the resulting shoots are large enough to induce them to form bushy heads. No attempt should be made to rest these young plants; they should be kept growing steadily all the winter, avoiding excessive heat, which will only tend to make them drawn and weakly. Repot them whenever the pots are filled with roots, until they are in eight-inch pots, which are of sufficient size for the first season. Once standard Fuchsias and Heliotropes are of the desired height, they may be retained for years, by lifting them out of the beds in autumn before they are damaged by frost, and storing them in a cool and moderately dry place for the winter.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener at Jordanhill Training Centre, Glasgow.

Late Grapes.—The later varieties of Grapes, such as Alicante, Lady Downe's, Mrs. Pince, etc., should now be colouring, and a final watering may be given to ensure that there is no lack of moisture in the border while they are finishing. If necessary—this must be determined by circumstances—a further application of Vine manure may be given and watered in well at the same time, but if the border has been well mulched with farmyard manure, and kept generously supplied with nutrients during the early stages, less feeding and watering at this time is required. Air should now be admitted freely, both top and bottom ventilators being opened to their fullest extent during the daytime, and only slightly reduced during the night, in fact, if no interference by rats or other vermin is apprehended, the ventilators may be left open night and day with excellent results. Means should also be taken to prevent wasps from sampling the fruits; wasp-proof netting stretched tightly along both top and bottom ventilators is perhaps the most effective, as this strong, light material, while preventing the entrance of wasps, blue-bottles, etc., does not obstruct the passage of light and air.

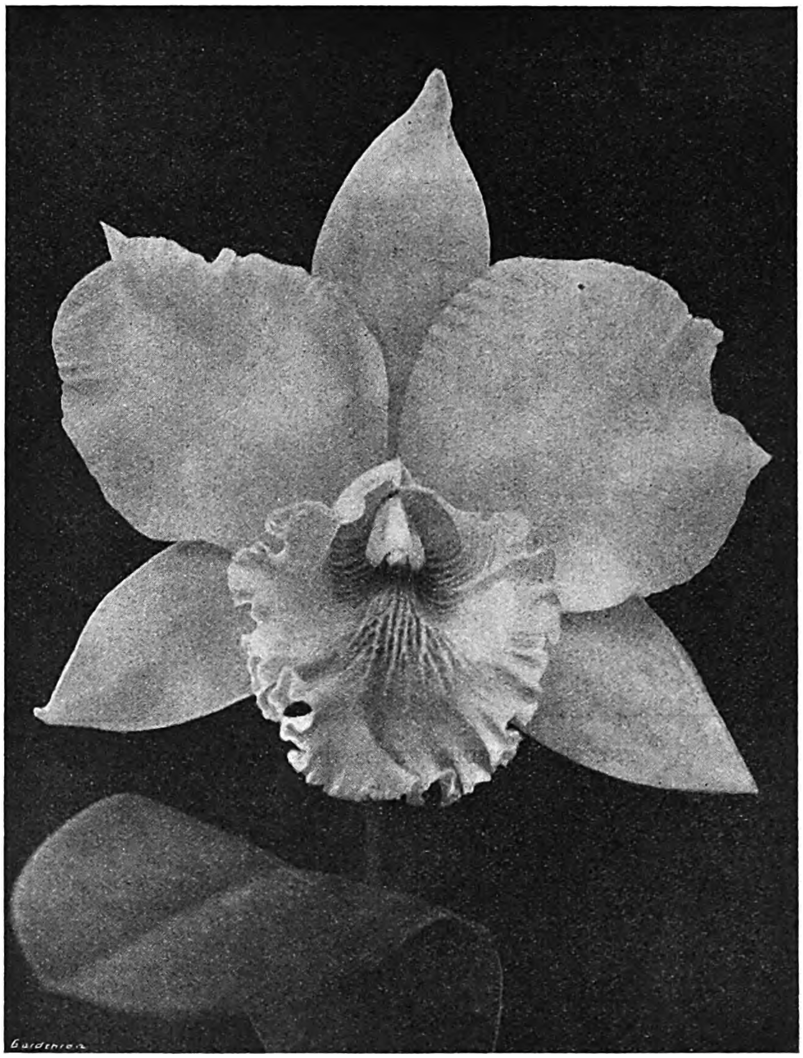

FIG. 81.—BRASSO-LAELIO-CATTLEYA FLAVIDA.
R.H.S. Award of Merit, August 14. Flowers yellow, primrose and purple.
Shown by Baron Bruno Schröder, Dell Park, Englefield Green. (see p. 137).

Annuals.—If a display of annuals in pots for the greenhouse next spring is desired, a sowing of the various kinds should be made now. These included among others, a selection of the newer forms of Clarkias, Schizanthuses, Godetias, etc., while the improved strains of the Scotch Marigold (Calendula), are not to be despised. The seeds should be sown thinly in boxes, and germinated under cool conditions, and when the seedlings are showing the second pair of rough leaves they should be pricked into small pots. Some very successful growers prick out three in each pot and grow them on without further division, potting them when necessary. The plants should be wintered in a cool house, where only sufficient heat is available to keep frost out, and by these means sturdy, well-rooted plants are available for potting into larger sizes so soon as the days begin to lengthen again after the New Year. A further sowing may be made about a fortnight later, and the plants raised should provide a successional batch to follow and extend the first display next spring.

Spring Cabbages.—Plants raised from seeds sown about the middle of July should now be ready to plant in their permanent quarters, and no matter what other work is on hand, an effort should be made to get them planted during the first two weeks of September. Where the ground has been cleared of a former crop, little preparation is required beyond levelling and making it moderately firm, and when the area to be planted has been measured, and shallow drills drawn, the actual plantings of a fair number of Cabbages is not a heavy task. The dwarf, early sorts, such as Sutton's April, may be planted fifteen inches apart each way, as these newer types do not make very large outer leaves and confine their energies to the production of small firm hearts, while the larger sorts, such as Flower of Spring, should be given a minimum distance apart of eighteen inches.

INDOOR PLANTS.

VALLOTA PURPUREA.

Grown in mixed collections of greenhouse plants, this bulbous subject is apt to suffer from attacks of mealy bug, which, if not dealt with promptly, soon ruin the plants. Another cause of failure is the drying of the bulbs, for although deciduous to a certain extent, they should never be subjected to a drying-off process. Three or four bulbs, according to size, may be placed in a seven-inch pot, in good medium loam, with enough sand added to keep it open and porous; add a five-inch potful of bone-meal to every bushel of soil. Water should be afforded very carefully until the bulbs have made a quantity of new roots; over-watering at this stage accounts for the failure of this and many other bulbous plants. Once they are well-rooted and growing freely they enjoy ample supplies of water at the roots. Vallotas resent root disturbance and are always at their best when the pots are packed with bulbs, therefore they should never be disturbed until absolutely necessary. During the growing season they may be given occasional applications of diluted liquid manure and they require cool greenhouse conditions at all stages of growth. Vallota is a monotypic genus, but there are several varieties such as V. p. eximia, V. p. magnifica and V. p. major.

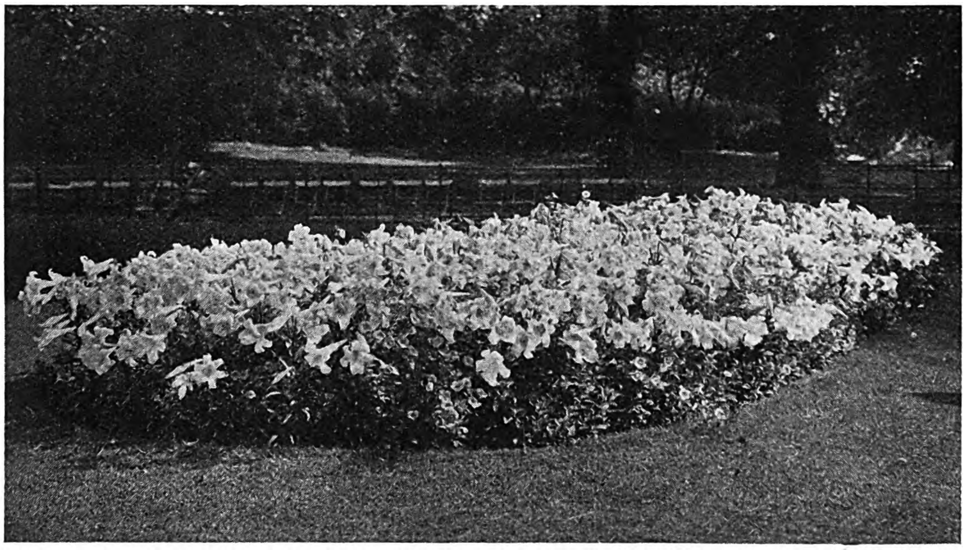

FIG. 82.—BERMUDA LILIES IN HYDE PARK.
(see p. 182).

GASTRONEMA SANGUINEUM.

This is another beautiful South African bulbous plant with flowers not unlike those of Vallota; it usually flowers during August and September, and is a beautiful subject for the small cool greenhouse. Gastronema hybridum, also a beautiful plant, was raised by crossing G. sanguineum with Vallota purpurea. The Gastronemas succeed under the same cultural conditions afforded to Vallotas, although they are at present scarce in gardens. *J. C.*

REINWARDTIA.

Reinwardtia trigyna and R. tetragyna are the only two species of this genus in cultivation. They were formerly known under the generic name of Linum, and both are sub-shrubs found growing naturally at fairly high elevations in the East Indies. They succeed well under warm greenhouse conditions and they are especially valuable for brightening the warm house during the winter months. It would appear that their suitability for this purpose is not generally realised, judging from the few gardens in which they are grown.

R. trigyna bears rich yellow flowers in the leaf axils and also in a cluster at the termination of each shoot. The individual flowers are not of long duration, but as they fall, they are succeeded by others and so the plants remain in bloom for a considerable period. Each individual flower is almost two inches in diameter and the glowing golden colour contrasts well with the deep green, ovate-oblong leaves.

The flowers of R. tetragyna are slightly larger than the preceding and are of a pale primrose hue, while the leaves are elliptic-lanceolate and are a paler green than those of R. trigyna. These plants are perennials, but the best and freest flowering specimens are those produced annually from cuttings. After flowering they should be cut back and placed in the stove to obtain a supply of growths suitable for cuttings. These should be inserted in April in a light sandy soil and placed in a close propagating case. When rooted, shift singly into small pots and grow on in heat. Remove the points of the shoots several times to obtain bushy plants and pot on as required; forty-eight sized pots usually prove large enough for the final potting. If larger specimens are desired three plants may be placed in a six-inch pot. During the summer they should be grown near the glass in an airy house. The syringe must be used vigorously, as they are extremely liable to be attacked by red spider which quickly spoils the foliage.

A suitable soil in which to grow Reinwardtias consists of equal parts good fibrous loam, leaf-mould and peat with a liberal admixture of sharp silver sand. If desired, the old plants may be grown on for several years and by this means larger specimens are obtainable.

BUDDLEIA ASIATICA.

Producing its long racemes of white, deliciously-scented flowers during January and February, Buddleia asiatica is a first-class greenhouse or conservatory plant, and may either be cultivated in pots, or planted out in a border of light, rich soil, when it forms an excellent subject for clothing a pillar; a sunny position is desirable. The shoots require shortening back immediately the flowering season is over, and if occasional syringing with tepid water is persisted in the plants will break freely. Applications of liquid manure will greatly benefit the plants during the growing season.

Cuttings of the young growth inserted in pots of sandy soil in March or April will root readily and they may be potted on as required, until they occupy six-inch or seven-inch receptacles. They will make good plants from three to five feet in height and will commence to flower very early in January.

B. asiatica was in cultivation so long ago as 1874, but subsequently it became lost to cultivators for many years, until it was re-introduced by Wilson in 1902.—*T. H. Everett.*

TERRESTRIAL ORCHIDS OF JAPAN.

Compared with the terrestrial Orchids of the tropics, both in the new and the old world, the Japanese terrestrial Orchids are far inferior and a subject of the least interest to Orchid growers. But, as many of the terrestrial Orchids in Japan proper are, possibly, hardy in England, this note may be of interest to some Orchid enthusiasts.

Although certain native Orchids have been cultivated, as subjects of keen interest to many specialists and speculators, during the last century or so, and numberless varietal forms have been raised, it is doubtful whether British gardeners would appreciate them so much as Japanese enthusiasts do, because Japanese appreciated and developed only the leaves, which are of least interest to western people. The varietal forms so greatly loved by them are those with striped, margined and spotted leaves. Some forms possess crested leaves and in others the margins are recurved. The Japanese also highly appreciate their distinct odour.

The Orchids so much sought after, and of which many varietal forms have been raised, are Cymbidium virescens and C. ensifolium. Both these species grow in woodland, the former being a neat growing species, with coriaceous, lanceolate leaves, and having a greenish-yellow flower, with a red-blotched lip, on each scape; while the latter has a long leaf, some two feet in length, somewhat thick and coriaceous and bears several odorous, greenish-yellow flowers, blotched with red on the lip on each scape.

There are about a hundred varietal forms of each and they require, particularly the variegated-leaved forms, an airy, semi-shady position during their growing period in the summer. They are potted in a mixture of sand, peaty soil, clay and pulverized charcoal, with perfect drainage. Some prefer to replant them twice a year, *i.e.*, in the spring and autumn. Bean cake is often used as a fertiliser, as it does not damage the plants if small quantities are used. If memory serves me rightly, Cymbidium virescens was grown in the temperate house at Kew with much success. The most odorous species C. Tyokuchim and C. Simonsianum, are greatly loved by Japanese and Chinese; both are of Chinese origin.

Cypripedium japonicum and C. speciosum are too well-known to be described. Although they have been collected in large quantities for export, for many years, they still grow abundantly in their native habitats in Japan. The former grows in shady woods, and the latter in open, sunny places, mingled with grass and other perennials on the mountains.

The quaint species called C. debile was figured in the *Gard. Chron.*, in 1905, and again in 1926. It is an inhabitant of shady woods; it has two opposite leaves on the stem, and produces a slender, pendulous flower in June.

C. guttatum var. Yatabeanum is found in the woods of central and northern Japan. It has two broad, ovate leaves and a pale yellow flower, with pale black or dark brown blotches on the lip.

The beautiful Calanthe striata grows on the plains in Southern Japan. It has broad, elliptical, radical leaves and bears several large yellow flowers in April and May. There are pink and white flowered forms of it. C. discolor, which is found in woodland, is another lovely species. Before the leaves expand it produces a spike of ten or more flowers, which are pale brown, the lip being tinted with pale purple. A form with pale greenish sepals and a white lip is also lovely. C. nipponicum is a smaller species, somewhat similar to C. discolor. The sepals and petals are yellowish-green and the lip streaked with brownish-red. It is an alpine and loves a shady position. C. reflexa has several large narrowly-elliptical leaves with frilled edges. The sepals, petals, and lip are narrow and pale purple in colour; as it flowers in August, in shady woodland, it is called the Summer Calanthe. C. gracilis if found in the extreme south of Japan; the flowers are white, shaded with yellow. C. kirishimensis is an evergreen species which produces a scape about one foot tall bearing many white flowers, tinted with pale purple: it occurs in the shady woodlands. C. alpina and C. tricarinata are also worthy of inclusion in a collection.

Platantheras (or Habenarias) are plentiful in Japan, but most species are of botanical interest only. However, P. decipiens, P. Takedai, P. minor, and P. interrupta are, I think, worthy of cultivation. They are found throughout Japan, in shady, moist places at high altitudes, although some species are found on the plains, *e.g.*, P. Takedai, P. minor, P. Matsudai and P. Mandarinorum. The elliptical, alternate-leaved stem of P. decipiens grows a foot or more in height, bearing a spike of many small, pale purple flowers. Although not a brilliant plant it is a lovely one, and the frilled edges of its leaves are notable. P. Takedai has two leaves, the lower one large and narrowly ovate, while the upper one is small and oblanceolate; the flowers are yellowish-green, borne in a loose spike, while the lip is divided into three segments. P. minor is a small species, but not so small as P. Matsudai, being about six inches in height. It is also two-leaved and bears several greenish-yellow flowers, each with a long lip. P. interrupta is the largest species of the genus and has showy, white flowers.

Peristylus viridis (syn. P. bracteatus) is found in woodlands at high altitudes, where it flowers during July and August. It closely resembles a Platanthera. The narrow, elliptical or lanceolate, alternate leaves are borne on a stem one foot high, which is terminated by a dense spike of yellowish-green flowers, with purplish lip.

The most beautiful species of Habenaria in Japan is H. radiata which is found in bogs. It has large flowers, with white sepals and petals, and broad, irregularly toothed lip. It grows well in pots and there are some variegated leaved forms. The plants are happy in sandy loam.

The genus Gymnadenia deserves more attention, at least some of the species do. The best are G. rupestris and G. cyclochila. The former grows on rocks in northern Japan. Its stem attains a height of about six inches, bearing several lanceolate leaves, and during July, large, pale reddish-purple flowers, the lip being blotched with reddish-purple. G. cyclochila is found in the woodlands. It has one large, elliptical leaf of vivid green colour, while the flower is pale red with a large, blotched lip. G. Keiskei is another lovely species which reaches four to five inches in height on rocks in its native habitat. The flower is pink, seldom white, with a large, four-lobed lip. G. Chidoni (Habenaria Chidoni) is smaller than G. Keiskei and has a large spur. These Orchids are best grown near the bog.

The genus Liparis is not appreciated by Japanese owing to its rather inconspicuous flowers, but L. liliifolia is the most striking Orchid in Japan proper. It is found in shady woodland places throughout Japan. The leaves are broadly-elliptic, similar to those of Calanthe, while the flower spike is about one foot high and consists of many large pale-purplish-red flowers with narrow petals and sepals and an exceptionally large, red-streaked lip.

Calypso borealis var. japonica is a delicate bog plant which is found in dense mountain forests. Its scape attains a height of about four inches and bears a beautiful, odorous, reddish-purple flower, with a hanging lip blotched with pale brown; the ovate, elliptical leaves are wrinkled and the under-surface is purplish in colour.

Bletia hyacinthina is seldom found growing wild, although it is very common in gardens. With a little care it grows well in any type of soil. Beside the type, which has reddish-purple flowers, there is a pure white-flowered form which is, however, of a weaker constitution.

Cremastra is a small genus closely related to Bletia. C. appendiculata is undoubtedly the best. It has one or two oblanceolate leaves and bears many drooping, pale yellowish-brown flowers; the lip is blotched with reddish-purple. It grows near streams or in moist places in shady woodlands. There is a red-flowered form, but I have not yet seen it.

Cephalanthera falcata (syn. Epipactis falcata) is plentiful on the plains. It attains a height of two feet and bears ten or more lovely yellow flowers, which never open fully. This beautiful Orchid loves a half-shady position and is easy to grow, for it is not particular as to soil. C. erecta resembles it in appearance; it has white flowers, but is far inferior in beauty.

Pergamena uniflora (?) is a tiny Orchid, attaining only five inches at most. It has one broad, elliptical leaf, and bears one flower, the sepals and petals of which are pale green and narrow in shape, while the lip is white, shaded with reddish-purple. Personally, I place this pygmy Orchid in the first rank. It grows under trees and shrubs at high altitudes, and was once referred to as belonging to the genus Orchis.

The genus Orchis is poor in Japan. O. aristata is the best species. It produces a leafy stem, one foot high, bearing a dense spike of rosy-purple flowers.

The beautiful tuberous Orchid known as Arethusa japonica is found in bogs. It has one oblanceolate leaf and, on a scape about seven inches in height, bears one beautiful pinkish-purple flower, which does not open fully.

Another beautiful bog denizen is Pogonia japonica, which is not unlike Arethusa in appearance. It flowers in the summer, producing pale pinkish-purple blooms, and usually produces a single, broad, oblanceolate, leaf.

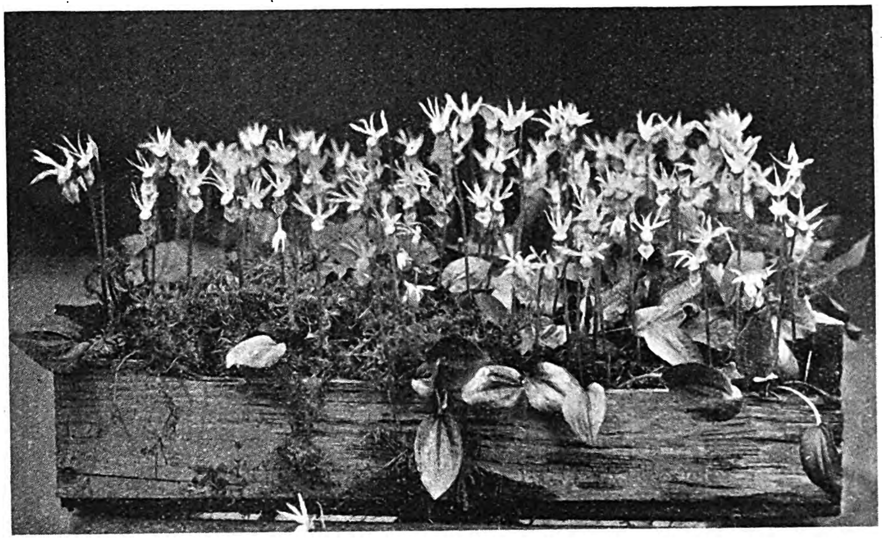

FIG. 83.—CALYPSO BOREALIS.

Lecanorchis japonica, is a noteworthy saprophytic Orchid which is found in woods in southern Japan; but this curiously ghostly, but beautiful Orchid is seldom cultivated in gardens. It attains a height of about one foot and bears several irregular flowers during the summer. The leaves are reduced to scales and the plants lack chlorophyl.

Besides the above-mentioned Orchids, others worthy of cultivation are Goodyera velutina and G. Schlechtendaliana; Epipactis latifolia var. papillosa, Ephippianthus (Liparis) Schmidtii and Spiranthes australis.—*K. Yashiroda, Japan.*

CALYPSO BOREALIS.

This charming little terrestrial Orchid has been described under numerous generic titles including those of Orchidium (Schwartz), Limodorum (Willd.), Cymbidium (Sw.) and Cympidium (Linn.). Calypso borealis is widely distributed throughout the northern parts of Europe and America and is common in many parts of Canada.

The little bulb has few roots and sends up a solitary, cordate, plicate leaf, and a scape three or four inches high, bearing a single and very pretty flower with rose-coloured segments and a slipper-like, reddish-brown lip. Plants from different regions, however, show some slight variation in form and colour.

The accompanying illustration (Fig. 83), sent by Mr. G. W. Smith, Daisy Hill Nursery, Newry, N. Ireland, is from a Canadian lady correspondent who grew the plants, as shown, and states that this Pink Slipper Orchid is "the gem of British Columbia." The photograph was taken in May of the present year. Mr. Smith observes that "the box of the Pink Slipper Orchid (Calypso borealis) shows that under proper conditions this species flowers in the freest possible manner, the great secret in growing this beautiful plant lies in giving it absolute rest after its growing period is finished—a period it gets naturally under the dense foliage of the woods of that great country—Canada."

ANNUALS IN POTS.

It is well within the recollection of the writer when the average gardener used to look with scorn upon the cultivation of annuals in pots, although even then some of them were grown regularly by market gardeners. What was considered strange at one time is now a common procedure, for generally the conditions in gardens at the present day demand a quick return from plants that may be used for general decorative purposes in the greenhouse or conservatory, or for furnishing a supply of cut flowers for indoor decoration.

The successful cultivation of hardy and half-hardy annuals in pots is quite simple, provided a few essential conditions are observed. Although they may be grown successfully in any ordinary cool greenhouse, it is an advantage if one has a special house for them, as plenty of light and means for affording plenty of air are very important, and there is no doubt that a span-roofed house of the type used for market purposes is the best. A number of cold frames are also very useful, for most of the subjects under consideration may, during their early stages, be cultivated in cold frames.

They may be grown from seeds sown in the autumn if conditions are suitable, or early in the new year and onwards until early summer, when seeds may be sown to provide material for a display during the autumn and early winter. The term "if conditions are suitable" for autumn sowing, may, to many cultivators require some explanation. In the immediate neighbourhood of London, when fogs are prevalent and winter light is at a minimum, it is impossible to grow many of these plants with any degree of success, and no doubt the same difficulty occurs in the neighbourhood of other large manufacturing towns; in such cases better results are obtained by sowing the seeds early in the new year. Where such adverse conditions obtain, Clarkias and Godetias usually suffer considerably, but on the other hand, Schizanthuses, Salpiglossis, Mignonette and Viscarias may be brought through the winter fairly successfully.

Generally, seeds may be sown from the beginning to the end of September, but the middle of September may be regarded as the most suitable time. Seeds may, according to the quantity of plants required, be sown in pots, pans, or boxes, using at this stage a fairly light compost. Thin sowing is very important, as the seedlings spoil quickly if at all crowded, and there is always the danger of damping-off. It is also essential that the seedlings be pricked-out so soon as they are fit to handle, placing them singly in small pots, or several in pans or boxes. After sowing, the seed pans may be stood in a cold frame, or cool greenhouse, the latter for preference, where they may be watched closely and attended to easily. They should be covered with a piece of glass and kept shaded until germination takes place, when they should be placed close to the roof glass. Subsequent cultural operations consist of potting the plants on as they require it. The aim should be to get them well established in five-inch pots before the winter, in which receptacles they may remain until the turn of the year, when they may be transferred to their flowering pots, the size of which depends on the class of plants and the purpose for which they are required. Clarkias and Godetias, for example, for general decorative purposes, may be flowered in six-inch pots, whereas, if large specimens are required, they may be potted on into ten-inch or even twelve-inch pots.

The potting compost is important for this class of plants, and many cultivators err in making it too light by the addition of leaf soil. A good medium loam, to which has been added sufficient sand to ensure the free passage of water, is the best medium; a poor, light loam may, of course, be enriched by the addition of well decayed cow manure, or even old Mushroom-bed manure, while on the other hand it may be necessary to lighten a very heavy soil by the addition of leaf soil or spent Mushroom-bed manure. A sprinkling of soot and a five-inch potful of bone-meal may be added to every bushel of compost. If the potting compost consists chiefly of loam, the resulting growth should be firm and sturdy, which is very important when dealing with these subjects. If the soil is known to be deficient in lime, a sprinkling should be added to the compost, or as an alternative, old mortar-rubble may be used in place of sand. There should be no coddling of the plants, and during all stages of their cultivation they should be given cool, airy conditions, with ample supplies of air on all favourable occasions, but taking care to avoid draughts.

Staking is also very important, for the plants should be given timely support, using for this purpose material that is as unobtrusive as possible. Slender Bamboo canes are suitable for some subjects, while the prunings of Apples and Pears, or similar material, are also suitable. Some of the more slender growing subjects may be supported with twiggy sprays of Hazel.

To sum up, the essentials of success with this group of plants is: (1) thin sowing; (2) prompt handling of the seedlings before they become overcrowded; (3) avoidance of overcrowding during all stages of their cultivation; and (4) cool airy conditions and care in watering at all times.

Among the most suitable and popular subjects for autumn sowing are Schizanthus Wisetonensis and S. grandiflorus types, also the distinct S. retusus varieties, which are worthy of more general cultivation, although not so easy to grow as the other types. They are ideal for cutting and general decorative purposes.

Salpiglossis, in many beautiful varieties, make a wonderful display in the conservatory; they are generally regarded as being rather difficult to winter successfully, but this is largely a question of careful watering, and establishing the plants. In the neighbourhood of London it is an advantage to sow Salpiglossis seeds early in August, and the seedlings should be grown on without being stopped.

Clarkia elegans, of which there are several very fine double-flowered varieties, is also a great favourite. Normally, they grow about two feet in height, but if well grown in large pots they attain a height of three or four feet. They should not be stopped and if the leading shoots are tied to a central stake lateral growths are produced naturally to form perfect pyramids.

Of the many beautiful varieties of Godetia, the tall double forms are great favourites as they are ideal for cutting, and they embrace various shades or rose and pink, white, mauve and cherry-red; the single-flowered Lavender Gem is also very beautiful.

Antirrhinums, in their many fine varieties, are also very useful, the intermediate varieties being best suited for autumn sowing, for when grown under glass they often attain a height of three or four feet.

Although really a perennial, Asclepias curassavica is usually treated as an annual, and is very suitable for sowing at this time, and again during the spring. This subject is worthy of more general cultivation as it remains in flower for a considerable time.

Browallia speciosa major, B. viscosa and B. elata in blue and white, are all beautiful and useful blue-flowered annuals, but B. speciosa major, in its younger stages, enjoys a somewhat higher temperature. Begonia semperflorens, of which there are so many fine varieties, is usually sown during February and March for summer and autumn flowering, but if sown at this season useful plants are produced for spring and early summer effect; they require a winter temperature of 50° to 55°.

Calendula officinalis variety Orange King is also grown extensively for market purposes, and under glass it requires fairly large pots and liberal treatment; while other subjects which may be employed include Trachymene coerulea, Viscarias, Phlox Drummondii, Nigellas, Nemesias, Mignonette, and Collinsia bicolor.—*J. C.*

ALPINE GARDEN.

SILENE ZAWADSKYII.

FIRED by a desire to judge for myself the merits or demerits of a plant, I once acquired Silene Zawadskyii, heedless of the somewhat derogatory judgments which had been passed upon it. My expectations were not too highly pitched, fortunately, as the result of the blooming of the plant showed how truly the adverse judgment of the critics was justified. The foliage is remarkable for its beauty and gives promise in its handsome deep-green rosettes of great possibilities in the way of flowers. Before blooming, this Silene is certainly quite good, and a nice-sized plant in the rock garden is rather an acquisition. But when the flowers appear, well on in summer, the disappointment to the tyro is great indeed. On the stems, five or six inches high, appear a few flowers of dull green, occasionally just tinted with faint purple, as if to mock the observer who has built up hopes of seeing flowers of the pure white of S. alpestris or of a good colouring like that of several of its allies. Surely S. Zawadskyii should be placed in an Index Expurgatorious without the least hesitation when we have so many lovely plants to choose from.—*S. Arnott.*

NOTES ON SOME OF THE NEWER NARCISSI.

THE following varieties of Narcissi cannot all be classed as new, but they are all of proved merit although not yet cultivated extensively.

TRUMPET NARCISSI.

Bulwark.—A full self-yellow-coloured flower, of great size and fine form, with broad, overlapping segments, and a large, bold trumpet.

Yukon.—This is one of the finest show flowers, of a deep golden colour, large in size and perfectly formed; it is also very tall and strong growing.

Premier.—A very stout, well set up flower, bright golden-yellow in colour. This variety is also good for show purposes, and may be obtained at a moderate price.

Beersheba.—Taking it all round, this variety is still the best of the white trumpet Narcissi. Others are larger in size, but Beersheba should long hold its own, when some of the giants are shelved.

Everest.—A very beautiful white variety of the Mme. de Graaff type.

Florist's Delight.—This has a bright golden flower of perfect shape and pose, although not of the largest size, and it is a good garden Daffodil, as well as an exhibition flower.

Godolphin.—Truly a noble flower, of a uniform golden-yellow colour, with a broad and firm perianth. It is very tall growing, vigorous and early flowering.

Kantara.—A white trumpet Daffodil, of huge size but not at all coarse. It has been shown well by the raiser, Mr. Guy L. Wilson at Birmingham.

Loyalist.—This is a grand show flower, large in size and of fine proportions. It is of a nice uniform clear yellow colour, with smooth, overlapping perianth segments, and a beautifully proportioned trumpet.

Moira O'Neill.—A pale bicolor-trumpet Daffodil with a beautifully balanced flower, and is an extremely vigorous variety.

Rosary.—Although classed as a trumpet variety, this Narcissus has Leedsii blood in it. It is a lovely and most distinct flower when seen at its best, large and well-balanced, with a well-formed white perianth, and a trumpet of a beautiful cream colour, suffused with delicate pink.

Royalist.—This is one of the best of the self-yellow trumpet Daffodils. It was raised by the late Dr. Lower, whose loss is felt by all who knew him.

Suda.—This variety is classed as a bicolor-trumpet Narcissus, but it is very close to a Leedsii (Fig. 84). Its large flower is of good size, form and substance and the large, well expanded trumpet is of a lovely amber-rose tint.

Trappist.—A white trumpet variety and a very fine garden plant, which is also very suitable for cutting. It may now be obtained at quite a moderate price.

Hebron.—Mr. Guy L. Wilson states that this Daffodil is quite the best show yellow trumpet variety he has yet seen.

Honey Boy.—A very distinct and beautiful flower, of a uniform, soft lemon-yellow colour.

Sorley Boy.—A full, self yellow-coloured Daffodil of large size and good proportions; it is tall and strong growing, and rather late.

Queen of Ulster.—This is a pale bicolor-trumpet Daffodil of exquisite proportions and balance. Queen of Ulster and the two preceding varieties, were raised by Mr. G. L. Wilson and have graced the show benches at Birmingham.

Dawson City.—One of the very finest yellow trumpet Narcissi for exhibition purposes. The whole flower is a beautiful clear luminous yellow, perfect in form and pose.

INCOMPARABILIS.

Hopeful.—A giant Incomparabilis Narcissus of large size and perfect proportions. It is very tall growing and vigorous, the flower being self-yellow.

Copper Bowl.—A seedling from Fortune, with a smooth, clear yellow perianth, and an expanded cup of coppery-red. It is a strong grower.

Fortune.—The finest of the orange-cupped, giant Incomparabilis Narcissi. Very tall and vigorous in growth and very early. This variety will long be classed as an A.1 flower. The only point against it, from the purchaser's point of view, is its high price (£25 per bulb).

Pilgrimage.—This produces a flower of high quality, with a smooth perianth of fine texture and of a uniform, rich yellow colour.

Lucinius.—A self yellow Incomparabilis of large size and good quality; it is a really good variety and is obtainable at a very moderate price.

Tregoose.—One of Mr. P. P. Williams' fine introductions, this variety, with a solid, orange-red cup is a very strong grower and early flowering.

Galopin.—A very large-flowered variety with broad and overlapping segments and a very large cup which is red throughout. It is extremely vigorous and one of the finest of the late Mrs. R. O. Backhouse's seedlings.

Jubilant.—A Narcissus of very good quality, of a uniform, deep clear yellow shade.

Damson.—This variety has broad, overlapping, creamy-white segments, which are suffused with yellow at the base as in Sunrise, while the long cup is of solid red colouring. A very brilliant flower of rather drooping habit.

Golden Pedestal.—A first-class exhibition flower, raised by Mr. L. Richardson, and shown by him on many occasions.

Red Cross.—The very large flower of this variety has a golden yellow perianth, and a huge orange-red cup. It is a mid-season Narcissus, tall and vigorous.

Red Shadow.—This has remarkably showy flowers with well-formed, yellow perianth segments, and large cup of the richest orange-red. It is a good grower and free flowering.

Wheel of Fortune.—The whole flower is of a soft, luminous yellow; the cup is large and the perianth segments broad and overlapping. It is useful alike for exhibition or garden purposes.

Beauty of Radnor.—A very fine seedling from Bernardino, which it resembles in form, but the cup is white with a broad band of pinkish-apricot.

Havelock.—This has very large and perfectly-formed flowers, the perianth segments being pale yellow, and the cup of a deeper shade. It is tall and vigorous in habit.

Barrii.

Firetail.—This variety has now had a long run and has been taken up by the market growers, but nothing has yet beaten it in the same style. Its creamy white perianth is of perfect form, with a firm red eye.

Therapia.—I should place this as the best Barrii, yet produced. It has very broad and rounded segments, and the flattish crown is margined with bright red.

Barbaric.—This is a giant-flowered variety of this section, with well-formed and rather pointed perianth segments, and a bright orange cup. The flowers are produced on long stems and it is a very vigorous grower.

Muriel.—A well-rounded flower, after the style of Princess Miriam, with a white perianth, and a shallow cup edged very bright red.

Giant Leedsii.

Tenedos.—This is one of the largest and best of this section, and it is a grand flower for the show bench, while it should, in time, make a good garden plant.

Mitylene.—The flowers of this variety are very distinct, for the segments are broad and round, and the cup is large, smooth, and well expanded. It is an extremely popular variety for exhibition purposes.

Bradwardine.—This is a giant among giants. It has a very long cup and might easily be mistaken for a trumpet Daffodil.

Holmdale.—This is one of the whitest of the Giant Leedsii Narcissi.

Hera.—This is classed as a 4A in the R. H. S. records, but I personally should call it a large 4B. I see also that I have the credit of raising it, but the honour lies with Messrs. De Graaff Bros. It produces a very lovely, self-coloured white flower, and is very vigorous, free-growing and late-flowering.

Empire.—Although now quite an old variety, this still takes a lot of beating. It is very free flowering. I once counted fourteen flowers on a bulb, which had not been planted two years.

Hymettus.—A distinct variety with a cup not so long as in most of this section, but which is attractively reflexed and frilled at the brim; when fully developed it is ivory-white at the base and margined with lemon yellow.

White Nile.—This is a fine bold Narcissus of perfect form.

Puritan Maiden.—Of almost trumpet Daffodil proportions; this is a very dainty flower of waxy texture.

Small Leedsii. (4B.)

Mystic and Silver Salver.—These are both flat-crowned Leedsii Narcissi, very dainty and beautiful when seen at their best, but both very late; they do not succeed with me.

Silver Plane.—A very distinct variety which has a fluted, wide perianth, and a flat disc-like crown. It is a New Zealand production, but a few acclimatised bulbs are now available.

Triandrus Hybrids.

Many hundreds of these are now in existence, while many more have died out, but as none of them do well in the midlands they do not interest me greatly. One of the best I have seen at shows is Mr. Cranfield's Venetia, which is said to possess a better constitution than most of them.

Poeticus.

There are now far too many varieties of this section on the market. One exhibitor put up a group at the R.H.S. hall last spring and I think he said there were fifty-three varieties in the exhibit. As all of them have pure white perianths, and eyes margined with red, or all red, it is obvious that there must be many almost identical; in fact, if the labels were lost, the exhibitor himself could not re-name them! I think that one of the most important points is to secure varieties which will grow; so many of them do not make enough foliage to be healthy. Two of Mr. Engleheart's raising are wonderful growers, with strong upright foliage, namely, Rupert Brooke, and Jean Ingelow. These are very much alike in flower, but one is earlier than the other. Other good Poeticus Narcissi are John Masefield, Red Rim, Narrabi, Wide Wing, Dactyl, Ace of Diamonds, Snow King, Sonata and the old, well-tried Horace.

Double Narcissi.

These do not appeal to me, and the more double they are the less I admire them. Still, they have their admirers and such must be catered for.

Mr. Copeland, of Shirley, Southampton, is a great man at raising doubles, and gives some rather weird names to some of them! Mary Copeland is his greatest triumph, while other remarkable flowers of this class are Twink, Carnation, and Feu de Joie, while among the older varieties, Argent, The Pearl, and Primrose Phoenix are commendable.

The double Poeticus is a great favourite with the general public, but it is quite useless to try to grow it on light or poor soil; it should have a deep cool soil and plenty of moisture, or it will refuse to flower.

Cyclamineus Hybrids.

There are not many in this class, but of those which are very attractive and useful either in pots or on the rock garden, mention may be made of February Gold, March Sunshine, Orange Glory and Beryl.

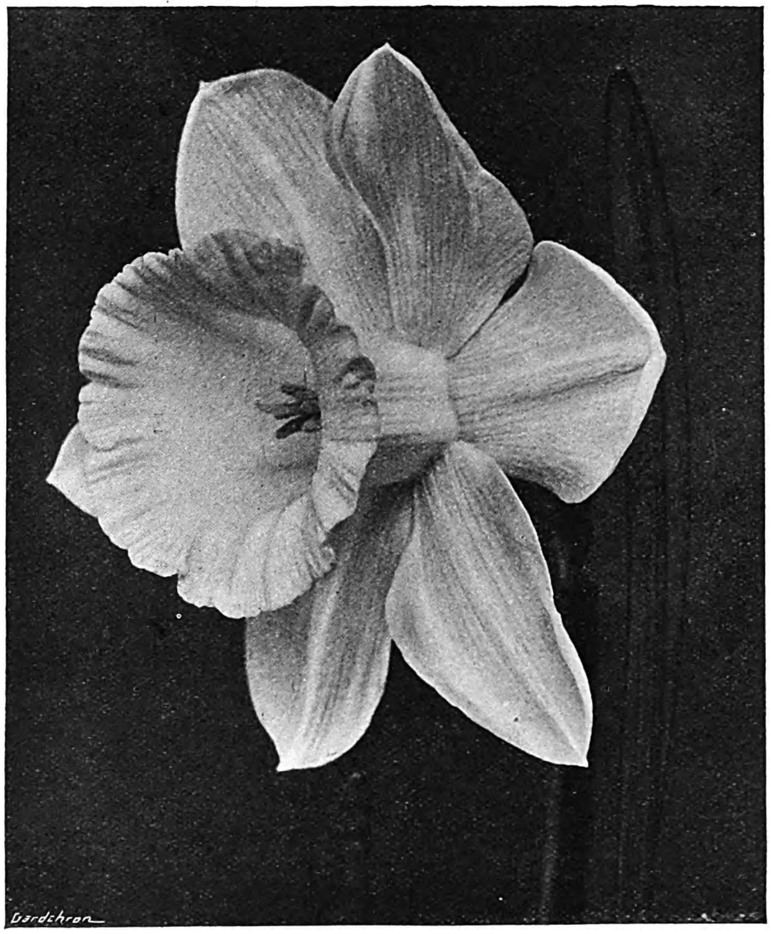

FIG. 84.—NARCISSUS SUDA.

Poetaz and Polyanthus.

Of the Poetaz and Polyanthus varieties, I have very little to say as they refuse to do well with me, but some of the best of the Poetaz section are Glorious, Medusa, St. Agnes, Scarlet Gem, and Orange Prince.

In conclusion, I may state that to my mind we have not nearly worked out all the possibilities of the Daffodil, and I predict a rosy future for the painstaking hybridist who has good material to work with. Fortune has already given some remarkably fine seedlings, such as Fortunatus and Copper Bowl, and in the near future we may expect a crop of fine sorts from the intercrossing of other noble flowers. The chief point to be avoided by hybridists is the sending out of novelties lacking in constitution and vigour. Fortunately, very few weaklings are now put upon the market and most of the newer productions are really good growers as well as producers of fine flowers.—*J. Duncan Pearson, Lowdham, Notts.*

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GARDEN BEETLES.

THERE are many Beetles common in our gardens which deserve a better fate than that usually meted out to them when we find them. Many gardeners on turning up a beetle, put their foot on it immediately, no matter what the beetle may be; it is killed, on the principle that being an insect it must be killed at sight. It is, of course, impossible to hold an inquiry over every insect turned up as to whether or no it is injurious, but there are a few common beetles which should be as familiar to every gardener as is the black fly of Broad Beans.

The majority of the common beetles found in the soil are carnivorous and spend the whole of their lives reducing the large number of insects in their immediate neighbourhood. It is not contended that all the insects eaten are garden pests, but the majority of them certainly are of that class.

The ground beetles, or Carabids, are a very extensive family, and may roughly be identified by their active habits and also by their long, thin legs and antennae. There are a few plant pests in this group, but many are distinctly useful in reducing other insect life. The black "Rain Clock" which may be found under practically every heap of garden refuse in the country and is also common under seed-boxes, flower pots and similar positions, is one such case. A beetle often found in similar positions is Pterostichus madidus. This beetle, both in the adult and larval stages, does much to help the gardener by eating wireworms, surface caterpillars and leather jackets. In captivity, I have found that this beetle kills and eats any garden pest that it is physically possible for it to hold. Surface caterpillars nearly double the size of the beetle are devoured easily, although it seems almost impossible for the beetles to find room for the contents of such caterpillars. The favourite method of attack by Pterostichus is to seize the caterpillar at a point midway between the true legs and prolegs, rip open the skin and then gorge itself on the contents. The beetle leaves nothing but the skin to tell the tale. I have known a Pterostichus beetle eat seven fully-grown wireworms in a day, and then be able to tackle a fully-fed specimen of a Cabbage moth caterpillar during the night.

The female Pterostichus beetles begin to deposit their eggs in the soil towards the end of summer and throughout autumn. The incubation period is about twenty-eight days. The larvae feed at first upon very small creatures in the soil and also, I think, upon decaying organic matter. Later on, the food consists entirely of other soil creatures. The larval period lasts throughout the winter, and pupation takes place in early spring, in an earthern cocoon fairly deep in the soil. Many larvae of Pterostichus killed by gardeners when the operation of winter digging is in progress are mistaken for wireworms. To kill these larvae is surely bad practice because if allowed to live they would eat many times their own weight of garden pests before dying a natural death. The larvae of these beetles may be recognised by being about the size of a fully grown wireworm and having a soft, somewhat flat body. They have three pairs of legs on the first three segments and powerful scissor-like jaws. In addition, two hair-like appendages are present at the tail end.

Another very common garden beetle is that known to many as the Violet Ground beetle, Carabus violaceus. Again, this creature is beneficial, both in its larval and adult stages, and it does, in addition to the garden pests mentioned above, eat slugs. In captivity, four or five slugs daily are required to keep this beetle contented. I have seen many gardeners kill this beetle, and I have also seen the same men going around their favourite plants with a light at night, looking for slugs. Why not let Violet Ground beetles live and help control slugs? They are, to say the least, usefully employed looking around our plants after we have gone in with the light. It seems to me that the beetles stand a very good chance of finding a few slugs as we always seem to leave a fair number for stock, no matter how carefully we search. Carabus violaceus may be recognised by being a large beetle of a violet metallic colour. It is somewhat heavy in its movements, especially after a meal. Never at any time does it move so fast as a Pterostichus.

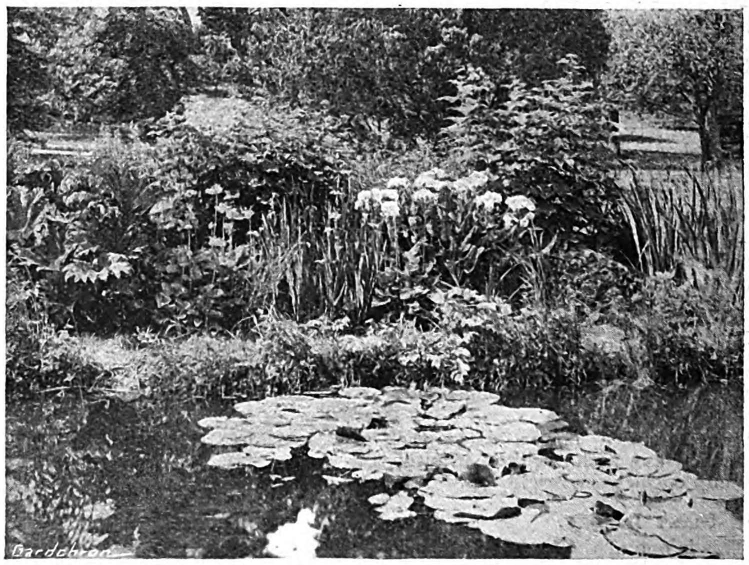

FIG. 85.—PRIMULA FLORINDAE AND SENECIO SMITHII AT GLASNEVIN.

An equally common and useful beetle is its very near relative, namely, Carabus nemoralis. This is approximately the same size as Carabus violaceus, but is bronze in colour. The life history of these two beetles appears to be somewhat the same as Pterostichus, but I have not yet bred them.

I have kept specimens, at least, in the adult stage, of Pterostichus and Carabus for some years. I have tried feeding them with all sorts of food, and have found that Pterostichus readily eat earthworms, wireworms, surface caterpillars, leather jackets and many soil chrysalids, but I have never known them take any interest in slugs, even when deliberately kept hungry. On the other hand, Carabids seem to prefer slugs, but eat any of the above-mentioned creatures.

The Devil's Coach-horse, Ocypus olens, is another common garden beetle, especially in certain gardens. It is, perhaps, most easily recognised by gardeners because of its habit of raising its tail over the back like a scorpion. The creature is said to discharge a fluid of disgusting odour from two bags at the tail end when curled over, but I have handled dozens of O. olens without ever being able to detect this habit; perhaps I have been unlucky! It seems to me that the habit of curling over the tail is more protective than aggressive. The abdomen is soft and, if curled over the back, may be more easily protected by the powerful jaws of the beetle when in this position. The only weapon of defence I have been able to detect in O. olens is the jaws. If one allows it, the creature will give the finger a sharp pinch, but beyond that nothing seems to happen. The adult insects appear in June and July, and pairing takes place in late summer. Eggs are produced late in September until about the end of November; about forty are laid by each female. The female seems to take no interest in the eggs once they are deposited. There seems to be no definite times between ovipositing because an egg may be laid daily for a time, then perhaps a rest for several days, then for several days two eggs may be laid, then another rest. There seems to be plenty of variation about the process. The incubation period, too, is very variable; an egg laid, say, on October 5 will often hatch long before one laid on October 4, when both are kept under the same conditions. All these variations may only occur under artificial conditions, but under such conditions they do occur. On the average, the period of incubation is approximately thirty days. When the young larvae appear they are perfectly white, but they soon harden somewhat and turn a dirty white or blackish colour; the jaws are brown or black. The tiny larvae, so soon as born, assume a threatening attitude like an adult; jaws open, tail over the back. I have never seen them run away from anything. They eat small insects and decaying organic matter, both vegetative and animal, at first, but very soon they appear to like nothing but small, living soil creatures. The larvae feed throughout winter and early spring, pupating naked in the soil for a period of approximately twenty-one days.

The habits of O. olens are somewhat different from Pterostichus or Carabus. These two latter search for their food, the former waits for it. Both larval and adult stages of O. olens hollow out for themselves a little chamber on the top of the soil, but usually under the shelter of a stone or something similar. The chamber has a doorway, and the insect sits inside with its head looking out of the doorway; anything that goes by outside is promptly seized and eaten. If considered for a moment this again may be seen to be an admirable defensive position. The creature's body is long and soft and offers a considerable area over which attack could take place. The jaws are the defensive organs. The body, therefore, is protected by a soil cell, and the doorway is kept by the creature's jaws. I find that the only time O. olens shows any sign of running away from anything is when two specimens are placed anywhere near each other, then both become very wild and frightened. If the two specimens are kept in a confined space a fight always results, and the weaker is killed and all the soft parts eaten.

G. C. Johnson.

NOTES FROM GLASNEVIN.

Late August is not a time one usually associates with much colour in the rock garden. Most rock plants have finished their growth ere now, and hummocks of grey and green foliage are more conspicuous than flowers. However, such an immense variety of plants may be grown in rock gardens that interest is maintained at all seasons of the year. Campanulas have been exceptionally good for many weeks past, especially many forms of Campanula carpatica. Two species in full flower are C. fragilis and C. isophylla, both excellent for a sunny position where they may hang over a suitable stone; both are from Italy, the former with pale blue flowers, the latter, often seen as a pot plant, with bright blue flowers, or in variety alba, pure white. Neither can be regarded as entirely hardy but if given a position protected from an excess of winter moisture will usually survive and give much pleasure at this season. Both would probably flourish on a dry wall.

Erodium chamaedryoides from the Balearic Isles has long been admired by lovers of rock plants but it is surpassed in floriferousness by its variety E. chamaedryoides roseum (Fig. 86) which continues to flower freely for several months in a sunny, well-drained crevice. Gentiana Freyniana, now passing out of flower, is one of the finest and most satisfactory of that wonderful genus. The plant is a robust grower in ordinary soil, the stems spreading and ascending, each terminated by a cluster of large, rich blue flowers which expand beautifully in the sun and close at night. Although not unlike some forms of G. septemfida it is certainly finer than any form I know. Easily raised from seeds, G. Freyniana may be recommended for planting where other species are difficult. G. septemfida Lagodechiana, with prostrate stems bearing clusters are pale blue flowers, is also a satisfactory plant here, liking rather more shade and a little peat in the soil. G. Forrestii is showing an early flower or two and is fairly healthy in a compost free from lime but it will not grow in our staple soil. We have compensations, however, in some plants which seem to like our soil. Teucrium Achaemenis, a grey-leaved plant, with reddish-purple flowers (T. Polium var. purpurascens, Benth) always attracts the attention of interested visitors by reason of the novel contrast of flowers and foliage. The better known T. Polium, the Poly Germander from the Mediterranean region, with almost white, woolly leaves and yellow flowers, loves a hot, dry position where it may hang over a rock, in full sunshine.

The bog garden has been full of interest. A fine group of Rodgersia pinnata, bearing numerous branching spikes of pink flowers above the bronzy-green leaves, demonstrated the value of this fine Chinese plant for a moist position. Where the natural soil of a garden is sufficiently retentive it may not be necessary to resort to the bog, but here our natural soil is too dry. The white variety, R. pinnata alba, is also handsome, with wider inflorescences, in fact all the Rodgersias are fine foliage plants. Here we grow R. pinnata, R. p. superba, R. p. alba, R. aesculifolia, R. sambucifolia, R. tabularis and R. podophylla. Trollius yunnanensis, three feet high, and bearing many flat, golden yellow flowers is a most useful August-flowering plant for a moist position and looks particularly appropriate near water. Close by it the white-flowered Lysimachia barystachys, also of Chinese origin, flourishes. The taller-growing Lysimachias are perhaps better known by the yellow-flowered species, but there are several tall, white-flowered species worth cultivating, including L. clethroides, L. Ephemerum and the one cited above.

Primula Florindae (Fig. 85). planted within a few feet of the water, has made enormous leaves and is bearing many umbels of pendulous yellow flowers. This is without doubt a fine introduction and an interesting addition to the genus, but it lacks the grace and beauty of P. sikkimensis, with which it has been compared, although it has the advantage of being more perennial. The old Mimulus cardinalis from N. America was never a satisfactory perennial in the open at Glasnevin, but M. cardinalis Sunset, apparently a hybrid of that and another Mimulus, is entirely satisfactory and flourishes in the bog garden where it is now over three feet high, bearing very freely its charming flowers of the colour of ripe Tomatos. Equally floriferous is M. Bartonianus, now well known, and which inherits more of the colour of one of its parents, M. Lewisii. The latter has not thriven to any marked degree and the white variety. M. Lewisii albus, which we owed to the generosity of a well-known and skilful lover of plants, has disappeared, but in both cases I suspect slugs of having eaten the young growths as they appeared in spring.

The many fine varieties of Phlox paniculata now so justly admired in parks and gardens need not be enlarged on in these notes, but I feel compelled to mention Phlox maculata, a species which I first saw in large quantity in one of the Glasgow Corporation Parks. It grows about four feet high, the stiff stems freely mottled with dark brown spots and terminated by a cylindrical panicle of closely-set white flowers. There is something distinct in the appearance of this Phlox which marks it out among its fellows; it has a pink-flowered counterpart in P. maculata Alpha. According to Gray in the *Flora of North America*, the type plant should have a pink-purple corolla in which case the variety known in gardens as P. maculata Alpha would be more nearly typical; Michaux's variety candida is described as a white-flowered form "commonly with spotless stems." The white-flowered form as I know it has copiously spotted stems. The colour of the corolla and the spotting of the stems is possibly variable in nature, but the form of inflorescence is very distinct and is accurately described by Gray as "narrow and unusually long."

Phlox glaberrima is a dwarfer species, two feet or so in height, with a more corymbose inflorescence of pink flowers. What used to be known as the summer-flowering Phloxes, under the name of P. suffruticosa, were probably derived from P. glaberrima, of which P. suffruticosa is a variety.—*J. W. Besant, Glasnevin.*

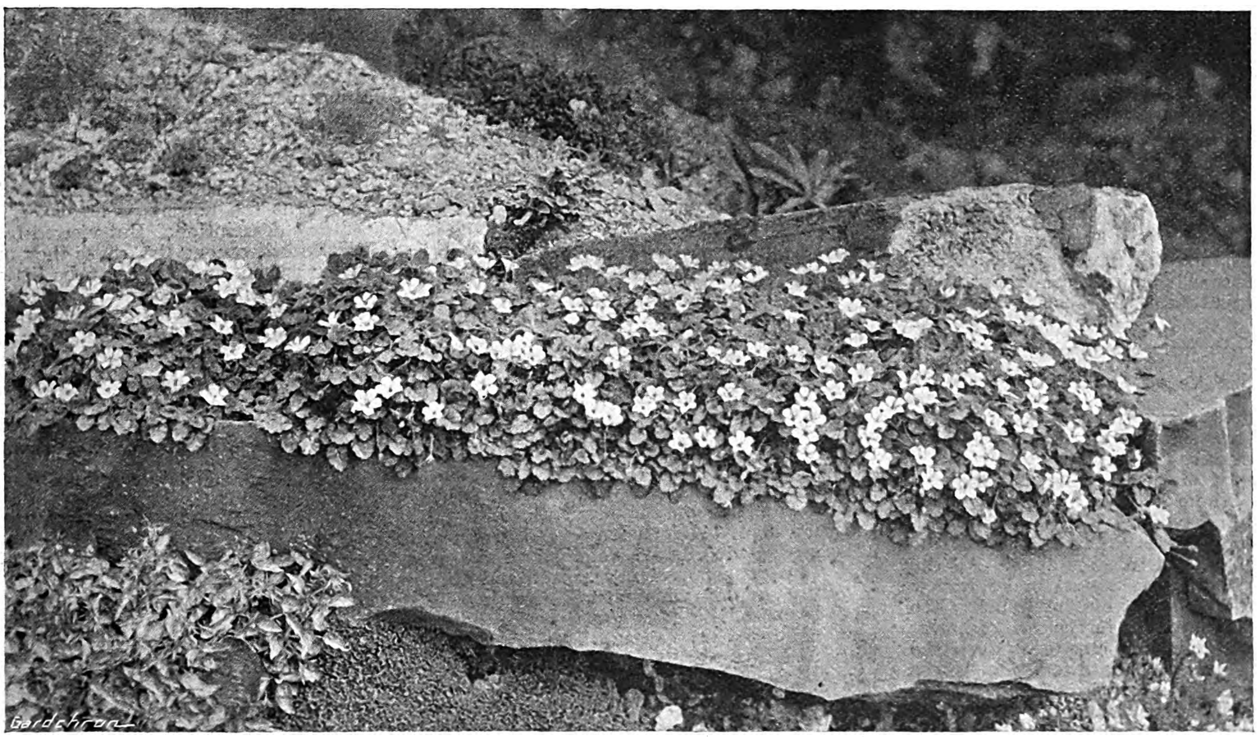

FIG. 86.—ERODIUM CHAMAEDRYOIDES VAR. ROSEUM.

NOTICES OF BOOKS.

Nature Round House and Garden.*

This is not a book on gardening, but it gives sometimes scanty and occasionally detailed information about plants in the garden or out of it, the four-footed animals of the garden, birds that are resident, or visitors, or those that fly over the author's garden (over sixty in number), insects, both harmless and harmful, bad weeds of the garden, etc. Trees are discussed for ornament and shelter, and in this chapter the author writes of the Elm tree as "he," and the English Elm as "she," with the Wych Elm as a synonym, which leaves one in doubt as to which is which. Not all botanists, however, are agreed about the Elms. The Christmas tree is given as a Fir, though probably ninety-nine per cent. of them are the common Spruce.

In dealing with wild flowers for a garden Mr. Westell states that the Wood Anemone has dry fruits that do not open like those of the acrid Buttercups. This and other remarks show that he is not so good a botanist as he is a student of wild animals and birds, amongst which he is perfectly at home. He wishes that the wood mouse were a resident in every garden, but admits that amongst the remains of haws, Laburnum pods and the stones of the Plum tribe in a nesting box he once found the Peas he had sown and wondered why they had failed to come up. On another occasion, after he had dressed his garden one winter with bone-meal, countless thousands of starlings roosted near by and then swooped down on the garden, devouring all the bone-meal, screaming with delight as they did so. Some of the other birds were on good terms with him, and the lesser spotted woodpecker became so tame as to allow him to stroke it. The wood pigeon evidently did not fancy his garden, and could only be mentioned as one that flew over it. This is somewhat strange, seeing that this bird will nest in trees close to houses in London, and as tamely come to be fed from the hand in the parks.

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* *Nature Round House and Garden.* By W. Percival Westell, F.L.S., F.S.A., Scot. London: The Sheldon Press, Northumberland Avenue, W.C.2. Price 2s. 6d. net.

The author considers that the nature-lover's garden should contain a selection of British Ferns, and thinks their absence in general is due to their being flowerless. Evidently he is unaware of the popularity of these plants in the fifties, sixties and seventies of last century, when every nook of Great Britain was searched for Ferns, and many a rare plant, and colony was exterminated. They have had their day, for a time at least, like the Pelargoniums, and are now in the hands of a few cultivators.

The information given in this book is contained in twelve chapters, and the plants, birds, beasts, insects, etc., under discussion are elucidated with twenty-eight pen-and-ink drawings. Errors of spelling are few, two of the worst being Pear Louis Bon of Jersey, for Louise Bonne of Jersey, and Daphne cnereon for D. Cneorum. Beyond the botanical names for some of the plants, there is an absence of technicalities and, doubtless, many people will find the book interesting reading.

Practical Vegetable Growing.*

THE reader will find this a very practical book, its aim being to prove useful to the market gardener or grower, the private gardener and all who grow for market, exhibition or home consumption. There are some cases in which the grower would have liked a little more detail, but possibly a limit was set to the size of the book, which is printed in large type. All the vegetables and herbs are passed under review in alphabetical order from Artichokes to Vegetable Marrows, except in the case of herbs, which are grouped in one chapter. Even the cultivation of Sugar Beet is discussed. There are thirty chapters, the last three being devoted to rotation of crops, marketing of crops, and the financial side. The printing is excellent, while eight full page reproductions from photographs, and ten line drawings call attention to certain operations. The editing has been good, but we would prefer Aquadulce to Aquadulie for the name of a long-pod Bean.

Many hints are given that would prove useful to the market grower or the private gardener. For instance, in the forcing of Asparagus, the author states that permanent beds are the most economical. The Asparagus is planted in beds between deep alleys, and in January the frames may be set on the beds, and the alleys filled with fermenting manure to the top of the frames. After a time, when the Asparagus is growing, the manure may be removed, and later on the frames as well. By this method the same roots may be forced every second year. Long-pod Beans are more suitable for sowing in November than the Early Mazagan or the broad Windsor types. It is not very clear what the author means by Bean rust, as no scientific names are given for fungi or insects.

Beet, when forced in frames, require to be watered, but Mr. Morton states that watering is of little use to Beet growing in the open, yet Seakale Beet in the open is benefited by watering. One would like to know why this difference. Beet likes warm sunshine, but rain in the early stages is distinctly beneficial, as the dry year of 1921 certainly showed the ill-effects of its absence in the case of all root crops.

The quantity of any given artificial manure to be applied to the various vegetables is in terms of so many hundredweights to the acre, but only market gardeners could cultivate a particular vegetable by the acre. Many gardeners and others whose arithmetic was neglected in youth would have a difficulty in reducing the amount to suit the size of their plot, or many little plots, of different vegetables.

Few remedies are given for the numerous insect enemies of the Cabbage tribe mentioned in the book, and a few of the fungi; but the author goes into more detail concerning club-root. The burning of diseased roots is often neglected. He calls attention to the fact that certain fertilizers, such as sulphate of ammonia and superphoshate of lime use up the available lime in the soil and should be avoided where club-root is prevalent.

It is advised to mix Carrot seed with soil to make it more easy to sow, but while that would have been a useful hint thirty years ago, machinery has now made these seeds as easy to distribute as most other kinds of vegetables. The splitting of Carrots is not due to gross growth, but to a second growth, when heavy rain falls after a drought. The cortex gets hardened in dry weather and is unable to expand, but splits when growth recommences. The earthing-up of Carrots to ward off the Carrot fly is a useful hint, rarely applied.

MESEMBRYANTHEMUM.

(Continued from p. 153.)

17.—CRYOPHYTUM, N. E. BR.

C.—FLOWERS YELLOW.

9.—C. arenarium, N. E. Br.—An annual, 1–9 inches high, branching from the root. Branches alternate, apparently 2-edged on the younger parts, roughish, with pointed papillae. Leaves alternate on the branches, opposite at the very base, ½–1 inch long, 2½–5 lines broad, oblong or ovate (dried), rounded at the apex, fleshy, glabrous, apparently smooth, but perhaps minutely papillate when alive. Flowers solitary and opposite the leaves along the branches (not axillary), pedicellate. Pedicels 3–7 lines long and, together with the calyx, papillate like the branches. Calyx produced above its union with the ovary into a tube 1½-line long, unequally 5-lobed above; the two longer lobes leafy, 1½–3 lines long and 1 line broad, narrowly oblong, obtuse, the others shorter, broader and membranous. Petals (in dried flowers) scarcely exceeding the calyx-lobes, 2½–3 lines long, ⅓-line broad, cuneately linear, rounded at the apex, yellow (ex. Pearson), probably united into a short tube at the base, but from dried material I have been unable to be sure of this. Stamens numerous, erect, nearly or quite as long as the petals, yellow. Stigmas 4–5, scarcely ½-line long, oblong, obtuse. Ovary more than half-superior, 4-5-celled; placentas axile. Capsule (closed), 2–2½ lines in diameter, with 4–5 valves and cells; valves 1 line long, whitish, their expanding-keels closely contiguous into one central keel, and their broad marginal wings erect or inflexed; cells open, no tubercles. Seeds several, but not very numerous in a cell, minute, smooth, white.

Great Namaqualand: Klein Karas Mountains, Dinter 3,177 (type specimen)! between Nakeis and Klein Karasberg, Pearson 8,215! Ganas, Schinz 920! Orange River, Steingrover 113!

10.—C. sessiliflorum, N. E. Br.—Annual, coarsely papillate. Branches prostrate, divaricate. Leaves opposite, 1¼–1¾ inch long, 3½–6 lines broad, lanceolate, narrowed below into a petiole, subacute or obtuse. Flowers solitary, perhaps at first terminal, but by the development of a branch become axillary, or in forks of the stems, on pedicels up to 6–7 lines long. Calyx unequally 5-lobed; lobes 3–6 lines long and 2–3 lines broad, subspathulate or leaf-like, two of them longer than the others, spreading much beyond the petals. Corolla 6–8 lines in diameter; petals in about 1 series, acute, light yellow. Stamens about 20, in one series, lax, erectly spreading, with their filaments dilated at the base in a subglobose or disk-like manner, yellow. Stigmas 5. Ovary evidently nearly superior, depressed. Fruit about 5 lines in diameter, acutely 5-angled or ridged on the top, purple.

Mesemb. sessiliflorum, Ait. *Hort. Kew.* ed. 1, Vol. II, p. 193 (1789); Haw. *Obs.* 116, *Misc. Nat.* 46, *Synop.* 247 and *Rev.*, p. 158; Sond. in *Fl. Cap.*, p. 454; Berger, *Mes. und Port.*, 37; Britton in *Journ. Bot.*, 1917, p. 69; N. E. Br. in *Journ. Linn. Soc.*, Vol. XLV, p. 134

South Africa: Locality unknown; introduced into cultivation by Masson in 1774.

The above description is compiled from a drawing of the plant by Simon Taylor, made probably about 1777 or 1778, and preserved in the British Museum Herbarium; see *Journal of Botany*, as above quoted.

All that has hitherto been known of this plant is that Aiton placed it among those having yellow flowers and described it as follows:—"Leaves flat, spathulate and together with the stems papulose; branches divaricate; flowers sessile.. Flowers July and August. Native of the Cape of Good Hope. Mr. Fr. Masson. Introduced 1774."

With the exception that the drawing does not represent the flowers as sessile, it agrees with Aiton's description. But viewed from above as they nestle among the leaves they might appear to be sessile, and there can be little doubt that the drawing is correctly named. Haworth states that he never saw this species, so that it probably soon died out of cultivation.

The dilated, subglobose base of the filaments of the stamens is a very remarkable character, and I refer this plant to Cryophytum with some doubt, but until rediscovered, nothing more can be done with it. *N. E. Brown.*

(To be continued.)

THE GENUS PRIMULA.

(Continued from p. 172).

CYCLOSTEGIA (Hand.-Mzt.). Circular-bracted P. (Bella.)

THIS minute species, which is closely allied to P. bella, forms a tuft of numerous diamond-shaped or rounded, slightly mealy leaves about three-eighths-of-an-inch long, tapering into narrowly-winged stalks; margins furnished with rather large and sharp teeth. Flower stem half- to one-and-a-quarter inch tall, slender, slightly mealy, bearing one or rarely two, rich, deep violet blossoms with a tuft of snow-white hairs in the throat. Corolla flat, half- to three-quarters-of-an-inch across, divided into five blunt, bilobed, toothed segments; tube cylindrical, slightly longer than the calyx.

Blossoms in August. Grows in damp, stony places on high limestone mountains near Piepun, in Yunnan, western China, at about 13,000 feet above sea-level.

Culture: As for P. bella.

DARIALICA (Rupr.). Darialican P. (Farinosae).

A plant closely allied to P. farinosa, of which it is perhaps a microform. It produces a rosette of smooth, or mealy leaves one inch to two-and-a-half inches long, with broadly lance-shaped, oblong or spathulate blunt blades, tapering to a winged stalk of about the same length; margins sharply toothed or serrate. Flower stem one to three inches tall, slender, bearing an umbel of rose-coloured blossoms on very slender stalks. Corolla about half-an-inch across, divided into five broadly heart-shaped, notched lobes. Flowers in March.

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* *Practical Vegetable Growing.* By J. W. Morton, F.N.I.A.B., F.R.H.S., President of the March and District Fruit Growers' and Nurserymen's Association, etc. London: Ernest Benn, Ltd., Bouverie House, Fleet Street, E.C. 1928. Price 10s. 6d.

There is a sub-species (farinifolia, Rupr.) which has its leaves covered with white meal, on long, tapering stalks; the flower stem is short and the flowers are smaller than those of the type.

Both plants are found in moist, open situations in the eastern Caucasus at from 1,000 to 9,000 feet above sea level.

Culture: Plant in fibrous loam and peat in a moist, sunny spot in the rock garden, and protect from cutting winds in winter and spring.

DAVIDII (Franch.). Pére David's P.
(Petialores.)

A beautiful herbaceous perennial species, with a tuft of somewhat leathery, deep green leaves, three to five inches long, with oblong-oval blades, rounded at the tip and tapering into a stalk below; margins sharply and unequally toothed, upper surface smooth, deep green, the underside reticulated and covered with grey down, the principal nerves being covered with reddish hairs. Flower stem about six inches tall, bearing an umbel of violet-purple blossoms on slender stalks about three-eighths-of-an-inch long, clothed with red hairs. Corolla concave, about one inch across, divided into five broadly-oval, entire or slightly notched lobes.

Grows on the mountains near Muping, in central Szechuan, western China.

Culture: Plant in a cleft in a limestone rock packed with peat and loam, or grown in a compost of loam, peat and limestone chippings, in a half-shady spot, and protect from damp in winter.

DAVURICA (Spreng). Dahurian P.
(Farinosae.)

This plant is considered by most botanists to be a microform of P. farinosa; it forms a rosette of smooth, or sparsely mealy leaves from three-quarters-of-an-inch to three inches long, with lance-shaped or narrowly elliptic, blunt blades tapering to a winged stalk equalling the blade in length; margins entire or obscurely and distantly toothed. Flower stem two to fifteen inches tall, bearing an umbel of rose or lilac-rose-coloured flowers, the shape and size of those of P. farinosa, on very slender stalks about one-and-a-half inch long. There are several forms which differ but little from the type.

Flowers in May. The plant is found in damp, open situations ranging from the Caucasus to northern Persia. Introduced in 1806.

Culture: As for P. darialica.

DEORUM (Velenovky). Decorus P.
(Auricula.)

A deciduous, perennial species with a stout, elongated rootstock and a rosette of lance-shaped, pointed, quite entire, somewhat leathery leaves, three to four inches long, margined with a gland-dotted membrane. Flower stem fairly stout, viscid, five to eight inches tall, bearing a one-sided umbel of slightly nodding, rich purple-violet flowers numbering from five to ten. Corolla half- to five-eighths-of-an-inch across, funnel-shaped, with slightly notched, heart-shaped lobes.

Found in damp, grassy places in peat, near the edge of melting snow, and is peculiar to the Rilo mountains in Bulgaria, at about 7,000 feet above sea level. Introduced in 1904.

Culture: Fibrous peat, loam and sand, with some limestone chippings, in half-shade, or grow it in a limestone moraine; a difficult plant to cultivate.

DEFLEXA (Duthie). Deflexed-flowered P.
(Muscaroides.)

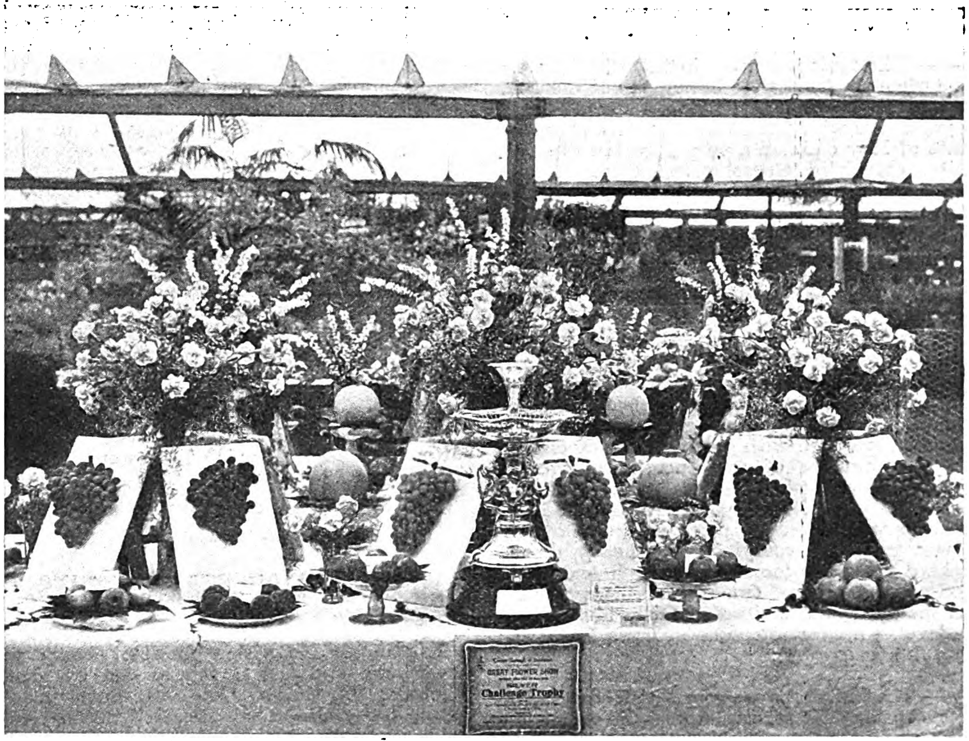
A perennial of erect, tufted habit, with a rather stout rootstock and a rosette of narrowly-oblanceolate, blunt or rather pointed leaves, five to ten inches long, gradually tapering into winged stalks; more or less covered with white hairs on both surfaces; margins irregularly and coarsely toothed, teeth fringed with reddish glandular hairs. Flower stem from one foot to two feet tall, bearing a sub-globular head of crowded, sessile, deflexed blossoms of a dark blue or rose-purple with a blue or white centre. Corolla half-an-inch long, funnel-shaped, divided into five broadly-wedge-shaped, broadly-notched lobes; tube cylindric, curved.

It grows on the mountains of Szechuan, western China, at 10,000 to 13,000 feet above sea-level. Introduced in 1906.

Culture: Fibrous loam and peat, in a well-drained shady spot, with protection from wet in winter.

DELICATA (Petitm.). Delicate P.
(Malacoides.)

This slender annual is a sub-species of P. Forbesii. The fragile rootstock produces a loose tuft of rounded or heart-shaped, thin, many-nerved, minutely-hairy leaves, from three-quarters- to one-and-a-quarter-inch long, with lobed and regularly toothed margins; they are borne on slender, hairy stalks about one inch in length. Flower stem slender, minutely hairy, two to seven inches tall, bearing one or two superposed umbels of rose-pink blossoms on thread-like stalks half- to three-quarters-of-an-inch long. Corolla funnel-shaped or salver-shaped, about five-eighths-of-an-inch across, divided into five narrowly obcordate lobes.



[*Photo by Kay and Foley.*

FIG. 87.—SOUTHPORT SHOW: MARCHIONESS OF TWEEDDALE'S FIRST PRIZE TABLE OF FRUITS.
(see p. 176).

Flowers in February. Grows on high mountains near Yunnan-Sen, in Yunnan, Western China.

Culture: Leaf-soil and sandy loam, in a damp, shady spot in the rock garden, with protection from damp in winter, is indicated.

DENSA (Balf. f.). Dense P.
(Obconica.)

A somewhat dwarf, downy Primula with a tuft of oval, or heart-shaped, leaves, about three-quarters-of-an-inch across, on hairy, rounded stems, half- to three-quarters-of-an-inch in length; margins of blade scalloped; upper surface rugosely glandular; hairy below, especially on the veins. Flower stem one-and-a-half-inch to two-and-a-half inches tall, sparsely furnished with glandular, hairy stalks, about half-an-inch long. Corolla about three-quarters-of-an-inch across, pale rose colour with a yellow eye; tube about as long as the calyx, ringed at the mouth.

P. densa is a sub-species of P. obconica, grows in damp shady places on the mountains of North-eastern Upper Burma.

Culture: As for P. austrolisteri. *A. W. Darnell.*

(*To be continued.*)

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante pp. 112-118.)

(*Continued from p.* 174).

Cheshire.—All the Apple and Pear trees are carrying heavy crops, and although we had up to 6° of frost when some of them were in flower, they have all escaped damage. In May, when dry weather was experienced, some of the trees were infested with insect pests, but constant syringing soon cleared them. We had a very cold wet spell during June which caused the foliage of some trees to be attacked with mildew, but a good heavy syringing checked it. Strawberries are a good crop, although during June we lost many fruits owing to wet weather, but they are now ripening well. Gooseberries, and Black and Red Currants produced heavy, clean crops. Raspberries were also very promising. Morello Cherries were an average crop and clean. Sweet Cherries never do well here and Plums are only an average crop. The weather is now very dry and warm, the highest reading in July being 83° in the shade. *James R. Allan, Tirley Garth Gardens, Tarporley.*

Derbyshire.—Apples and Pears in this district are a good average crop, but Plums are very uneven, a distance of four or five miles showing a variation of crop from very heavy to very light. The three weeks' spell of bright sunshine recently experienced has been highly beneficial in warming our cold clay soil. *William Parks, Whittington Hall Gardens, Chesterfield.*

—— The Apple crop here is the best we have had for several years. Pears are rather a light crop, but Plums are good, both on standard trees and on the walls, although they have been badly infested with blight. Strawberries, Raspberries, Gooseberries, Red and White Currants were plentiful and good, but Black Currants have failed completely, although they promised well early in the season. The soil is of a light loamy nature, with plenty of gravel intermixed, over a subsoil of stiff clay and gravel. *J. Tully, Osmaston Manor Gardens, Ashbourne.*

HERTFORDSHIRE.—The fruit crop here this year is a fair one. Taking into consideration the cold weather which prevailed during the spring, Peach, Plums, Apricot trees set thei, fruits well and looked promising until April 27 when 16° of frost damaged them severely. At the present time, however, the trees are looking well and are free from most pests. *Richard Staward, Ware Park Gardens, Ware.*

—— Apples are a fairly good crop but they have suffered severely from drought, a large proportion of the fruits and foliage having fallen, leaving the trees nearly bare. Consequently, the fruit is at present of poor quality, and deficient in size. Pears are light but of fair quality, but Peaches and Nectarines are almost a failure, due to severe frosts and east winds, as all the trees had apparently set their fruits when we registered 16° of frost. We have practically no Plums either on walls or in the open. Strawberries were good in quality but the crop was light. Gooseberries were not so good a crop as usual, but they were of good quality; Raspberries and Currants were small, owing to the dry season. The soil is loam over clay, although in parts it is gravelly. *Geo. H. Hill, Caldecote House Gardens, Bushey Heath, near Watford.*

—— The fruit prospects in this district were good when the trees were in flower, but the cold N. and N.E. winds experienced during April played havoc with the blossoms, and the severe frosts of May claimed a very high toll of small fruits, especially Gooseberries, Currants and Strawberries, although, despite these set-backs, Strawberries produced a very fine crop of large, well-ripened fruits. Pears and Apples are under the average. The soil here is of a clayey nature, heavy and cold during early spring.—*Wm. Jas Penton, The Node Gardens, Welwyn.*

—— The fruit crops in this district are good, especially in sheltered positions, the chief failures being Plums, Peaches and Nectarines. Other fruits are a good average. We have been troubled with green fly, owing chiefly to the prevalence of cold, north-east winds. The growths of bush fruit trees look remarkably well, as also do those of young Apple and Pear trees. Some varieties of Apples required thinning as the trees are carrying very heavy crops. Orchard trees are looking very well and have good average crops. Our soil is a heavy loam, and the gardens are situated fairly high above sea-level.—*William Stephenson, Hyde Hall Gardens, Sawbridgeworth.*

—— The fruit crops are very satisfactory, with the exception of Peaches. Apples are very good and have had to be severely thinned. Pears are a light crop, with the exception of Doyenne du Comice, which appears to have withstood the late spring and frosts. Plums, on a north-west wall, are very good and the fruits have needed thinning. All bush fruits yielded well, particularly Black Currants and Gooseberries. The Strawberry crop was very good in spite of the late frosts, which destroyed a great many of the flowers when they were hardly visible. Raspberries, Damsons and Red Currants were quite up to the average. The soil here is somewhat on the light side, overlying gravel.—*T. Pateman, Brocket Hall Gardens, Hatfield.*

—— On the whole the fruit crops have been more satisfactory in this district than for some years past, especially Raspberries and Strawberries, the former being particularly heavy, in spite of heat and drought. Adverse weather interfered with promising crops of Peaches, Cherries and Plums during, and just after, fruit setting. In fact, protecting materials of all kinds had to be brought into use to save ground crops also. Constant rogueing and burning of disease-infested plants, and other treatment, has brought back to our stocks of Strawberries the almost original vigour, which we hope to retain. Crops of Plums and Apples are very varied. There are few fruits of Newton Wonder, while trees of Bramley's Seedling are bearing heavier crop. Cox's Orange Pippin also set well. The dry weather has necessitated a good deal of work to save the crops, and aphis and scab have been prevalent. Our soil varies. The greater portion overlies clay, while other parts have a sandy or chalky sub-soil. *A. J. Hartless, King's Walden Bury Gardens, Hitchin.*

——It seems a bad season for fruits generally in this district. The severe frosts experienced just when the bush fruits were in bloom or had set their fruits was disastrous to them, and also to Plums and Pears. Apples set and started well, but the long continued spell of hot, dry weather affected them very adversely, causing many fruits to fall. Strawberries and Raspberries were also seriously affected by the heat and drought, which have prevented them swelling and properly maturing, and also caused weak growth. The soil here is a strong, retentive loam, overlying gravel. *E. F. Hazelton, Laurel House, Cravells Road, Harpenden.*

LEICESTERSHIRE.—The fruit crops this season are generally good, both in amount and quality, and much better than was expected after the very trying spring; bitter cold winds were not infrequent until quite late in the season, and so were frosts. In these gardens we registered frosts varying from 2° to 6° each night from May 8 to 19. Apples and Pears are carrying heavier crops this year than they have done for the past three seasons. Small fruits were very good, with the exception of Raspberries, the flowers of which were damaged severely by the late frosts and cold winds. Plums looked very promising when in flower and set well, but owing to the frost most of the fruits dropped and what might have been a good crop is now a very poor one. *M. L. Garrett, Misterton Hall Gardens, Lutterworth.*

——The fruit crops here have turned out better than was at first expected, for the sharp frosts experienced from April 17 to 22, did considerable damage to Gooseberries and Strawberries; about twenty per cent. of the Strawberry blossom was frozen before it opened. The frosts were accompanied by a fairly dry spell, which I think saved the crops from more serious damage. *David Thompson, Whatton Gardens, nr. Loughborough.*

(*To be continued*).

MANURING OF STRAWBERRIES.

THE demand for this excellent berry will never fade, and the saying quoted by gentle Walton: "Doubtless God could have made a better berry, but doubtless God never did," holds as good to-day as it did two hundred years ago; it is reflected in present-day prices which producers get for the fruits. A very small increase in yield following the application of fertilisers would consequently be profitable. But, alas! as a leading authority after reviewng the experimental facts has declared, the evidence of response to fertilizers by the Strawberry has hitherto been very unsatisfactory. There is some cause, therefore, to welcome the publication of the results of a number of critical experiments recently carried out in Canada under the direction of the Canadian Society of Technical Agriculturists.* The value of this paper lies not only in its practical conclusions, but also, I think, in the scientific ideas underlying the investigation, for these are fundamental and are beginning to revolutionize accepted theories and methods of experimentation with fertilizers.

For many years past, what may now be termed crude ideas on the subject of plant nutrition have prevailed. The assumption has been that each one of the triad of elementary plant foods—nitrogen, phosphorus and potassium—acted individually; that is to say, if, for example, 1 cwt. of sulphate of ammonia gives an additional yield of four bushels of wheat per acre, it will give much the same whatever addition of mineral fertilizers such as phosphates and potash may be made. But recently it has becomes increasingly evident that the relative proportions of the three elements in a fertilizer prescription may be critical, apart altogether from the absolute amount of each present. The value, then, of these Canadian experiments consists in the fact that the experimenters set out to determine the effect of varying the proportions of the various components in a standard complete fertilizer. Furthermore, they investigated the effect of the concentration of their solutions in the soil, for this too is a factor which earlier experimenters failed to consider. The recorded results of field experiments in this country during the last forty years may be searched in vain for any discussion on such topics as these. They merely establish—almost *ad nauseam*—that, whatever the crop may be, a complete dressing containing nitrogen, phosphorous and potassium gives the best results; but as to the critical and optimum proportions in which these elements should be present, there is practically no information. Naturally, in this investigation it was important to determine, first of all, the effect of varying the proportions of added nitrogen to minerals, for the former is the element which ultimately regulates plant growth, the others being, as it were, merely triggers releasing the great protein-maker, nitrogen.

It would be out of place here to give many details of the Canadian work. So far as the technique is concerned it seems to satisfy the accepted canons of scientific experiment. The plants were grown in twenty-one series, each series containing sixty pots, so that experimental error could be easily evaluated. Two tests of the response of the action of fertilizers were used, first the number of flowers produced by each plant, and secondly the dry weight of the whole plant, a close correlation between the two being established. Broadly stated, among the results were the following:—

(1) As the doses of nitrogenous nutriment were increased a toxic action became apparent, as shown by a curling and bronzing of the foliage.

(2) If the dosage of minerals, *i.e.*, potassium, phosphorus, etc., is increased *pari passu* with that of nitrogen, the toxic action takes effect at a later stage than with nitrogen alone.

(3) Increased quantities of minerals without nitrogen are of no effect.

(4) Increases in nitrogen give a significant increased productivity provided that additional amounts of minerals are also given; without such additions yields may be depressed.

The practical deduction from these experiments is that nitrogenous fertilisers increase the yields of Strawberries; but such nutrients should not be given alone. They should be accompanied by properly balanced minerals such as those provided by potassic and phosphatic manures. Recent field experiments in this country with Potatos go to support this theory of balance, and there can be no doubt that proper investigation will disclose that the same principle is applicable to all descriptions of crops. In the case of Potatos, it has been established that dressings of sulphate of ammonia (with farmyard manure) up to 4 cwt. per acre, may be used profitably, provided that a similar weight of sulphate of potash is also used. But as I have indicated, the great value of the Canadian experiments is that they give us a new conception regarding the use of fertilisers; one which, as it happens, is quite in harmony with the modern trend of science. As knowledge of natural processes increases, the importance of many imponderable factors is increasing.

Fruit growers in particular should now recognise that the balance of nitrogen to carbohydrates in the woody tissues is an important factor in the swing from vegetation to fruits that occurs in the plant bud. In industrial chemistry many reactions are produced by catalysts, mysterious agents as to the action of which theory gives no guidance and all interested in the feeding of animals have heard—perhaps sufficiently—about vitamins and the equally recondite hormones, not to speak of the hydrogen-ion concentration of vital fluids, apparently a more fundamental imponderable than any.—*A. B. Bruce.*

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*"Nutritional Studies with Fragaria," by M. V. Davis and H. Hill, *Scientific Agriculture*, Ottawa, Vol. VIII, p. 11, 1928.

FRUIT GARDEN.

WHITE CURRANTS.

White Currants, admittedly, do not possess the commercial or utilitarian value of the red and black-fruited varieties, but when well grown they provide a useful addition to the summer dessert fruits.

Their cultural requirements are identical with those of the Red Currant, and the bushes thrive under similar conditions; early autumn planting is of some importance and should be practised so soon as the leaves have fallen so that new roots may be produced at once, and a crop secured in the ensuring season, provided the trees are of sufficient size. The winter pruning consists of cutting back the main shoots, where they have not reached the desired height, to about six inches, and in cutting all young growths of the spurs well back; it is advisable to practise light summer pruning about the beginning of July, by moderate thinning and shortening of the young growths, of which a considerable number are usually made, and attention to this should materially improve the quality of the fruits.

It is important that the trees receive, immediately after the winter pruning, a liberal top-dressing of farmyard manure, while a light application of fertilizers in the spring assist materially.

White Currants are excellent when trained as cordons or fan-shaped bushes, and from trees so grown excellent produce may be gathered.

White Dutch, also known as White Grape, White Leghorn or White Crystal, is an old and popular Currant, as also is Wilmot's Large White, a prolific variety with berries of large size. White Versailles produces well-formed, large, ivory-yellow berries and is a fine early variety, while Bar le Duc bears long bunches of pale berries which are said to make a most delicious jam. Transparent is the finest white-fruited Currant for exhibition purposes, the yellow-tinted berries being very large, well-flavoured, and produced in long bunches; it is an excellent variety for growing on a wall or trellis.—*Ralph E. Arnold.*

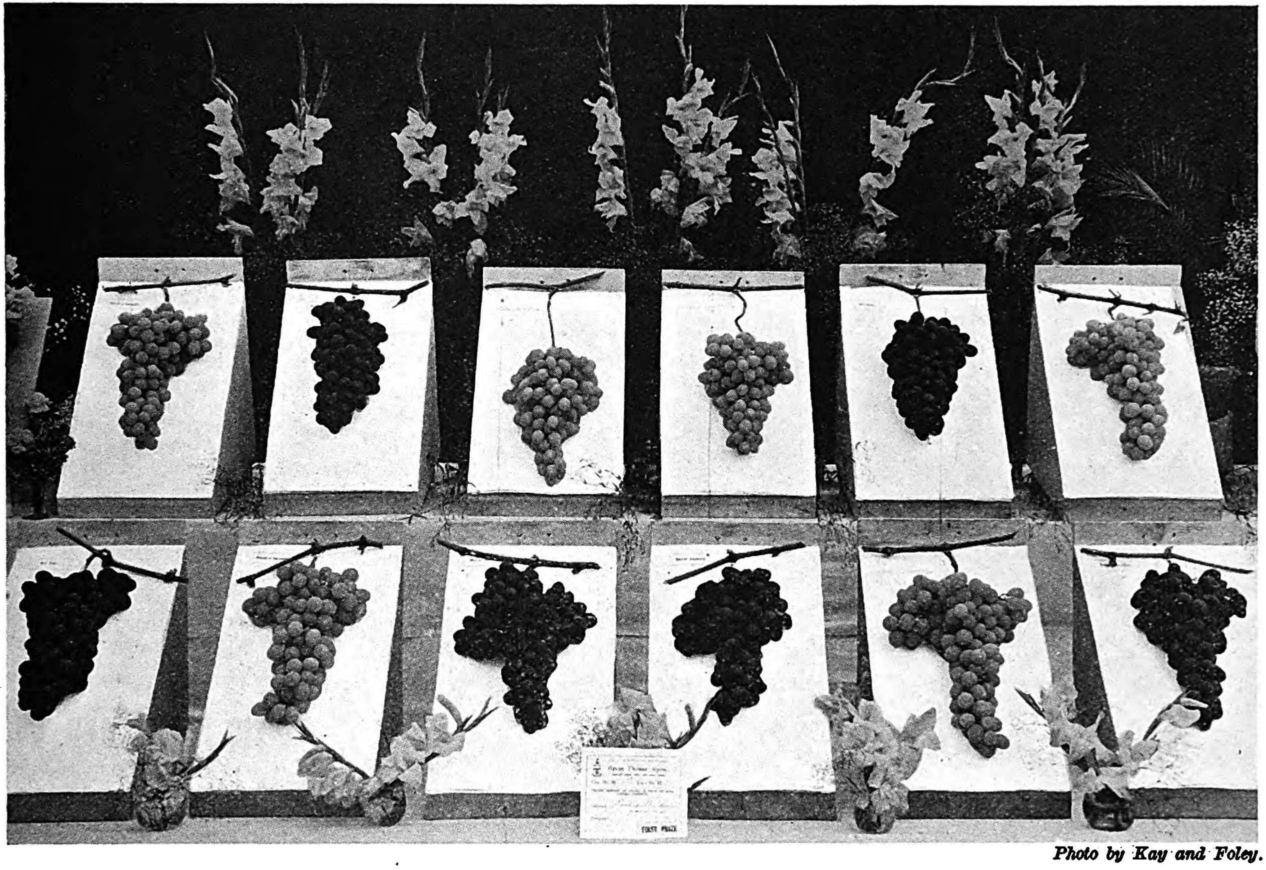

Photo by Kay and Foley.

FIG. 88.—SOUTHPORT SHOW: EARL OF STRATHMORE'S FIRST PRIZE COLLECTION OF GRAPES.
(see p. 176).

HOME CORRESPONDENCE.

Zauschneria californica.—In gardens at the present day, two varieties of the above are cultivated, and that named Z. californica is evidently Z. californica var. latifolia of the *Bot. Mag.*, t. 4493 (1850). This is a plant with unbranched stems varying from nine to eighteen inches in height according to the conditions of cultivation in different parts of the country. It is the same as that described by Dr. Lindley and figured in the *Journal* of the Royal Horticultural Society, Vol. III, p. 241 *cum Icone*; and in Wien. *Ill. Gart. Zeitung*, 1888, p. 204. Z. californica was first published by Mr. König in the *Annals of Botany*, Vol. I, p. 543 (1805), from specimens in the Banksian Herbarium. Presl gave it the name of Zauschneria californica, in compliment to Dr. Zauschner of the University of Prague. This form had scarlet flowers and linear leaves, while the bracts were so small in some cases as to give the flowers a spicate appearance. With some doubt, Presl described another form as a species, namely, Z. mexicana. This has much brighter vermilion-coloured flowers and in gardens is sometimes named Z. californica mexicana, and Z. californica splendens. The specimens shown by Mr. T. Hay, of Hyde Park Gardens, at the meeting of the Royal Horticultural Society on August 14 may be referable to the type first described by Presl as Z. californica, or it may prove to be a new variety when it has been properly investigated. The plant grows three to four feet high with Mr. Hay, and branches very freely. This is altogether different from the plants hitherto cultivated.—*J. F.*

Vegetables at Burford.—*The Gardeners' Chronicle* has from time to time kindly given me space to record experiments with out-of-the-way vegetables, and this year has been a particularly good one in the kitchen garden. The old plants of Aralia cordata, having been frequently forced, had lost their vigour and we have now a fine show of young plants from Japanese seeds. The Mexican Tree Spinach has proved a most reliable crop and appears to thrive on the vagaries of the weather, as also does a brown-leaved Spinach given me by Mr. Beckett under the name of "South Indian Hill Tribe"; this latter was most useful during the drought. Florentine Fennel has hearted very well and has shown less inclination to bolt. We have now a fine bed of the red-leaved Sorrel which, however, cannot be distinguished in taste from the ordinary Sorrel. Oxalis is growing magnificently and we should get some fine tubers this year. The weather has been a little hot for Asparagus Peas and it has been difficult to capture sufficient pods in the juvenile stage. Aubergines are better than ever and I am of the opinion that, apart from the natural desire for variety, the two best are Black Beauty, which is the large round kind, and New York Purple, which makes long fruits; of the two I prefer Black Beauty, which contains more flesh than any other Aubergine. Of the Sweet Peppers there is nothing to beat Glory, which is not corrugated and contains plenty of flesh. It is hoped that when the Royal Horticultural Society publishes the results of their trial, they will be listed as Sweet Peppers and Hot Peppers, for this is the important distinction between the varieties. The Canteloupe Melons, grown in hot beds in unheated frames, have done very well, and from the beginning of July we have been having a complete succession of the Prescott varieties, beginning with the Early Frames and ending with the White-fleshed. The last Melon of all is the Water-Melon, which is setting good fruits this season.—*W. Lawrence.*

Plants from New Zealand.—Until recently the experience of importers of plants from New Zealand have been unfortunate, and specimens sent in Wardian cases have generally arrived dead. On August 21, I received a consignment from Mr. Baxter of Christchurch, N.Z., ex. s.s. "Ruahine." The plants were in paper containers and fastened to the bottom of a case, with wide openings on the sides and top. They were closely packed with the large N.Z. Sphagnum-moss, and the whole were wrapped in grease-proof paper. They appeared to have been watered during the voyage. Of fifty-three plants, only two were dead and the others might have come direct from an English nursery. They comprised a large number of Veronicas, including a set of the brown, whipcord varieties—charming plants for the rock garden; Dracophyllums, Notospartiums and other New Zealand Brooms, Astelias, Hoherias, etc.—*William Lawrence.*

Tradescantias.—I am much obliged to Mr. W. E. Th. Ingwersen for his information regarding Tradescantia virginiana Jas. C. Weguelin, see page 136. I am also glad to learn of the existence of a new white variety, which I hope to secure in due course. Another fine new variety of T. virginiana is Taplow Crimson, which was raised by Messrs. Barr and Sons. It is the nearest approach to a true crimson we have among these plants. It has double flowers, I believe, but the remark by Mr. Ingwersen that the double forms do not show their doubleness at first after being planted in fresh ground, holds good with regard to T. v. Taplow Crimson, for the flowers it has given me this year are all single. I have here eight forms of T. virginiana; they all last a long time in bloom and are very distinct from other hardy border flowers.—*S. Arnott.*

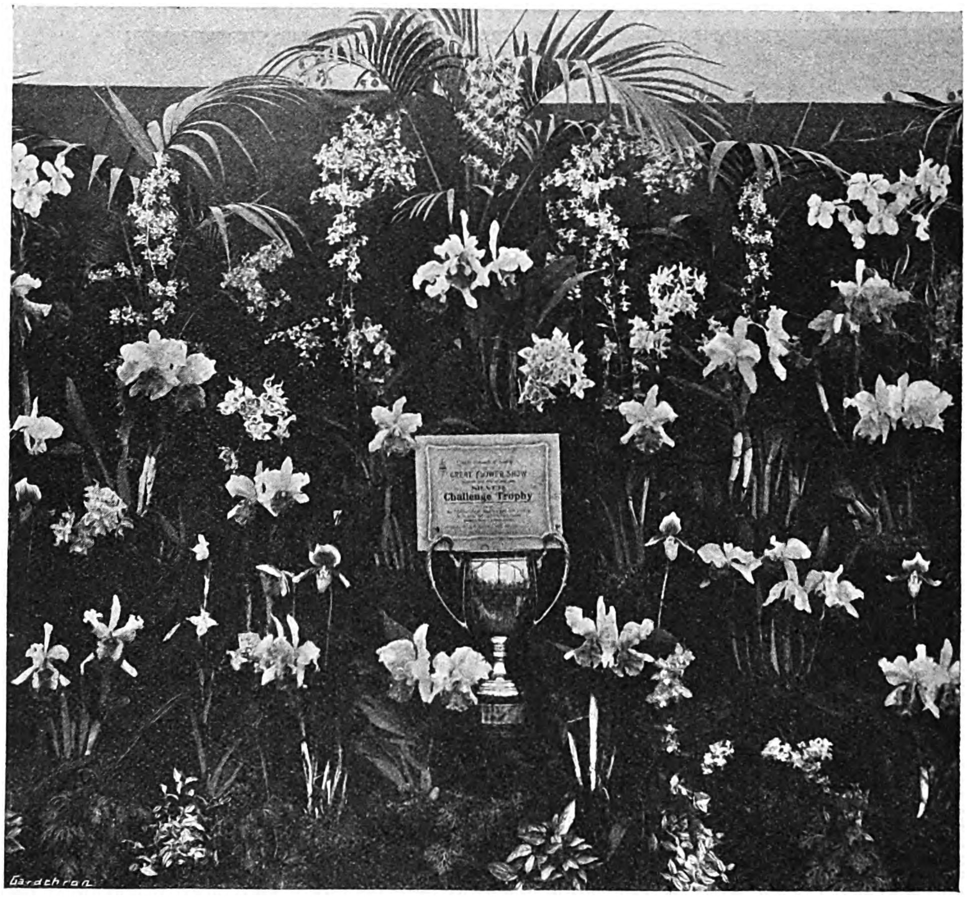

Photo by Kay and Foley.

FIG. 89.—SOUTHPORT SHOW: MR. J. B. ADAMSON'S GROUP OF ORCHIDS.
(see p. 175).

Lilium Martagon album.—Many gardeners have shared the experience of your correspondent (page 156) on the gradual degeneration of Lilium Martagon album. A year or two ago it was in my garden the admired of all beholders and the envy of visitors was a pleasure to see; but now, each year the flowering stems get shorter and the flowers smaller, and so marked is the degeneration that the bulbs are being transplanted in order to discover whether by this means vigour may be restored to them.—*K.*

Shade for Orchids.—In your issue of August 25, page 146, Mr. G. R. Copley, in a note on Brassia verrucosa, makes the following general statement: "Being an epiphytic Orchid it should be shaded from bright sunshine." It is as erroneous to conclude that all epiphytic Orchids are shade lovers, as that all terrestrial Orchids are sun lovers. There are epiphytic Orchids growing naturally in the tropics in conditions as diverse as those found in the damp, shaded, stove house, and the dry, sunny, succulent house at Kew. I can recall to memory a dead tree standing singly on a hillside which was covered with huge plants of Listrostachys fimbriata in perfect health, and magnificent when in flower. The finest show of the lovely Angraecum infundibulare I ever saw grew in the crevices of a large rock in almost full sun. If I wished to see that curious epiphytic Fern, Platycerium, I know it would be hopeless to seek it in a shady forest, but it will be found *en masse* on the Acacia, that tree of scant foliage and little shade, which grows as isolated specimens in open country. The Platycerium will be found accompanied by innumerable other epiphytes, including Orchids. My experience was gained in tropical Africa, but it receives striking confirmation in the article on the Assam valley by Capt. Kingdon Ward, in the same issue of the *Gard. Chron.*, page 149, when he writes: "In very thick forest Orchids are by no means common, at least low down. They seek the light and air. In the savannah land it is otherwise. Here the trees are scattered as in a park and the Ficus trees are often clad from top to bottom with a mantle of epiphytes, Orchids, Ferns, etc." It is unfortunate that the idea is so prevalent that epiphytes, and certainly epiphytic Orchids, are always denizens of the dark, impenetrable forest, and must therefore be carefully guarded from sunlight, for I am sure that many handsome species have succumbed to this belief on the part of the grower. Unhappily, the plant bears no indication of its likes or dislikes, and it is only the observer, on the spot, who can indicate the treatment most likely to succeed, but growers finding a species doing indifferently well might, with possible advantage, try the effect of more sunlight.—*E. Brown, Hillside, Doddington. Sittingbourne.*

The Multi-peduncle Sweet Pea.—With reference to the article which appeared in your issue of August 11, I regret omitting to state that the colour of the multi-peduncle Sweet Pea is a beautiful rose-pink. This is the most popular colour in Sweet Peas both in Canada and the United States of America, in fact, more of this colour are grown by commercial men than all others combined.—*W. B. Gautby, Burlington, Ontario.*

FOREIGN CORRESPONDENCE.

RUDBECKIA HIRTA.

Black-eyed Susan, as Rudbeckia hirta is familiarly known, extends over a wide range in the United States and Canada, and is very common in the vicinity of New York, in some places becoming a rather troublesome weed. Yet it is an attractive species, of good habit, and without any suggestion of coarseness, and its rich golden-yellow flowers contribute to the colourfulness of the meadows and hillsides from the commencement of July until the autumn. It is of annual or biennial duration, and varies from one to three feet in height, and is usually of branched growth. The oblong to lanceolate leaves are from two to five inches in length, the lower having margined petioles. The leaf margins may be serrate or subentire and the whole plant is decidedly hispid. The conspicuous flower disc, at first almost black, finally assumes a dull brown hue, and the ray florets are of a deep golden-yellow, occasionally a little more orange-coloured towards the base. They are from one to two inches in length, and so spaced that a very attractive flower results. Surely this is a species worthy of more attention from cultivators in the British Isles, for it seems to me that Rudbeckia hirta compares very favourably indeed with the yellow-flowered Composites which are more commonly grown, and I am certain it would prove a worth-while acquisition, either for the embellishment of the border or for the production of cut flowers. I should have mentioned that in its wild state R. hirta occurs on rather dry soils, in open and ofttimes exposed positions, where it benefits from all the available sunlight. *T. H. Everett, New York, U.S.A.*

PUBLIC PARKS AND GARDENS.

The Shoreham Urban District Council has resolved to make application to the Ministry of Health for sanction to borrow £9,250 for the purchase of Upper Oxen Field of about ten acres, together with an island site, comprising two hard courts in Winlesham Gardens for an open space and pleasure ground.

The Sutton and Cheam Urban District Council has made application to the Surrey County Council for a contribution towards the cost of acquiring eighty-two acres of land for an open space.

The Bridgwater Town Council has authorised the Borough Surveyor to prepare a scheme for the lay-out of Victoria Park, allowing for the provision of tennis courts, bowling green, conveniences and fencing, and other necessary requirements. The Council will apply to the Ministry of Health for sanction to borrow £490, the amount required to complete the lay-out of the Eastover Park.

The Dagenham Urban District Council has tentatively approved a scheme for laying-out Valence and Goresbrook Parks, at an approximate cost of £13,000. The work includes the provision of a bandstand and sanitary conveniences.

The Wealdstone Urban District Council has received sanction to borrow £5,500 for the purchase of land in Elmgrove Road, Kenton, for a recreation ground.

SOCIETIES.

KING'S WALDON HORTICULTURAL.

There was a large attendance at the annual show which was held during August in the park at King's Walden, Bury. One of the great attractions to the many visitors was the large rock garden, which is particularly effective, while the other features of the gardens are also of great interest.

The horticultural displays in the marquees were considered to be larger and better than on any previous occasion, and the quality was excellent in all sections. Messrs. Wm. Cutbush and Sons displayed a comprehensive group of herbaceous plants and Polyantha Roses in baskets. Messrs. R. and G. Cuthbert has a fine array of Gladiolus primulinus, including the varieties L'Innocence, Scarlet Cardinal, and Glory, of outstanding merit. Messrs. Harkness and Co. and Messrs. Wheeler of Hitchin had large stands of Roses which were greatly admired. Messrs. Kitchener and Co. showed some fine spikes of large-flowering Gladioli. Messrs. Cannon and Co. had a beautiful florists' display. A large group of herbaceous flowers arranged by Mr. W. A. Collier on a ground space was very attractive.

The Herts County Council again contributed a large educational display illustrating many plant diseases and insect pests. Mr. Hudson, who was in charge, had many inquiries to answer. Mr. T. B. Latchmore showed a remarkable collection of colour photographs, chiefly of garden subjects taken in various parts of the country.

In the open competitive division, Mrs. Herbert Dunhill, Harpenden, was first with Sweet Peas of very good quality, and also for cut flowers, and was placed third for table decoration. Miss Edwards, London, had the best basket of flowers, while Miss Gwendoline Wheeler of Hitchin, won the first prize for table decoration and was equally successful with a bowl of flowers.

The best collection of vegetables was staged by Mr. I. Fitzjohn and Mr. E. Sutton was second. In division B, Mr. G. Wilsher led with nine vases of Sweet Peas and Mr. R. D. Oldham, Hitchin, had the best six vases of cut flowers. There was also good competition in the vegetable section. Mr. W. Muddle, King's Walden, was first for a collection; second, Mrs. Ganner, Hitchin; third, Mr. G. E. Creasy, Hitchin. The single dishes of vegetables were also well represented.

In the other divisions vegetables were equally meritorious, but plants, mostly shown as window plants, were not so good as usual. Roses, in the amateurs' classes, were not numerous.

Considerable interest was shown in a large and interesting display of vegetables, staged by Major J. F. Harrison (gr. Mr. A. J. Hartless), many of which were set out as grown and included plants of Capsicums, with numerous large-coloured fruits, and Egg plants. A large collection of fruits, including Apples, Pears and Plums in pots, shown by the same exhibitor, also proved very attractive.

Messrs. Lloyd of Letchworth, had a stand in another part of the show ground where they demonstrated the merits of their motor and hand lawn mowers, sprayers and other appliances The success of the show was largely due to the energetic secretaries, Messrs. A. J. Hartless and W. G. P. Clark.

PENRITH HORTICULTURAL.

Penrith Horticultural Society held its fifty-first annual show in the Market Hall, on August 15. There were not so many exhibits as last year, but the attendance throughout the day was good.

The Countess of Lonsdale's Challenge Bowl for nine vases of Sweet Peas, was awarded to Mr. I. Ralph, Whinfell Holm, for an exceptionally even and well-grown collection. His vase of Mrs. A. Searles was outstanding. The same exhibitor secured Lady Lowther's Cup for six vases of Sweet Peas.

In the Rose classes, Mr. Chatfield, Bougate, Appleby, was awarded all three cups. His blooms were superb, and no finer have ever been exhibited at this show.

Lord Brougham's Cup for Gladioli was secured by one of the veteran exhibitors, Mr. J. Dixon, Penrith, who staged a very fine collection. The same exhibitor secured the Hon. Mrs. Brougham's Cup for Carnations.

The Society's Challenge Cup, for the best trade exhibit, went to the Lakeland Nurseries, for a splendid collection of herbaceous flowers. Messrs. Britten and Sons, Langwathby, secured second place with a very fine mixed collection of herbaceous flowers, Carnations, Gladioli, etc.

In the vegetable classes, Mr. T. Johnston, Carlisle, was awarded the Bolton Cup, and Mr. Clark, Eamont Bridge, secured Mr. Shaw's Cup. Messrs. Britten and Sons staged a large exhibit of soft fruits, including a wonderful collection of Gooseberries, and a very fine seedling Black Currant, while the Horticultural Department, Newton Rigg Farm School, staged an interesting exhibit of canned and bottled fruits, new varieties of Potatos, and illustrations of diseases of fruit trees, etc.

ROYAL HORTICULTURAL OF IRELAND.

Held in conjunction with the Royal Dublin Society's Horse Show, at Ballsbridge, Dublin, in the early part of August in a spacious hall allocated for the purpose, this event proved highly successful, the attendance numbering several thousands. Gold Medals were awarded to the following non-competitive exhibitors :—Messrs. W. Drummond and Sons, Ltd., Dublin and Stirling, for a tastefully-arranged rockery and alpine garden; Sir Jas. W. Mackay, Ltd., Dublin, for a fine exhibit of Gladioli and Sweet Peas; Messrs. Jas. Carter and Co., for a collection of vegetables, Gladioli and Sweet Peas, staged in the firm's inimitable manner; Messrs. Allwood Bros., who staged a grand display of Carnations, including a collection of Dianthus Allwoodii alpinus varieties; Messrs. Alex. Dickson, for a Rose garden and pool, with gnomes; and Mrs. Louis Smith, Ballawley Park, Dundrum, Co. Dublin, for an extensive collection of alpine plants.

Silver Medals were awarded to Major French, Rosemount, Booterstown, Co. Dublin, for exhibits of vegetables and Sweet Peas; Mr. Jas. Dugan, The Nurseries, Carlow, who staged a collection of named Phloxes and Gladioli; and the Dublin Nursery Co., Blackrock, Co. Dublin, for Roses; while Bronze Medals were secured by Messrs. S. McGredy, for collections of Phloxes and other herbaceous plants; Mr. Jas. Allan, Kilkenny, for Gladioli and hardy flowers, and Mr. Geo. Watson, Dublin, also for Gladioli; Sir Josslyn Gore-Booth, Lissadell, Sligo, was highly commended for a stand of Gladioli and hardy fruit, and a first-class certificate was awarded to the Hon. and Rt. Rev. Bishop Plunket, St. Anne's, Clontarf (gr. Mr. P. D. Reid), for a new seedling herbaceous Lobelias, the Bishop, raised at St. Anne's. Special exhibits further included miniature model gardens for two of which Miss Layng, of Cork, was awarded a Bronze Medal; Miss Ryan and Miss Cowper being commended for similar examples.

In five classes for Roses open to the Trade only, the Donard Nursery Co., Newcastle, Co. Down, were first for forty-eight blooms in twenty-four varietieis, and were also successful in two other classes. In the class for a group staged for effect on a space not exceeding one-hundred superficial feet, Messrs. S. McGredy and Son, Portadown, were first with what proved an outstanding feature of the show (really a gold medal group); they were also first with six baskets, distinct, the Donard Nursery Co. being placed second. Amateur Rose classes were well filled, the chief winners being Mrs. Alfred West (gr. Mr. C. Coster), Bray; the Hon. Gordon Campbell (gr. Mr. Cook), Terenure; Mrs. Stephenson (gr. Mr. M. Buggle), Cranford; Capt. Daly (gr. Mr. J. Murtagh), Templeogue; Mr. C. Wisdom Hely (gr. Mr. J. H. Orr), Rathgar; Miss Bird (gr. Mr. J. Smith), Dundrum; and Capt. Evelyn Shirley (gr. Mr. W. H. Hinch), Carrickmacross. In the class for a group of foliage, flowering and decorative plants, and cut flowers, on a space two hundred square feet, open to all, the Hon. A. E. Guinness (gr. Mr. W. Steven), Glenmaroon, was first; Mrs. Brittain (gr. Mr. Crossen), Donnybrook, second. The President's (the Marquis of Headfort) Silver Cup was awarded to the Donard Nursery Co. for a towering, huge bouquet of the elegant Diarama pulcherrima.

Hardy flowers were staged by three exhibitors in the premier class: Capt. Riall (gr. Mr. T. Webster), Bray, the Hon. and Rt. Rev. Bishop Plunket, and Major Vincent Kelly (gr. Mr. J. McDermott), Montrose, Donnybrook, being placed in the order given; in the smaller class the first prize-winner was Miss Bird. For six hardy Ferns, each different, Canon H. Kingsmill Moore, D.D., was successful.

Dahlias were shown indifferently, but double tuberous Begonias were excellent, Miss Smyth, Drogheda, being first for a stand of twelve blooms, while Mr. J. G. Knox and Miss Erck, staged the best six blooms. Other classes for cut flowers were well filled, the outstanding display of Gladioli being the group with which Mrs. Alfred West, Kilcroney, Bray (gr. Mr. C. Coster), again won the Challenge Cup. Mr. C. Wisdom Hely excelled in the class for a collection of annuals, while the twelve best vases of Carnations were staged by the Hon. A. E. Guinness. Mr. Ed. Kelly excelled with six vases of Carnations, and Mr. G. Caulfield was first for border varieties.

The first prize in the class of eighteen bunches, distinct, of Sweet Peas, was won by Capt. Shirley; the chief winners in the smaller classes being Mrs. Darley Miller, Lord Rathdonnell, Miss K. Darley and Mr. Wisdom Hely; the winner of the Silver Medal for the best basket of Sweet Peas was Mrs. Adams. For a group of Sweet Peas, arranged for effect on a space sixteen feet by four feet, Mr. W. Barrett, Kilruddery Gardens, Bray, was placed first, and Mr. D. Pack-Beresford, Bagnalstown (gr. Mr. S. E. Colvin), second.

Fruits generally call for but little comment and Grapes in particular even less. Peaches and Melons were creditable in quality, and the many classes for small fruits showed no blanks, while Apples, as seen, apparently found the date too early, although the samples were clean, if undersized.

Vegetables, however, proved another story, being remarkable for high quality, and expert staging. The Hon. A. E. Guinness was first in the premier class for an exhibit of twelve feet by four feet, and also for twelve distinct kinds. The award of the *Gard. Chron.* Silver-gild Medal has not yet been made; four exhibits were selected but the final decision will not be announced until after the Council has met.

GUILDFORD AND DISTRICT GARDENERS.'

On August 11, about eighty members of this association availed themselves of the kind permission of the Hon. Mrs. R. Greville to visit the famous gardens at Polesden Lacey, situated in the heart of the Surrey Hills.

A peculiar point about the estate is its entire seclusion. The mansion, hidden by hundreds of Beech trees which cover the range of hills on which it stands, cannot be seen until one is close to it, yet from the lawn in front of the house a delightful view is obtained, looking down into, and across, a valley to the North Downs which rise abruptly from the valley.

The gardens have been under the charge of Mr. Twinn since Mr. H. Prince joined the staff of Messrs. Sutton and Sons three years ago and the condition of the crops and the general appearance of gardens speak well for his skill. In the vegetable garden most of the crops were looking well despite the shallowness of the soil in which they are growing and the difficult season.

The ornamental gardens which are very extensive, are on wide and lengthy terraces on the brow of the hill as it slopes down into the Valley southwards towards Ranmore Common. There is a large Rose garden laid out in sections, in which many varieties were producing a good supply of blooms, and a double border of annuals, in immense variety, presented another gay scene.

Herbaceous borders, with autumn flowers to follow, are laid out on extensive lines and a good deal of space is devoted to Alpine plants.

On the magnificent lawns, and in all the walks, the grass, refreshed by recent rains was vividly, even verdantly green.

On the front lawn a Copper Beech, planted by King Edward VII in 1909, has grown well and looks healthy; other trees were planted by King George V and Queen Mary in 1915, and yet others by the King and Queen of Spain in 1920. Here, too, it was that the Duke and Duchess of York spent their honeymoon in 1923, when two Abies pungens glaucus were planted, and these associations lure many notabilities to visit the spot; Americans arrive in great numbers.

Alderman W. T. Patrick, the President, expressed the thanks of the party to the Hon. Mrs. Greville for permitting the visit and to Mr. Twinn for his courtesy.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The August meeting of this Society was held at the Royal Horticultural Hall, Mr. Charles H. Curtis presiding. Twelve new members were elected, and six members withdrew the sum of £127 10s. 4d. from their deposit accounts. The death certificate of one deceased member was received and the sum of £27 10s. 2d. was passed for payment to his nominee.

The sick-pay for the month on the ordinary side was £62 3s. 7d., in the State section, £54 10s. 2d.; and maternity claims amounted to £7 10s. 0d. The sum of £58 0s. 6d. was made in grants to twelve members from the State section for dental, optical and surgical treatment, and eleven other cases were considered.

NORTHAMPTON MUNICIPAL HORTICULTURAL.

This Society held its thirteenth annual show early in August, when over 23,000 people paid for admission. The trade exhibits were of great merit. Mr. W. J. Unwin won the Edward Lewis Fifty Guinea Challenge Cup, offered for the best non-competitive display in the show, for the third time in succession. His Gladioli were considered to be the best ever seen at this show. The Dover Fifty Guinea Challenge Rose Bowl and £12 in cash, offered for a group of Roses, was won by Mr. J. H. Pemberton; Mr. H. Drew was second. The best exhibit of Sweet Peas, for which the Astbury Twenty-five Guinea Challenge Cup and £12 in cash was offered, was shown by Messrs. E. W. King and Co. A Fifty Guinea Challenge Cup and £12 in cash offered for a collection of perpetual-flowering Carnations, was won by Messrs. C. Englemann, Ltd. For a collection of Gladiolus primulinus varieties, the first prize was easily gained by Mr. W. J. Unwin. For a collection of hardy herbaceous cut flowers arranged on staging, the first prize was awarded to Messrs. Harkness and Co., Messrs. T. Perkins and Sons, Ltd., being a good second.

The entries in the open classes were numerous. Mr. Holmes, of Chesterfield, excelled once again in the class for a group of flowering and foliage plants. For a collection of tuberous-rooted Begonias the competition was very good, Mrs. Guthrie, East Haddon Hall (gr. Mr. Burr) was first, Sir James Brackett, Dallington, (gr. Mr. Meakins), second, and the Northampton County Mental Hospital (gr. Mr. A. W. Wright), third. Messrs. T. Perkins and Sons won the first prize with thirty-six Roses of good quality; Mr. H. Drew was second. In the class for eighteen Roses, Mr. H. Drew was first, Messrs. T. Perkins and Sons second, and F. Bostock, Esq., Pitsford (gr. Mr. Prior), was third.

Twelve Roses: first, F. Bostock, Esq.; second, Messrs. T. Perkins and Sons; third, Mr. H. Drew.

Basket of Roses: first, Mr. H. Drew; second, The Dowager Lady Annaby, Holdenby (gr. Mr. Cameron); third, F. Bostock, Esq.

The competition for twelve vases of Sweet Peas was particularly good, and the first prize was won by Capt. R. B. Brassey, Cottesbrooke (gr. Mr. J. C. Quinn); second, Mrs. Borwick, Haselbeech Hall (gr. Mr. Moon); third, Mrs. Guthrie.

Hardy perennials were also very attractive and in this class, the first prize was won by Mr. J. Adams, Kettering; second, Mr. J. York, Finedon; third, Mrs. Guthrie.

Miss M. Henson, Northampton, had the best hand bouquet; second, Mrs. H. A. King, Kempston; third, Mrs. Bailey, Northampton. The best decorated dining table was arranged by Mr. Holmes, Chesterfield; second, Mrs. Moon, Kempston. Miss Gladys Burt, Coggeshall, was first with an artistic dining table decorated with Sweet Peas; second, Mrs. King.

The principal prize-winners in the fruit classes were Mrs. Guthrie, Capt. Brassey, Lady Annaby, Sir J. Crockett, G. H. Winterbottom, Esq., Horton Hall (gr. Mr. Radford), F. Bostock, Esq., J. Marlow, Esq. (gr. Mr. Pescud), Chapel Brampton.

The Wall Challenge Cup, offered for a collection of vegetables, was won by Capt. P. B. Brassey, this being the finest collection in the Show. Other principal winners in the vegetable classes were Mr. Kitchener, Olney; G. H. Winterbottom, Esq.: Mr. J. Hunt, Northampton; Mrs. Borwick, F. Bostock, Esq., Sir James Crockett and Lady Annaby.

A large Gold Medal was awarded to Mr. W. J. Unwin for his superb collection of Gladiolus. A Gold Medal awarded to Messrs. John Perkins and Son, Northampton, for a miscellaneous collection of cut flowers, also a Silver Medal for a collection of ornamental trees and shrubs.

A Gold Medal was awarded to Messrs. Thos. Perkins and Sons, Ltd., for a fine collection of pot plants and cut flowers and a Silver Medal for a rock garden and a similar award for ornamental trees and shrubs. A Gold Medal was awarded to Mr. H. Woolman, for an attractive collection of border Carnations. Messrs. Ramsbotham received a Silver Medal for Roses and Ferns. Messrs. Yarde and Co. were awarded a certificate of merit for floral designs.

The Bostock Challenge Cup for the highest number of points in the show, was won by Mr. C. Kitchiner, Olney. The Ideal Challenge Cup, for the town or county allotment holder who obtained the highest number of points was won by Mr. F. Hunt and he also won the John Dakins' Silver Challenge Cup for the highest number of points in the vegetable classes.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held at Southport on August 22, the members of Committee present were: Mr. Hy. Astley Bell (in the chair), Mr. J. B. Adamson, Mr. A. Burns, Mr. B. Collins, Mr. A. Coningsby, Mr. J. Evans, Mr. A. Keeling, Mr. J. McCartney, Mr. D. McLeod, Mr. W. J. Morgan, and Mr. H. Arthur (Secretary).

First Class Certificates.

Laelio-Cattleya Soulange var. Towneley; L.-C. Queen Mary var. Lustre; L.-C. Profusion var. Excelsior; L.-C. Canberra var. Golden Queen; Cattleya Etta var. Perfection; and *C. Lorna var. Exquisita.* From J. B. Adamson, Esq.

Laelio-Cattleya Profusion var. Sybylla; and *Cattleya Hardyana alba, the Warren var.* From the Hon. G. E. Vestey.

Laelio-Cattleya Profusion var. grandis; and *Cattleya Hermia var. Amaranthe.* From Messrs. A. J. Keeling and Sons.

Sophro-Laelio-Cattleya Mrs. F. Mercer (C. Hardyana × S.-L.-C. Meuse magnifica); and *Brasso-Cattleya Heatherwood superba.* From Messrs. J. and A. McBean.

Laelio-Cattleya Profusion, Llewelyn's var. From G. V. Llewelyn, Esq.

Brasso-Laelio-Cattleya Vashtii var. Evansiae. From Mr. John Evans. This Orchid was also awarded a Silver-gilt Medal.

Awards of Merit.

Cattleya Hardyana alba var. Kenneth; Laelio-Cattleya Canberra var. Prince of Orange; Cattleya Clive var. Brilliant: and *Odontioda Etna (Odm. amethyst × C. Noetzliana).* From J. B. Adamson, Esq.

Laelio-Cattleya Soulange, Llewelyn's var.; L.-C. Profusion, Llewelyn's Majestic; L.-C. Monarch var. Llewelyn's var.; and *L.-C. Isobel, alba.* From G. V. Llewelyn, Esq.

Brasso-Cattleya Amber var. Primrose, Laelio-Cattleya Purple Emperor (L.-C. callistoglossa × C. gigus); Cattleya Lorna var. Excelsis; and *Odontioda Cooksonii var. Vivid.* From Messrs. A. J. Keeling and Sons.

Cattleya Mona (C. Regina × C. aurea); Odontioda Monica (Odta. Brewii × Odm. Lambeanianum); and *Vuylstekeara Zeda.* From Messrs. Charlesworth and Co.

Laelio-Cattleya Profusion, The Warren var. From the Hon. G. E. Vestey.

Awards of Appreciation.

Laelio-Cattleya Jacquinette, Llewelyn's var.; and L.-C. Chimeree. From G. V. Llewelyn, Esq.

Cattleya Vesta var. Snowdrift. From J. B. Adamson, Esq.

First Class Botanical Certificate.

Cymbidium suavissimum. From Messrs. A. J. Keeling and Sons.

Cultural Certificates.

To Mr. B. Collins, for Cattleyas, etc.; to Mr. G. V. Llewelyn for Laelio-Cattleya Profusion var. majestica; to Mr. J. Howes, for Cattleya Lorna Exquisita; and to Mr. C. F. Potts, for Laelio-Cattleya Hassallii alba.

Gold Medals.

To J. B. Adamson, Esq. (gr. Mr. J. Howes), Blackpool, for Cattleyas, Odontoglossums, Cypripediums, Oncidiums, Vanda coerulea, Epidendrum vitellinum, and others; to the Hon. G. E. Vestey (gr. Mr. B. Collins), Birkdale, for Cattleyas, Miltonias, Odontoglossums and Odontiodas; to G. V. Llewelyn, Esq., Southport, for Cattleyas, Cypripediums, Oncidiums and Dendrobiums; to Messrs. Charlesworth and Co., for Cattleyas, Odontoglossums and Odontiodas, Miltonias, etc; to Mr. John Evans, Colwyn Bay, for Cattleyas, Miltonias, Cypripediums and Vanda coerulea; to Messrs. A. J. Keeling and Sons, Bradford, for Cattleyas in variety, Odontoglossums and others.

Silver-Gilt Medals.

To J. McCartney, Esq. (gr. Mr. C. F. Potts), Bolton, for Cattleyas, Odontoglossums and Odontiodas in variety.

The Society's booklet is in course of compilation, and will be issued on receipt of subscription, which is now due.

The next meeting will be held at the Houldsworth Hall, 90, Deansgate, Manchester, on September 13. The Committee will sit at 12 o'clock noon.

BARE HORTICULTURAL.

The tenth show of the Bare Horticultural Society was held on August 15, at Happy Mount, Morecambe, kindly lent by the Corporation, which assists the Society annually. It was the best show the Society has ever held; there were four-hundred-and-ninety entries and the exhibits were of really good quality.

The winners of trophies were:—Mr. F. Smith of Bare, the Ceres Ridge Bowl for cut flowers; Mr. J. Parkinson, Bolton-le-Sands, the Overend Cup for vegetables; Messrs. C. Webb and Co., Kendal, the Bare Institute Trophy, and Messrs. Ratcliffe and Tomlinson, Bolton le-Sands, the Waddilove Trophy. Other prize-winners were:—Mr. Musgrave Hoyle, Messrs. W. Robinson, Mr. E. Shadbolt, Mr. R. Graveson, Mr. B. S. Park, Mr. E. Carney, Messrs. W. Nash and Son, of Taunton.

The Secretary, Mr. T. E. Barrow was presented with a silver tea service in appreciation of his work.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL.

After an interval of two years, the annual flower show of the Glasgow and West of Scotland Horticultural Society, promoted in conjunction with the Corporation of the City of Glasgow, was held in the new Kelvin Hall on Tuesday, Wednesday and Thursday of last week. Inclusive of the allotment holders' section there where 25 classes, and the entries in the competitive section numbered over 3,000. Many of these, however, had to be cancelled as the result of the severe storm experienced over a wide area of Scotland two nights previous to the show, and this accounted for the somewhat thin appearance and absence of competition in certain classes. The trade exhibits, about forty in number, were an attractive feature and contributed to the success of the show, while the City Parks Department was responsible for a well-arranged collection of exotic and greenhouse foliage and flowering plants which achieved bold colour effects in groups and borders (Fig. 80). It was an ambitious and successful effort that reflected credit on Mr. Besant and his staff.

Rock Gardens.

Probably no exhibits in the competitive section created greater interest than the four typical examples of the landscape gardeners' art. Each was arranged within a space of thirty feet by fifteen feet and varied in their design and treatment. The judges awarded first prize to Messrs. Austin and McAslan, Glasgow, whose creation was preferred to that of Messrs. T. R. Hay and Sons, Ambleside, Westmoreland, by reason of its natural contour and well-proportioned water area. Mr. Alexander Buist, Bridge of Weir, was third.

Pot Plants.

The competition in this section seems to be on the decline, and in several instances the prizes were more numerous than the exhibitors. An example of this was provided in the group of stove and greenhouse plants where the prize carries with it the City of Glasgow Challenge Cup and £35. This was secured by Mr. T. M. Petch, Bradford, without opposition. He also staged the best of two specimen Palms, but had to be content with second place for twelve plants for table decoration, to Mr. Allan, Dunbar, Springburn, who also excelled with three Palms, three ornamental foliage plants, six plants for table decoration, three Dracaenas and three Codiaeums. Mr. Matthew Brown obtained success with a table of Begonias on his first attempt, and Mr. John Welsh, Glasgow, scored in both classes of Pelargoniums, while double honours were also credited to Mr. Claud Jenkins, Cambuslang, in the Fuchsia classes.

Roses and Sweet Peas.

The Rose blooms bore evidence of the weather in a greater or less degree, and taken as a whole, the standard of quality was not up to the level of previous years. The Lady Weir Challenge Cup, awarded to the best collection occupying a frontage of twenty feet, was won by Messrs. Wheatcroft Brothers, who staged a fine collection in which Princess Elizabeth, Emma Wright, Madame Butterfly and Shot Silk were prominent. Mr. Thos. Robinson, with one point less, had to be content with second place, and Messrs. Thos. Smith and Sons, Stranraer, were third. In the cut bloom classes the honours were shared by Mr. R. C. Ferguson and Mr. William Ferguson, Dunfermline. The former was stronger with his baskets of Lady Pirrie, Shot Silk, Madame Butterfly, Lieut. Chaure, Golden Emblem and Betty Uprichard. He also won in the class for twelve blooms, twelve blooms of yellow Roses, with Mabel Morse, and twelve blooms of red Roses with George Dickson. Mr. William Ferguson's successes embraced first prizes for forty-eight blooms, twelve blooms, white (Frau Karl Druchski) and twelve blooms, cream (Mrs. Charles Lamplough). Messrs. Thos. Smith and Sons prevailed over Mr. William Ferguson with twelve blooms of Roses introduced since 1926, but the quality was not up to exhibition standard. The Stranraer firm showed the best pink blooms—Mrs. Henry Bowles.

Sweet Peas were variable in quality. Good competition was experienced in the collection class, where first prize was won by Messrs. Herd Brothers; Messrs. Torrance and Hopkins, being second, and Messrs. William Hamilton and Co., Belfast, third. Mr. J. A. Grigor, Banff, excelled in the class for twenty-four vases, and also in the single vase classes for scarlet, pink, cream-pink, lavender, maroon and purple, but he was beaten by Mr. James Paul, Killearn, in the class for six vases, and in the competition for the Sir John Reid Challenge Cup awarded for twelve vases. Both the Cup and the Gold Medal went to the Killearn amateur.

Other Cut Flowers.

Messrs. C. Engelmann, Ltd., had a walk-over for the first prize awarded to a collection of perpetual-flowering Carnations, and Messrs. Torrance had a similar experience in the Dahlia and Chrysanthemum classes; while Messrs. George Mair and Sons, Prestwick, held a similar position regarding the classes for twelve and six vases of Gladioli.

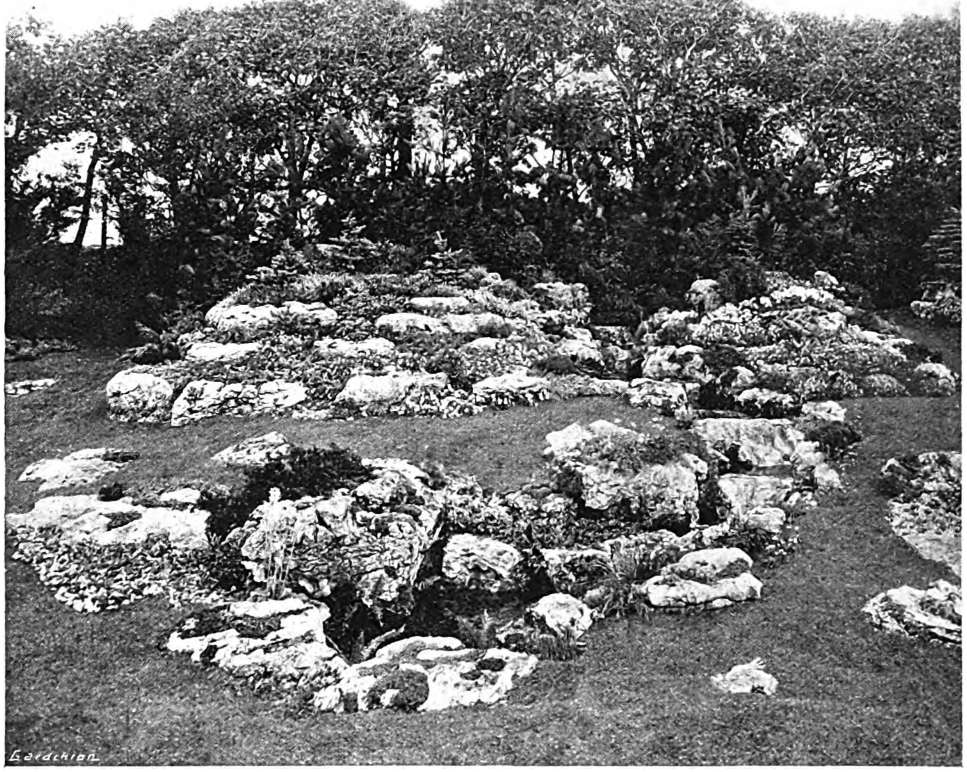

Photo by Kay and Foley.

FIG. 90.—SOUTHPORT SHOW: MR. THIRKILDSEN'S ROCK GARDEN. (see p. 175).

Mr. James Paul, Killearn, scored heavily in the Pansy and Viola section, his successful record consisting of premier awards in the following six classes:—Forty-eight, twenty-four and twelve blooms of fancy Pansies, six blooms of seedlings, twelve and six blooms of show Pansies. In the collection class there was a keen contest between Mr. A. R. Stevenson, Dunaskin, and Mr. Thos. Wilson, Neilston, in which the former was successful.

Fruits.

The fact that the show was held a week later than formerly, in a backward season, fruit in Scotland being slow to ripen, curtailed the number of fruit entries, while the cultural results were on a distinctly lower grade. The decorated dinner table with which the Marquis of Tweeddale (gr. Mr. Alex. McBean) won the *Glasgow Herald* Challenge Cup unopposed, was an exception, for the twenty-four dishes compared favourably with the collection which won the premier prize at Southport. Grapes were particularly good, especially the bunches of Muscat of Alexandria, and other outstanding fruits consisted of Cox's Orange Pippin and Emperor Alexander Apples, Souvenir de Congres and Marguerite Marillat Pears, Humboldt and Pine Apple Nectarines, and Bellegarde Peaches.

Grapes lacked finish. Three entries were staged in the Thomson Challenge Cup class for eight bunches, and in a close contest in which a single point separated the first two lots, Mr. John Davidson proved to be the winner with a total of 49½ points, which compared with 48½ points credited to Mr. Charles Traill, Gourock. The strongest first prize bunches were of Alicante and Director Tisserand. No opposition was offered to the collection of Pears staged by Mr. Alex. McBain, and Mr. William Smith, Dunecht, was successful for all three collections of Apples, and for twelve baking Apples. The largest number of first prizes however, was secured by Mr. Duncan McFie, who scored in ten classes for named varieties.

Vegetables.

In the vegetable section Potatos were a strong feature, and it was late in the afternoon of the opening day before the judging of these classes was completed. The principal prize winners were Mr. Robert A. Grigor, Dumfries; Mr. James Robb, Sorn; Mr. W. S. Nash, Mauchline; and Mr. John Young.

The Lord Maclay Challenge Cup offered for the best collection of vegetables created keen competition, and was won by Mr. John Gray, Uddingston with 78½ points, or one point more than the total of Mr. William Gow, Dalmuir.

New Introductions.

Gold Medals were awarded to the seedling Rose Mrs. John Bell, raised by Messrs. Dobbie and Co., and to Lord Stair, a crimson-coloured bedding Rose raised by Messrs. Thomas Smith and Son, Stranraer.

First Class Certificates were awarded to seedling Chrysanthemums B.B.B. and Busby Beauty, raised by Mr. George Bowness, Busby; to Pentstemon Mrs. Traill, raised by Mr. Charles Traill, Gourock; seedling Erica vulgaris alba, raised by Messrs. George Mair and Son, Prestwick; and Pansy William Hood, raised by Mr. William Stevenson, Dunaskin.

Certificates of Merit were granted to bedding Dahlia Rothesay Gem and Collarette Dahlia Jean Lister, raised by Messrs. Alex. Lister and Son, Rothesay; and Viola Susan Stevenson raised by Mr. William Stevenson.

Non-competitive Awards.

Large Gold Medal.—To Messrs. Allwood Brothers, for Carnations; Messrs. Backhouse Nurseries, for rock garden; Corporation of Glasgow, (2) for groups of flowering plants, and Palms, and exotic plants; Messrs. Dobbie and Co., for Dahlias, Sweet Peas and Roses; Messrs. Austin and McAslan, for vegetables, cut flowers, alpines and Coniferae; and to Mr. Maxwell Hart, Glasgow, for a formal garden.

Gold Medal.—To Messrs. John Peed and Son, for stove and greenhouse plants; Messrs. Daniel Brothers, for Gladioli and Montbretias; Messrs. Isaac House and Son, for Scabious and Kniphofias; the Scottish Cooperative Wholesale Society, for Roses and Coniferae; Mr. T. Smith, Newry, for hardy plants; Messrs. Williamson and Co., for alpines and hardy flowers; Messrs. M. Campbell and Son, for Carnations and Dahlias; Messrs. Bannatyne and Jackson, for Roses and hardy flowers; Messrs. Thyne and Son, for rock plants and cut flowers; Mr. M. Rae, Biggar, for Begonias; Messrs. Samuel McGredy and Son, for Roses; Messrs. Fairbairn and Son, for Phloxes; Messrs. Charlesworth and Co., for Orchids; Messrs. Leighton, for hardy flowers; Messrs. R. K. Gemmell and Co., for rock plants, Roses and Pentstemons; Messrs. D. and W. Croll, Dundee, for Roses; Messrs. Blackmore and Langdon, for Gladioli and Begonias; Messrs. Storrie and Storrie, for fruits; Messrs. L. R. Russell, Ltd., London, for stove plants; Messrs. C. Engelmann, Ltd., for Carnations; Messrs. Alex. Dickson and Sons, for Roses; and to Messrs. A. J. Keeling and Sons, for Orchids.

Silver Medal.—To Messrs. Hewitt and Son, for Delphiniums; Messrs. Laird and Dickson, for rock plants; Messrs. Alex. Lister and Son, for cut flowers; Messrs. Kent and Brydon, for alpines; Messrs. Maxwell and Beale, for Heaths; Messrs. John Forbes, Ltd., for hardy flowers; and to Mr. James McAra, Comrie, for Roses.

CARDIFF AND DISTRICT GARDENERS'.

A large party of members of the above Association visited Cheltenham recently for their annual outing. Luncheon, which was presided over by Major Gaskell, was held at George's Cafe, and a visit was then paid to Messrs. J. Cypher and Son's nurseries, where the Orchid, stove and other plant houses and also the trial grounds were inspected.

From there the party proceeded to Cemetery Road to explore the hardy plant nurseries of Messrs. Bowell and Skarratt, where alpine, aquatic and bog plants are grown in large quantities. Here the Water Lilies alone made the visit well worth while.

From Cheltenham, the next stop was at Tewkesbury, where tea was partaken of at the Abbey Tea Gardens, whence the party returned to Cardiff after a very enjoyable and interesting day.

TRADE NOTE.

Trade Patents and Trade Marks.—Any of our readers requiring information and advice respecting Patents, Trade Marks or Designs, should apply to Messrs. Rayner and Co., Patent Agents, of 5, Chancery Lane, London, W.C.2, who will give free advice to readers mentioning *The Gardeners' Chronicle*.

ANSWERS TO CORRESPONDENTS.

Failure of Vine.—*T. F. M.* (1) It is difficult to account for the complete failure of your vines after doing so well for so many years. As there has been a decided tendency to shanking in recent years, the roots have probably got down into the wet subsoil, and the first thing to do is to examine them. If there is an inside and an outside border, examine the one inside first, and the outside one the following year. Dig a trench two feet wide and as far away from the vines as possible, say, eight or nine feet, removing all the old soil. Then, with a fork, gradually draw away the soil, working towards the stem of the vines, and taking care of the exposed roots, which should be covered with damp mats or straw. Examine the drainage and lay fresh turf, grass side downwards, over it, then build a turf wall four to six feet from the wall; this will leave about five feet for the new border in which to lay out the roots. Prepare sufficient soil, calcareous turfy loam is best, but almost any good soil will grow good Grapes, if it is properly prepared and the right materials added, such as burnt earth, lime, mortar-rubble and wood ash, according to its texture, together with one cwt. of Vine manure and one cwt. of bone-meal to every four tons of compost. Fill the trench with the soil and make it thoroughly firm, cutting back any long bare roots and laying others at various depths from two to six inches as the work proceeds. Give a good soaking of water when completed. This operation should be performed towards the end of October. Disturbing the roots may cause the vines to droop slightly, but if kept cool and allowed to start naturally next spring, healthy growths should result if the atmosphere is kept moist and warm and the house ventilated carefully. (2)—This crop is very late this season owing to the cold nights experienced during June and July. Pinch off the laterals regularly so that light and air may have free access.

Grapes Failing.—*J. W.* The cause for your fruits going off or shanking, as it is usually termed, is probably due to trouble at the roots. You can do nothing with the vines at present, but we would advise you to lift them in the autumn and re-make the borders, making sure when you do so that the drainage is ample.

Names of Plants.—*Wild Flower.* 1, Chenopodium album; 2, Artemisia vulgaris; 3, Sonchus arvensis; 4, Matricaria Chamomilla; 5, Solanum Dulcamara; 6, Euphorbia Helioscopia; 7, Artemisia vulgaris; 8, Polygonum Aviculare.—*W. H. S.*, 1, Rhus Cotinus; 2, Koelreuteria paniculata; 3, Campanula acrorrhiza; 4, Tunica Saxifraga. *L. S. A.*, 1, Epilobium angustifolium; 2, Epilobium hirsutum. *H. M.*, 1, Curculigo recurvata; 2, Miscanthus japonicus varigatus; 3, Pancratium speciosum; 4, Carex brunnea variegata; 5, Hypericum Moserianum; 6, Euphorbia Cyparissias (Cypress Spurge); 7, Hypercium Androsaemum; 8, Juniperus Sabina; 9, Euonymus radicans foliis variegatis; 10, Ligustrum lucidum var. coriaceum.

Names of Fruits. — *Sussex.* 1, Clapp's Favourite; 2, Doyenné de Merode; 3, Triomphe de Jodoigne; 4, Alfriston; 5, not recognised; 6, not recognised; 7, Beurre d'Amanlis; 8, Conference; 9, not recognised; 10, Stirling Castle; 11, Kerry Pippin; 12, not recognised—*H. G.* Easter Pippin; French Crab.—*P.* Old Hawthornden.—*J. B.* 1, Jargonelle; 2, Marie Louise.

Peach Tree Border.—*H. W.* Having decided upon the level of the top of your border, it will be necessary to excavate to the depth of two feet nine inches or three feet below the surface line and put in a front drain running parallel with the house, if one does not already exist; this should empty itself at some convenient point of lower level, and consist of four-inch pipes, about four feet apart, with a fall of six inches. If the subsoil is sandstone or gravel no other drainage will be necessary. Cover the pipes with clean broken stones or bricks, placing the largest pieces at the bottom, and the smallest on top to the depth of nine inches or a foot. Allow a clear two feet of compost, placing turves grass-side downwards over the drainage. Make the border about six feet long and four feet wide the first year, building up turf walls at the limits of the border, and increasing the width, as the trees increase in size, to eight or ten feet, according to the strength of the trees. In cold, low-lying and wet places, Peach borders should be partially or entirely raised above the ground line, as the wood cannot ripen if the roots are in cold and wet soil. All stone fruits succeed best in a rather strong calcareous soil, rich and sweet; this should be cut when fairly dry, two to four inches thick, and thrown into a heap a few weeks before wanted for use, if time admits. Chop it up roughly and again leave it roughly ridged to sweeten, and keep it dry. In the meantime, prepare corrective agents, such as old plaster, old lime and brick rubble, burnt earth and road scrapings; one or all of these may be used. To every four barrow-loads use one barrowload of these materials. As no animal manure will be needed if the loam is good, half-a-bushel of crushed bones or bone-meal and a peck of soot may be used, the latter to free the compost of wireworms and other worms, to each four barrow-loads of soil. Mix all well together and use when fairly dry; make the border thoroughly firm and some three or four inches above the ultimate level, to allow for settling. After the soil has had time to settle, the planting of young trees from the nursery will be a short and simple operation.

Peaches Withering.—*W. J. H.* No disease seems to be present on either the leaves or fruits, and therefore it seems that cultural conditions are at fault. It would appear that your trees, both foliage and fruits, have been badly scorched, the result of being too damp during the hotter parts of the day.

Tomatos Green at Base.—*H. E.* The green ring round the base of your Tomatos indicates lack of potash in the compost, a condition which may be remedied by the application of a light dressing of nitrate of potash, which should be watered in well.

Vines Unhealthy.—*F. S.* The Grapes appear to have been badly scorched, probably through being damp during very bright sunshine. You can do nothing with them except shading them if more sunny weather is experienced and we should advise you to exercise more care in the application of water.

White Fly on Tomatos.—*J. W.* This pest may be destroyed if the house is fumigated early with one of the nicotine vapourising compounds, or better still, with hydrocyanic acid gas. Both these preparations may be obtained from horticultural sundriesmen, and instructions as to use will be given on the packets. The former fumigant is a fairly safe one to use, but great care needs to be exercised in the use of hydrocyanic acid gas, which is, however, more effective. Cyanogas is also a suitable fumigant.

Communications Received. — J. S.—W. P. C.—J. W. M.—F. N.—R. P.—W. H. S.—W. G.—J. B.—S H. S.—H. R.—A. F.—T. P.—W. G.—S. A.—A. T. H.—T. B.—J. G. W.—J. C.—K. J.

GARDENING APPOINTMENTS.

Mr. W. H. Baker, for two-and-a-half years as gardener to the Rev. G. M. Hutton, Pevensey, Sussex, as gardener to Mrs. J. Carr Nicholson, Moorfield House, Alma Road, Headingley, Leeds, Yorkshire.

Mr. H. Hills, for the past two years and five months gardener to Mrs. Lister Lea, Fawke Wood, Sevenoaks, as gardener to Mrs. Herman, The White House, Balcombe, Sussex. (Thanks for 2/6 for R.G.O.F. Box.—Eds.)

Mr. J. Gerrard, for the past four-and-a-half years foreman at Castle Ashby, as gardener to Major Humphrey Wyndham, Caversfield House, Bicester. (Thanks for 2/- for R.G.O.F. Box.—Eds.)

THE
Gardeners' Chronicle
No. 2177—SATURDAY, SEPTEMBER 15, 1928

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Rock Garden at Rowallane.

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 55·5°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, September 12, 10 a.m. Bar. 34·. Temp. 66°. Weather, Fine.

The Tradescants. Under the title "The Tradescants and Their Times," Dorothy Gardiner contributes to the *Journal* of the Royal Horticultural Society (Vol. LIII, Part 2, July, 1928) a delightful article on the botanical work of the Elder and the Younger John Tradescant—both among the greatest gardeners of all times. The elder John, who was born in the sixteenth century and died in or about 1637, was both a great gardener and a great collector. Like Bacon, but in a more practical manner, he "took all Nature for his province," and wherever John Tradescant went he returned with rich harvests, not only of plants, but of other kinds of rarities as well. The first Earl of Salisbury, Robert Cecil, to whom, at Meopham, in Kent, John was gardener, proved a generous patron and encouraged Tradescant to travel "to obtain all the rarest fruits he can hear of in any place of Christendom, Turkey, yea, or the whole world." How successful were these journeys the gardens of England yet show. From Haarlem, Brussels and Leyden, John the Elder brought back Cherries, Mulberry, Apricots and Quinces, Anemones, Provence Roses, "Pompong blanche and pompong orang coller," Tulips, and Irises,—"Irys calsedonys and Irys susyana," and from Paris he returned with a Pomegranate, Oranges, Oleanders, Myrtles, Muscat Grapes and "malecotton" Peaches. He grew his plants well, but found in the Strawberry plant, which he brought from Brussels, an unfruitful subject, blossom and blossom and promise of blossom, but never a fruit —"in seven years he could never see one berry ripe on all sides." Later, Tradescant gardened for Lord Wotton at Canterbury, in the gardens of St. Augustine's Palace, and that garden was soon famous throughout the countryside. Adventurous always, John Tradescant travelled with a neighbour, Sir Dudley Digges, in the reign of James I, to Russia. Although his patron gained nothing, Tradescant came back, as Dorothy Gardiner relates, laden with plants and curios. Pending a new adventure, we find John busy teaching Sir Henry Mainwaring how to grow Musk Melons, then off he went in October, 1620, on an expedition against the pirates of Algiers. His most treasured find was the "Argier Apricocke, yellow, sweet and delicate," which soon found its way into every gentleman's garden in England. A year or two later, the elder John became gardener to the Duke of Buckingham, and the more he advanced in years and status, the stronger grew the collector's passion—as witness the wonderful letter which, as Dorothy Gardiner observes, must have been from his head albeit the hand that wrote it was George Villier's—it requests the Secretary to the Admiralty to "deal with all merchants from all places . . . . ." that "they will take care to fornische his Grace with Allmaner of Beasts and fowels and Birds alyve, and if not, with heads, horns, beasts' claws, skins, fethers, flies or seeds, plants, trees or shrubs." He wanted everything "one elephant's head with the teeth in it, very large. . . . . . Beans, black and red, seed-pods, and dried flowers laid between paper leaves in a Book," but, indeed, "Anything that is strange." Finally, the elder John became gardener to King Charles at Whitehall, and at Oatlands, Surrey, at a salary of £100 a year. It was then that he laid out his Lambeth garden, the site of which is still marked by Tradescant Road and Walberswick Road, in compliment of the great gardener's Suffolk origin. Here he planted his Physic Garden, and here he established "Tradescant's Ark," the parent of the modern museum. The Ark flourished, attracted distinguished visitors, including his Royal master and his Consort, and at Lambeth he died, presumably in 1637 or 1638, for under these dates the Churchwardens' accounts record, "Item John Tradeskin; Ye gret bell and black cloth, 5s. 4d." As but rarely happens, the son, the younger John Tradescant, showed his father's taste. He added to the Lambeth Physic Garden, and in the midst of wars and royal executions went on collecting and epitomising all strange things in Nature. The Ark flourished still, and when Puritans replaced Royalists it continued to enjoy popularity. But at the Restoration the Ark aroused the envy or dislike of the Master of the Revels, who caused a warrant to be issued to bring "John Tradeskyn" before him for "making shew of severall strainge creatures without authority." The King, Charles II, to whom the younger John appealed, put matters right, and the Ark was saved. Then, in 1656, was published "the Musaeum Tradescantianum, or A Collection of Rarities preserved at South Lambeth, near London, by John Tradescant." In it are portraits of both these truly royal gardeners. In 1662, the younger Tradescant died. Fifty years later, all that was left of the Physic Garden—save weeds—were a Horse Chestnut tree, some Pines and Sumach, and at the entrance, two ribs of a great whale. Yet a little later "and all the rest forgot for which he toiled," but as the author of this fascinating sketch observes, "when, in a thousand English gardens, while the daffodils flower or the apricots ripen on sunny walls, the name of John Tradescant also blossoms anew."

Flowering of Brunsvigia Josephinae.—This South African "Umbrella Lily" does not flower frequently in this country, therefore two records of success within one week suggest that the weather may have been particularly suitable. Mr. Annand, Burley-on-the-Hill, Oakham, Rutland, informs us that his employer, W. H. M Finch, Esq., purchased three bulbs a year ago and one of these has flowered; in this example the bulb is sixteen inches in circumference and eleven inches high; the leaves are three-and-a-half inches wide and fourteen inches long; the umbel of twenty-six flowers was carried on a peduncle twelve inches high, and the pedicels were nine inches long. The plant is in a six-inch pot. Mr. A. Butcher, gardener to Lt-Col. Charles Kerr, D'Anvers House, Culworth, Banbury, has had several plants in flower; the bulbs were imported two-and-a-half years ago, and have been grown in a greenhouse where the temperature often falls below 50° in winter, but they are exposed to full sunshine during the summer.

Legacies to Gardeners.—The late Mr. Edmund Brooks, J.P., of Duvals, Grays, Essex, who died on June 22, left an annuity to his gardener, Mr. William Frosdick.—Mr. George Barron Holroyd, of Dartnell Park, West Byfleet, who died on June 1, left £50 to his gardener, Mr. James Hardy.—The late Mr. Geoge Gordon Peter Brodie, J.P., of Woodlands, The Park, Cheltenham, who died on May 26, left £500 to his gardener, Mr. Frank Webley

Aeroplanes to Combat the Spruce Budworm.—The Agent-General of the Ontario Government informs us that aeroplanes are being employed in Northern Ontario, Canada, to spray powder over sections of the forest, west of Sudbury, in the hope of checking the ravages of the Spruce Budworm, which is causing considerable destruction to the trees.

Essen Horticultural Exhibition.—Next year the town of Essen, Germany, is to organise an important horticultural exhibition, to be held in the large hall and in the grounds of the old exhibition park, ten hectares in extent, besides which about another three hectares of land close by have been secured. A thousand trees have been planted since the spring, and the ground is being tastefully laid out on terraces; no expense is to be spared in the planting of the ornamental portions and in making the whole exhibition both attractive and convenient for visitors..

Linnean Society's Library.—From the beginning of the year 1927-28, the Library of the Linnean Society has become one of the forty-nine "Outlier Libraries," that work in conjunction with the Central Library for Students, and as a result of this connection has received for the year a grant of £666 13s. 4d. from the Carnegie United Kingdom Trust. In all, £1,260 14s. 5d. has been spent on books, periodicals and binding during the year. In contrast with the 51 volumes chronicled as additions during 1926-27, the additions during 1927-28 comprise 185 works purchased and 110 books and reprints presented. The number of books borrowed between May 1, 1927, and April 30, 1928, was 1,225 by 193 individual borrowers, including the Central Library. Of the total, 53 were borrowed by the Central Library, leaving 1,172 as borrowed by 192 Fellows and Associates, or an average of six books per borrower per annum, or fewer than two books per annum per Fellow and Associate of the Society as a whole. In the same period the number of visits to the Library, so far as can be calculated from the signature book, was 1,052, of individual visitors 291. On the 51 Saturday afternoons during the period, 65 visits were made by 41 individual visitors. These figures show that so far there is no risk of the Library suffering from congestion by visitors. There is, however, a decided congestion of work, which it is beyond the power of the very limited official staff to relieve. In these conditions the voluntary help rendered to the Society by Mr. James Robson for a considerable part of the year has been of great assistance.

Göttingen Botanic Garden.—Considerable improvements are being made in the organisation of the famous botanic garden at Göttingen, Germany, which is under the management of a new Director, the previous Director, Professor Bitter, having died. Certain portions of the gardens, including the alpine garden, are being entirely reconstructed and greatly enlarged, and the present Colonial House is being altered, and will in future be used for Succulent plants, while the cold house and the Bromeliad house are being newly roofed according to the latest designs. When the alterations are completed the garden should present a very attractive appearance.

The Breeding of Potatos.—This was the subject of a short paper read by Mr. Donald McKelvie, Lamlash, Arran, at a meeting of the Agricultural Section of the British Association held at Glasgow last week. He discussed parentage in Potatos and crossing, and declared that the aim now was to breed by crossing successive generations of seedlings in the different classes of maturity, having a successful combination of the required qualities, and so obtain parents that would breed more true to type. The President, Dr. J. S. Gordon, Belfast, Secretary to the Ministry of Agriculture of Northern Ireland, remarked that if Mr. McKelvie could give them a good early variety, the benefit to the whole of the British Isles would be great. What they wanted was an immune kidney variety, white skinned, if possible, distinctly earlier than anything they had at present, and a good cooker. In the discussion which followed, Mr. Watson, of Messrs. McGill and Smith, Ayr, stated that there was very little of the scientific application of plant breeding principles to Potatos. It was more the special ability of the breeder in selection. They should, in his opinion, concentrate more on quality, because the heavy croppers now being introduced suggested that production would exceed consumption unless the rate was encouraged by attainment of quality. He mentioned that it was not possible to secure any Potato of good quality grown under the present conditions of early Potato production—they are forced so much. He had eaten Epicures that were as good as Sutton's Abundance, because they were not forced and were allowed to mature. Sir Robert Greig suggested that if they could educate the English people in their taste for Potatos, it would be better for Scottish and Irish growers, but the English would persist in eating an extremely bad Potato, such as King Edward. He supposed the best quality Potato to-day was Golden Wonder which, except in exceptional circumstances, was not a great cropper, and he wondered if Mr. McKelvie could give them a Golden Wonder that would produce from twelve to sixteen tons to the acre.

Preservation of Wild Flowers.—The Committee of the Botany Section of the British Association, in an interim report issued at Glasgow on September 7, on the question of the Preservation of British Plants, states that it has rejected the proposal for a Plant Protection Act of Parliament with a list of scheduled plants whose gathering would be prohibited by law, on the grounds that it would draw attention to the rare species and would be very difficult to enforce. Among the methods by which the problem of protection might be approached was the suppression of hawkers who dug up and sold large quantities of certain species in some areas, and of all who indulged in the practice of digging up plants for planting in private gardens. The stripping of the countryside of its flowers by motorists and other members of the general public, which was a disgusting scandal in the neighbourhood of our large towns, could only be met by an educational campaign. Dr. Hamshaw Thomas, Cambridge, announced that as a result of a resolution passed at the conference of delegates last year, the Under-Secretary of State had called a conference to discuss the possibility of devising an effective form of bye-law for the preservation of wild plants in Britain, and the following bye-law had been approved :—" No person shall (unless authorised by the owner or occupier, if any, or by law so to do) uproot any Ferns or other plants growing on any road, land, roadside way, roadside bank, or hedge, common, or other place to which the public have access." Dr. Thomas pointed out that if local authorities would apply for, and use, that by-law it would provide for the first time a means of checking the uprooting of many of our beautiful wayside plants which had been proved to be in great danger of destruction.

Mr. H. G. King.—The new Superintendent of the Public Gardens at Twickenham, Middlesex, had his early training at Messrs. S. Bale and Son's nursery, Westacott, Barnstaple—where the late Mr. John Heal, and the brothers Curtis also commenced their horticultural education—and gained considerable experience with forest trees and tree planting on a large scale in the west of England. Leaving Westacott, he was employed in the gardens at Kings Close House, Barnstaple, and then entered the nurseries of Messrs. Robert Veitch and Son, Exeter, where he became acquainted with and learned to cultivate many choice and new trees and shrubs. From Exeter, Mr. King went to Kew, and after a year's experience in the Flower Garden Department, was transferred to the Arboretum, under Mr. W. Dallimore. Later, the Camberwell authorities applied to Kew for someone to supervise the trees and tree planting in the streets under their control, and Mr. King was engaged to undertake the work. Here he remained for some considerable time, and eventually became Assistant Superintendent of the Camberwell Parks Department—and thence to Twickenham.

MR. H. G. KING.

Manchester Parks Staff Outing.—The members of the Manchester Parks Staff Society made Edinburgh the venue of their annual outing on August 25 ; nearly two hundred members and friends attended. The party left Manchester on the Friday, midnight, and after breakfasting in the train were met by Mr. J. T. Jeffries, Superintendent of the Edinburgh Parks, and his assistant, Mr. Buchanan. Following an inspection of the fine Princess Street Gardens, vehicles—provided by the Edinburgh Parks Committee—conveyed the party to Saughton Park, where the Rose and Dahlia gardens were inspected. After viewing the Royal Scottish Zoological Gardens, a tour of sightseeing followed, the Castle, the City and Holyrood Palace being visited, while a drive around the King's Park completed the tour. After lunch, the members crossed the Forth Bridge to Burntisland by train and returned by steamer to Granton, and thence by motor-coaches to the Royal Botanic Gardens. At tea, the Convener of the Edinburgh Parks Committee welcomed the Society to Edinburgh, and then Professor Wright Smith, Director of the Royal Botanic Gardens, and Mr. Stewart, received the members and conducted them around the gardens. Unfortunately, rain marred a portion of the visit, but Inverleith Park and Nursery were inspected and the party returned to the train for supper and the return journey. The Society is deeply indebted to Professor Wright Smith, Mr. Stewart and Mr. Jeffries for the arrangements made for the reception of its members. The outing was admirably organised by the Hon. Secretary, Mr. L. E. Morgan, N.D.H.

The Common Barberry in Ontario.—From a leaflet published by the Ontario Department of Agriculture (Circular No. 50, July, 1928), we learn that war has been declared on the common Barberry (Berberis vulgaris) and its purple-leaved variety (B. v. atropurpurea) because these act as host plants to the stem rust of grain crops in that province, as elsewhere. It appears, however, that although Ontario has a law prohibiting the sale and cultivation of the Barberry, it has no law compelling the destruction of existing plants, notwithstanding that " the Barberry is a menace to grain which should not be tolerated by the farmers of Ontario." Salt and kerosene are recommended for the destruction of bushes of the common and purple forms of B. vulgaris, but Professor J. E. Howitt, the author of the leaflet, points out that the Japanese Barberry, B. Thunbergii, is not subject to rust, and therefore may be grown for ornamental purposes without menacing the grain crops.

"The New Flora and Sylva."—Under this title Mr. E. H. M. Cox proposes to issue " a quarterly Journal devoted to Plants and their Cultivation in Gardens." The publication is to be of royal octavo size, and there will be at least seventy-two pages of text and sixteen pages of half-tone illustrations in each issue. The price per issue will be 6/–, or £1 for an annual subscription.

Brighter Sheffield.—The very successful " Brighter Sheffield " movement, which owes its inception to Mr. J. Cyril Lockwood, has achieved great things, thanks to the encouragement it has received from the *Sheffield Telegraph*. Mrs Lockwood is himself a keen amateur gardener, and the illustration on page 215 shows that he contributes in a practical way to the beautification of the great cutlery city. In connection with this movement, an exhibition was held in the Cutlers' Hall, Sheffield, on Saturday, September 1, when a first-rate display of cut flowers, floral arrangements and wild flowers was provided. The opening ceremony, gracefully performed by the Countess of Wharncliffe, was presided over by Colonel Sir Charles Clifford, the President of the " Brighter Sheffield " movement, who stated that " for some time past Sheffield had been rather maligned, having been described as nothing but a forest of chimneys and everlasting smoke. Sheffield had within its boundaries a large number of amateur gardeners, and the cultivation of gardens had now grown to such a degree under the 'Brighter Sheffield' movement that neighbours were vieing with each other—in a kindly and friendly spirit, of course— to make their gardens as bright and cheerful as possible." The results achieved in one year are wonderful, and Mr. Lockwood and his friends are to be congratulated upon the energy with which they have conducted the movement and the splendid work that is the outcome of their efforts. Of course, it was not possible to bring the gardens and the window boxes to the Cutlers' Hall, but the flowers showed that floriculture—for which the city was justly famous in years gone by—is not a lost art in Sheffield. Mrs. L. Bartrop, Handsworth ; Mr. J. Coldwell, Ecclesfield ; Mr. F. Carr, Stannington ; Mr. G. Waller, Abbey Lane; Mr. S. Rowlinson, Manor Estate; Mr. W. H. Jubb, Wadsley; Mrs. A. Ellis, Ranmoor; Mr. W. Blackwell, Arbourthourne Road; Mr. F. W. Baker, Kelvin Grove; and Mr. R. King, Hanover Street, were all winners of prizes for gardens in the several districts of the city. We are glad to notice that the great manufacturing firms, so intimately associated with Sheffield, give their hearty support to this new movement. Moreover, the Lord Mayor expressed the hope that the Corporation would also lend its aid to this altogether charming, cheering and useful enterprise.

Roadside Planting: Kingston By-pass Road.—Through the kindness of Sir William Lawrence, we have received a plan of the lay-out of the planting of the Kingston By-pass Road, Surrey, under the auspices of the Roads Beautifying Association, and we have pleasure in reproducing the plan on this page (Fig. 91). It is proposed to entrust the planting of the whole of a road, such as this by-pass, to one nurseryman; the actual planting will be done by the local authority, but the foreman representing the nursery firm supplying the trees will exercise general supervision, and suitable arrangements will be made for staking, protecting and after-care. The cost of beautifying the Kingston By-pass Road will be approximately £1,200, of which sum half will be found by the Ministry of Transport, one-third by the Surrey County Council, and one-sixth by the Roads Beautifying Association. The planting under consideration is the first step in a scheme which may ultimately affect the general appearance of the country. It might be objected that in the present case there are too many bushes and shrubs and not enough shade trees. Or again, that the planting should be confined to trees indigenous to, or long established in this country; it must, however, be remembered that the country through which this by-pass runs is essentially urban in character, and it must not be assumed that the R.B.A. would recommend similar planting in the case of a country highway; indeed, planting plans for Tolworth, Kingston Vale and New Malden show that a considerable variety of trees and shrubs will be used even in the Kingston district.

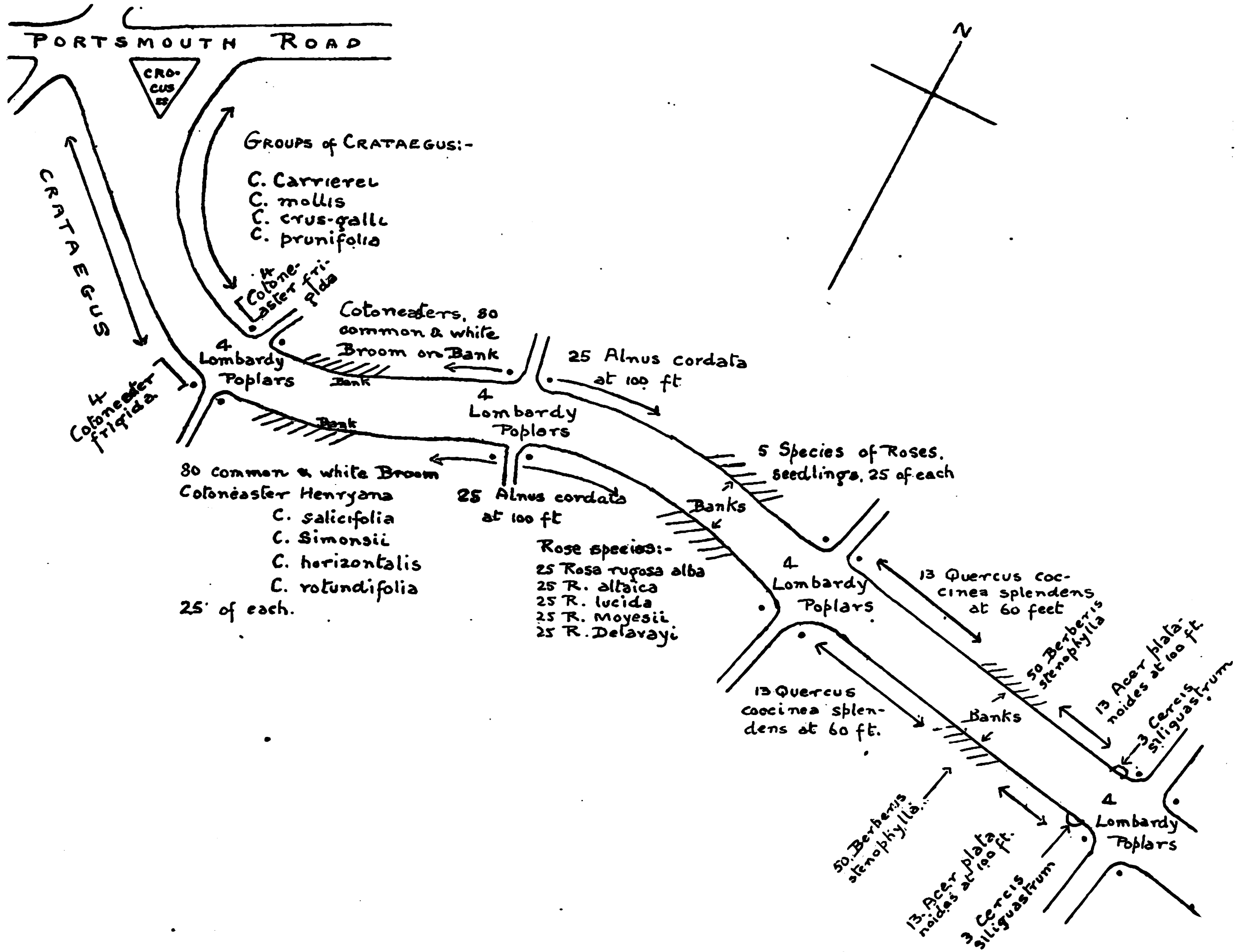
PORTSMOUTH ROAD
CRO-CUS
N
GROUPS of CRATAEGUS:-
C. Carrierei
C. mollis
C. crus-galli
C. prunifolia
CRATAEGUS
4 Cotoneaster frigida
4 Cotoneaster frigida
Cotoneasters, 80 common & white Broom on Bank
4 Lombardy Poplars
Bank
Bank
25 Alnus cordata at 100 ft
4 Lombardy Poplars
80 common & white Broom
Cotoneaster Henryana
C. salicifolia
C. Simonsii
C. horizontalis
C. rotundifolia
25 of each.
25 Alnus cordata at 100 ft
Rose species:-
25 Rosa rugosa alba
25 R. altaica
25 R. lucida
25 R. Moyesii
25 R. Delavayi
5 Species of Roses. seedlings, 25 of each
Banks
4 Lombardy Poplars
13 Quercus coccinea splendens at 60 feet
50 Berberis stenophylla
13 Acer platanoides at 100 ft.
3 Cercis siliquastrum
13 Quercus coccinea splendens at 60 ft.
Banks
50 Berberis stenophylla
13 Acer platanoides at 100 ft.
3 Cercis siliquastrum
4 Lombardy Poplars

FIG. 91.—PLANTING PLAN FOR THE KINGSTON (SURREY) BY-PASS ROAD.

Appointments for the Ensuing Week.—TUESDAY, SEPTEMBER 18: Winchester Horticultural Society's meeting. THURSDAY, SEPTEMBER 20: Ipswich Gardeners' Association meets. FRIDAY, SEPTEMBER 21: Hove Horticultural Association's exhibition (two days).

"Gardeners' Chronicle" Seventy-five Years Ago.—*Nurserymen's Catalogues.*—The late Mr. Loudon, in his "Gardeners' Magazine," often recurred to the botanical and other inaccuracies which then existed in nursery and other lists, and to the paucity of correct botanical knowledge generally amongst the leading establishments of the time in which he lived. It will not be difficult to prove that though many and great improvements are constantly being effected in every department of horticulture, we are at a standstill in this the very science to which we are indebted for the foundation and subsequent developments of gardening, furnishing us, as it does, with information concerning the locality and peculiar attributes of every subject belonging to the vegetable kingdom. A nursery catalogue is often the only tangible evidence of the existence of the establishment, and for that evidence to create a favourable impression, it is to the interest of the proprietor that it be correct. The number of correct catalogues are few, compared with the many that are wanting in this essential particular. I have examined nine lists of plants and seeds, and only found three out of that number entirely free from errors, and of these two were catalogues representing the stock of two of the most eminent firms near London, containing hundreds of botanical names, and many of them hard to pronounce; consequently the merit of having spelled them correctly was the greater. The result showed that the smaller the catalogue the larger is the number of mis-spelled names which it contains. In one list, out of 170 botanical names there were thirty wrongly spelt, which is nearly twenty per cent. of inaccuracies. Among the errors were the following:—Teucrium pyren*ana*cea, Zausch*e*n*a*ria, Saxifraga opposit*a*folia, Cruci(a)nella, Trapaeol*i*um, Lob*l*(b)ianum, T. Ho*c*(o)kerianum, Sedum s*a*(e)xangular*ia*(e), Hemer*o*icaulis, L*y*(a)th*e*(y)rus, Lyth*e*rum, m*o*(c)*ss*oleucum, oc(h)roleuca, &c. In one seed list Broccoli was spelt Brocoly; Borecole, Burcole; a new Lychnis was spelt dioca alba plena for dioica. Let it not be forgotten that the catalogue, whether right or wrong, indicates the botanical calibre of the establishment it represents; the fact of their often being referred to as an authority is a sufficient inducement for the nursery or seedsmen to study its botanical character. *R. Miles, Kingsdown.* [We wish we could contradict this statement, which is rather within than beyond the truth.] *Gard. Chron., September* 10, 1853.

Publication Received.—*Rock Gardens*, by F. F. Rockwell; The Macmillan Company, New York; price 4s. 6d. net.

The Week's Work.

THE ORCHID HOUSE.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

Odontoglossum grande.—This species and its variety Williamsianum, also O. Insleayii and O. Schlieperianum, which require slightly warmer conditions than the other members of the genus and produce their flower scapes on the partly developed growth, are in flower at the present time; the plants require an ample supply of water at the roots at this stage and after the flowers have been removed until growth is complete, when very little water is needed to keep the bulbs in a normal condition. These Odontoglossums thrive best at the cool end of the intermediate house. A large mealy scale often attacks the plants and spreads quickly if not removed in an early stage.

Cypripediums.—Many of the autumn-flowering Cypripediums, such as the dainty C. Fairieanum, C. Charlesworthii and several hybrids derived from these species, and others, are now developing flower buds and every encouragement should be given to assist the plants to produce good quality flowers. Root action is generally very free at this stage and ample supplies of water are required at the roots, which should never be allowed to remain dry for long periods, or deformed flowers are likely to appear. The flower scapes should be secured loosely to a neat stake to prevent the stems becoming twisted, and the plants placed where they may receive plenty of light, only shading them from direct sunshine during the hottest part of the day. By the end of the present month they should require all the available light. Plenty of fresh air should be given on all favourable occasions, leaving a little on all night during suitable weather. Near large towns and in manufacturing districts it may be necessary to sponge the foliage with soapy water to remove the dirt which enters when the ventilators are open. Fumigate the house occasionally to keep thrips in check, for if these are allowed to gain a hold they quickly disfigure the foliage and cripple the flower buds.

Newly Potted Odontoglossums.— It is best to place the newly-potted plants together so that their requirements may be attended to easily. Keep the surroundings moist and shade them from direct sunshine, especially those plants that have deteriorated and have very few roots. If the compost was in a moist condition when used, very little water is required for some weeks, until the new roots are well established in the soil. Plants that were potted on without much disturbance need a little more water to keep the lower roots in condition. Odontoglossum Rossii, O. Cervantesii, and other dwarf growing kinds do best in pans and may be grown suspended at the warm and moist end of the house. An occasional light spraying overhead is beneficial to them.

THE KITCHEN GARDEN.

By Allan Falconer, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Seed Saving.—While we may rely on the seedsmen for good strains of seeds, I am of the opinion that where stocks of unusual excellence occur it is really worth while to go to the trouble to save seeds, and if possible improve on existing strains. Many vegetables may be grown on and their seeds ripened even in the north of England, and in favoured districts the work entails little trouble.

Tomatos.—Those in full bearing should have the leaves shortened back to allow as much light and air as possible to reach the fruits to facilitate ripening, as, usually, the houses occupied by this crop will be required at the end of the month for Chrysanthemums. The partially ripened fruits may then be picked, and if stored in a dark, dry place, will soon ripen and be useful to extend the season until the winter-fruiting plants commence to ripen their crops. The unripe fruits should be used for making Tomato chutney, as it is practically impossible in most places to allow plants to remain for the sake of a few fruits, glass structures being needed for other things at this time of the year. Some seeds may be sown now to produce plants for early fruiting in the spring.

Mushrooms.—September is the ideal month for spawning Mushroom beds outside, and where suitable materials can be procured, even quite small beds will give good returns during the winter. When selecting material for the purpose, I would not advise taking too much litter away from the manure, as it will be found the manure does not dry readily if the litter is removed. Place a sufficient quantity of this manure in a heap to ferment for a few days, then turn it several times, when it may be strewn thinly over the floor of an open shed to dry, turning it occasionally. When fairly dry it should be placed in a heap prior to making up the bed. The bed may be made in an open position or against a south wall. If the Mushroom spawn is planted when the temperature of the beds is about 90°, and the heat is declining, good Mushrooms may be obtained all the winter. Proper attention should be given to covering the beds with two inches of maiden loam two days after spawning, making it firm; cover with plenty of good, clean Wheat straw, and something to keep the rain off. Roofing felt is an excellent material if fastened to a skeleton framework. Beds which are declining may be induced to produce a further crop by giving them a thorough watering with warm water to which has been added half-an-ounce of common salt to the gallon. Where the beds are very dry it is an advantage to bore holes at convenient intervals to allow the water to thoroughly soak the bed; usually in about three weeks' time quantities of Mushrooms will again appear.

Parsley.—Plants from a summer sowing may be lifted with good balls of soil and planted in cold frames six inches apart; keep the surface soil well stirred to induce the plants to make as much growth as possible before the winter, during which they may be protected during bad weather so that leaves are available at short notice during frost and snow, when it is sometimes difficult to obtain Parsley from the open quarters. Beds in the open which have been cut over should be given every inducement to make sturdy growth, which will withstand frost and snow later, by keeping the soil well stirred.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Early Vineries.—Where early Grapes have failed to give good results, the trouble may be due to the compost being exhausted. If this should be the case, the present is a most suitable time to overhaul the borders, as the vines will then have time to form new roots before they are started into growth at the end of the present year. When performing this operation of root-lifting, the work should be commenced at the extreme front of the border, removing the old soil carefully with a four-tined fork, and preserving all the roots possible. As the work proceeds, the roots should be kept in view until the whole of the old soil is removed, and they should then be tied in bundles and kept moist by covering them with damp sacking or some other material that will hold moisture, until the drainage has been put in order, and the new compost is placed in readiness to receive them. Where borders are extra wide, it may be wise to curtail them somewhat, leaving room for extending purposes when it is thought necessary to provide it.

Compost and Drainage.—When renewing a vine border, the first item to consider is the drainage, which should consist of bricks stood on edge, about two inches apart; these should be placed systematically over the bottom of the trench. Next, add sufficient broken material of a hard nature to form the necessary drainage, and over this place newly-cut turves, grass-side downwards, to form a base for the compost, which should consist of good, rich loam, coarse bone-meal, old mortar-rubble and coarse grade Vine manure, but the latter should be used moderately, otherwise good results may not be forthcoming. The compost should be dry enough to allow for consolidation by treading it evenly in layers. When sufficient soil has been placed in position for accommodating the first layer of roots, the latter should be spread out evenly over the soil, removing all faulty and injured roots by severing them with a sharp knife and not with a blunt instrument. This business completed, place a little soil over them and make all firm; follow with another layer of roots and soil, and repeat the work until the border is completed. The work of lifting and renewing a vine border should be carried out in the shortest possible time, but with the greatest care, therefore it is advisable to prepare the compost first so as to speed up the work. When the border is finished, the vinery should be kept fairly close for a short time, with a damp atmosphere, and shaded from bright sunshine.

Storage of Soil.—The present is a suitable time to store soil for the renewal of fruit tree borders, and for top-dressing purposes which take place annually during the winter months. The soil should be cut from old pasture land, choosing, if possible, the highest position to cut from. Store the turves in an open shed, or, failing this, stack them outside and afford protection from rain.

PLANTS UNDER GLASS.

By J. Coutts, Assistant Curator, Royal Gardens, Kew.

Bouvardias.—If these were planted out-of-doors for the summer months they should now be lifted and placed in pots of suitable size. After being potted they should be watered thoroughly and stood in a pit where they may be kept close and shaded until they recover from root disturbance. Where they are grown for a supply of cut flowers it is a good plan to plant them out in a raised bed in a house of moderate size; grown in this manner they should furnish a supply of cut flowers over a long period. Before they are lifted from the open ground they should be cut around with a spade a week before it is intended to move them, they should also receive a thorough soaking at the roots on the day before they are to be lifted. The foregoing remarks also apply to Salvias, Solanums, Chrysanthemums, and other plants that have been grown in the open during the summer.

Roof Climbers.—All climbers in plant houses should, wherever possible, be thinned out, as it is important at this season to admit all the light possible to the plants underneath; this thinning should, of course, be only partial now, and should be carried out with care and judgment. The shading of plant houses should now be reduced to the minimum, thus allowing plants to harden and mature their growths before the dull days arrive.

Roses.—Where Roses are grown in pots, the stock should now be overhauled, repotting any that need it. If the plants are in good condition at the roots and repotting is not necessary, they should be turned out and have faulty drainage corrected. Several inches of the top soil should then be removed and a top-dressing applied, consisting of loam and a six-inch potful of bone-meal to every bushel of soil, with enough coarse sand to keep the whole porous; the plants should then be plunged to the rim in ashes, in an open, sunny position. Many of the dwarf Polyantha Roses are ideal for pot culture; if lifted from the open ground towards the end of October and placed in pots, they should become sufficiently established to give a good display the following spring. They are all easily propagated from cuttings, and it is an easy matter to keep up a stock for this purpose by propagating the required number each year, and thus maintain a succession of young, healthy plants. Some excellent varieties for this purpose are Mrs. H. Cutbush, Orleans and its red variety Locarno, Coral Cluster, Golden Salmon and Ellen Poulsen. There are now some fine new varieties which should prove excellent for this purpose when they are more reasonable in price.

HARDY FRUIT GARDEN.

By T. E. Tomalin, Gardener to the Earl of Bessborough, Stansted Park, Emsworth Sussex.

Preparations for Planting.—Although the planting of fruit trees is not usually undertaken until the month of November, the proposed sites should now be selected, and the preparation of the ground proceeded with at every opportunity. I propose, at intervals during the next few weeks, to give selections of varieties of the different kinds of fruit trees, but, at the moment, shall confine my remarks to the general preparation of the ground. The nature of this preliminary work must vary according to the soil to be dealt with. On light soils there is no doubt that deep trenching is advantageous to the future growth of the trees, and, even if it is not practicable to trench the whole area to be planted, it may be possible to prepare the site for each tree, by trenching a piece six feet square and incorporating some good turfy loam with the staple soil for the trees to root in. On heavy soils, where deep trenching has been practised, the trees usually make very strong growth, which is very susceptible to canker in the second year. On these heavy soils the site for each tree may be excavated to a depth of one foot, and the hard subsoil broken up with a pick to ensure drainage. A six-inch layer of broken bricks may then be rammed into the bottom of the hole, thus leaving a depth of six inches or so for the roots of the tree. The object is to keep the roots near the surface where they may be fed as required. In the case of some of the more delicate varieties, such as Cox's Orange Pippin Apple, it is often advisable to plant almost on the surface, and to mound up the soil sufficiently to cover the roots. It is seldom advisable to add fresh manure to the land for planting tree fruits, but light soils will certainly be benefited by the addition of some good turfy loam, and it may be an advantage to heavy soils if a proportion of wood-ash and mortar-rubble can be added. Manure may be applied later on as the trees need it, either as a surface mulch or, when well broken up, it may be lightly forked in as a top-dressing.

Bush Fruits.—Small fruits often occupy the same ground for several years and, as they usually bear heavy crops, thorough preparation of the ground is well worth while. The site for these should be trenched well, and a good layer of farmyard manure placed over the broken up subsoil. If the soil consists of heavy clay, some wood-ash or other light material should be incorporated with the top spit as the work proceeds.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to the Duke of Devonshire, Chatsworth, Bakewell, Derbyshire.

Plants in Tubs.—These are grown in increasing numbers for the embellishment of terraces, balustrades, stone steps, and Old English or other formal gardens or court yards, and are a distinct addition to the garden in situations where flower beds are unsuitable or impossible. The same remarks as to constant attention apply to these as to the garden vases. Many plants grown in tubs for furnishing conservatories and winter gardens may be used for this purpose, and the plants benefit considerably by their sojourn in the open air for a few months. I refer particularly to the hardier Palms, Cordylines, Orange and Bay trees, Camellias and other subjects of a more or less permanent character. Most of these should be placed where they may be in shade for at least the hottest part of the day, as after being under glass for the greater part of the year the foliage is very susceptible to injury, unless the plants are gradually inured to outdoor conditions. Many of these have probably been in the same tubs for years, consequently constant supplies of water and stimulants are necessary and the foliage plants are benefited by daily syringings during hot periods, preferably in the evening. Specimen plants of Agave americana should be put in the sunniest and hottest spot, as they revel in such conditions.

Perennial Asters.—The early flowering varieties, especially those of the Amellus type, are now making a good show, and the main batch should soon be in full bloom. With the increased number of greatly improved varieties now in existence, the flowering period has been extended over several months, and if good weather is experienced, the latest varieties make a charming feature during October and November. The flower sprays of the stronger varieties become very heavy as the season advances and strong stakes and ties are necessary to keep them secure from damage in exposed positions. The stakes should be placed so that they are not obtrusive. Perennial Asters require abundance of moisture at the roots, and the recent rains came just when moisture was wanted, so that the plants now look particularly promising for a fine show if good weather is experienced while they are in bloom. They thrive in almost any reasonably good soil or situation, and are seen to great advantage when cultivated in a border by themselves—where a comprehensive collection may be grown, and the varieties tested and compared. They make a particularly interesting border, and should be tried if only on a moderate scale. These Asters are indispensable in the mixed border—especially the good blue and lavender sorts—these giving the shades of colour which are such a pleasing relief from the white, yellow and scarlet colours which predominate in the herbaceous border.

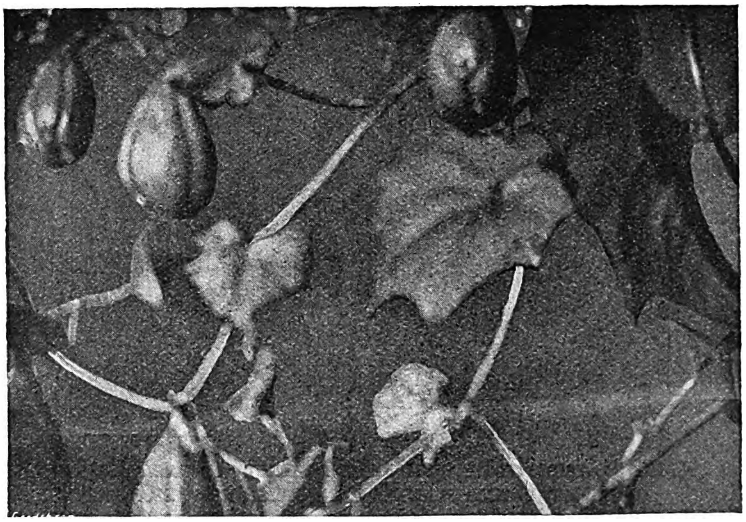

FIG. 92.—THE CHOKO IN FRUIT.
(see p. 206).

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener at Jordanhill Training Centre, Glasgow.

Early Peach trees.—So soon as the fruits have been gathered from early Peach and Nectarine trees, measures should be taken to rid them of insect pests, which always appear again during the fruit-ripening period. Where the house is devoted to early varieties only, no difficulty is experienced, as syringing or washing the trees frequently with the hose soon cleans them; but where both early and late varieties are grown together more care is required, and each tree should be treated separately, and for this purpose a specific named Spidacide has been found very effective. The fruited growths which are no longer required should be cut out at an early date, thus allowing plenty of light and air to reach the young shoots which are to form the fruiting wood next season. The border should be given a good soaking once or twice with clear water, and when it has been thoroughly saturated liquid manure may be applied in a diluted state, or artificial manures applied and watered in well. By these means the trees are enabled to swell their fruit buds for next season, and when properly attended to during the autumn months there is less danger of severe bud-dropping when the trees are starting into growth again next spring.

Herbaceous Calceolarias.—Seedlings of the large-flowered Calceolarias which were pricked out into small pots some time ago should not be allowed to starve in these, but should be placed in four-inch or five-inch pots now. Where the seedlings were pricked out into boxes, they should also be potted up, using pots which will accommodate their roots without crowding, and in which they may pass through the winter. A cool, shaded house should suit Calceolarias splendidly, and if kept on the dry side during frosty weather, a few degrees of frost will do them no harm, but they resent heat, and many failures with this handsome race of plants may be attributed to no other cause. Insect pests should be kept strictly under control by repeated fumigations, and it will be found that under cool conditions these do not prove nearly so troublesome as when the plants are growing under warm conditions.

Carnations.—Where border Carnations were layered early the young plants should now be rooted, and if new beds are to be planted no time should be lost in getting them prepared. Deep cultivation, with the addition of wood-ash and lime to the top spit is advised, and where the soil is in good condition it is unnecessary to add farmyard manure, as the Carnation family benefits greatly from top-dressings of suitable artificial manures during the growing season. Previous to lifting the layers, an examination should be made, and if satisfactory, they should be severed from the parent plant a few days before lifting actually takes place. Border Carnations and Malmaison sorts which are intended for growing on in pots should be potted into three-inch or four-inch pots now, and if given the protection of a frame or cool house will come safely through the winter and make good plants for potting on into their flowering pots next February. Border and Malmaison Carnations which have flowered for the first time this year in pots should have their growths reduced to six or seven of the best, and each growth supported with a stake, before potting them into larger pots. These two-year-old plants usually produce a fine crop of flowers and if attended to regularly during the season, provide useful material for layering again next year.

THE CHOKO OR CHO CHO.

The fruits of Sechium edule are rare in the Old Country, at least, I had not seen any previous to my leaving for the Dominion in 1913. They are known here as Choko, Cho Cho, Chayote, or vulgarly, as Chow; Chayota edule appears to be the name adopted in America in place of Sechium edule. The plant is a native of the West Indies, where it is largely cultivated. The fruit (Fig. 92) is used as a vegetable, like the Vegetable Marrow, and it belongs to the same Natural Order—Curcurbitaceae. In this Order it is remarkable and distinct, quite unlike anything else, for instead of containing a number of seeds, the fruit has one seed only, which germinates within the fruit, so that to obtain a plant the fruit itself must be sown. The fruit obviously supplies a large store of nutriment for the young plant. The seed is fused with the walls of the fruit, as may be seen by cutting through a partly-grown specimen. Germination has already commenced while the fruit is attached to the parent plant; roots appear, but a radicle is not visible. The early growth of the plumule may be seen between the cotyledons, which gape apart; the suture, or fissure of the fruit which permits the seed to be seen is quite natural in the mature specimens, and appears to be formed by limitation of growth along its line, yet there is a breaking away, because in the younger fruits, in which the fissure is well formed, the flesh is solid and continuous over the seed.

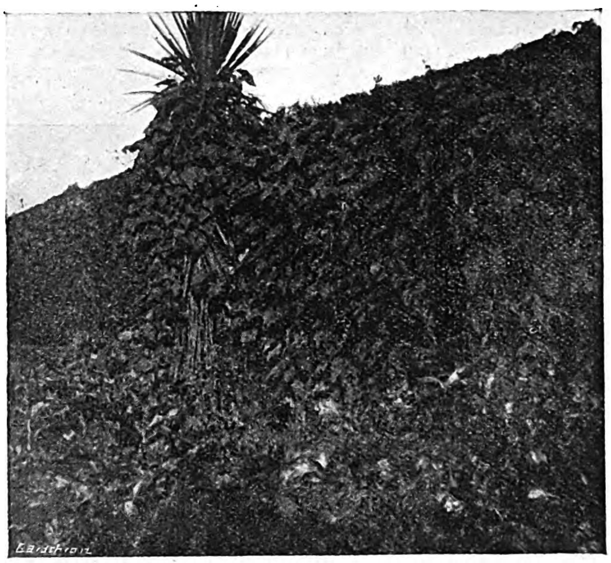

FIG. 93.—THE CHOKO GROWING AGAINST A WALL IN THE OPEN, AT PUKEMARANIA, RONGOTEA, NEW ZEALAND.

The economic importance of the Choko appears to be great. It is described as extremely wholesome and commonly used in the West Indies as an article of food by all classes, and also as providing a very fattening food for pigs and other animals. There are two forms, similar in colour, but in one the fruit is covered with soft spines, while in the other it is smooth. In its habit, Sechium edule may be very like a Cucumber plant, except that the leaves are smaller, less rough and of a paler green. The flowers are unisexual (monoecious), and assistance in pollenation is probably necessary, but here pollenation is effected by bees.

Growth is phenomenally rapid, and as may be seen (Fig. 93) the plants make a splendid covering for any well-protected corner. In this part of New Zealand, Sechium edule is extremely rare, but in Auckland and farther north is is very common. We grow it here for vegetable displays and for home use. I should think it would do well in some of the southern gardens in England, and make a good addition to the table and to vegetable exhibits. *G. A. Aggett (gr. to J. F. McKelvie, Esq.), Pukemarania, Rongotea, New Zealand.*

INDOOR PLANTS.

STRELITZIA REGINAE.

This most attractive member of the genus Strelitzia (named in honour of the wife of George III, Charlotte of Mecklenburgh—Strelitz), is a noble plant with dark green, spoon-shaped leaves on stems three to four feet in length and curiously shaped spikes of orange-red and blue flowers, from which it gets the name Bird of Paradise Flower.

A native of South Africa, it has long been in cultivation in botanic gardens in this country. In the houses at Kew several fine clumps of this plant may be seen, which are much admired and often confused by visitors with the genus Musa.

Notwithstanding its striking appearance, however, it is but seldom seen in gardens, but to those possessing a warm greenhouse its culture presents little difficulty. It succeeds best planted out in the border of a greenhouse with a minimum temperature of 55°, but also does well when potted in a mixture of equal parts peat and turfy loam, with the addition of silver sand and broken crocks to keep it open. It should be freely supplied with water during its growing season, but at other times needs keeping on the dry side, a rest being beneficial previous to producing its flowering spikes, which last over a long period.

S. Reginae may be propagated by seeds, suckers or by division of the old plants. It is interesting to note that in its native habitat, the seeds are eaten by the Kaffirs.—*W. Ibbett.*

BEAUMONTIA GRANDIFLORA.

This very desirable evergreen climbing plant is seen to the best advantage when planted out in an intermediate or warm house; it thrives in a well-drained mixture of fibrous loam and peat and, with a little careful management, should clothe a pillar or rafter and prove delightful in spring, when carrying a profusion of its white, Lily-like blossoms. An annual pruning on the short-spur system is advantageously reflected in sturdy growth and quantities of flowers.

The flowers, in form and size, are reminiscent of Lilium longiflorum; the corolla is white, flushed at the base externally with green, and the throat, too, is shaded. The axillary and terminal corymbs are many-flowered. The opposite leaves are broad, oblong-ovate and tapering towards the base, smooth above, somewhat downy on the under-surface; the young leaves and branches are brownish and pubescent. Beaumontia grandiflora is propagated by cuttings placed in a moist heat.

Commemorating Mrs. Beaumont, formerly of Bretton Hall, Yorkshire, this magnificent and once much-prized plant was introduced in 1818 by Dr. Wallich. In eastern Bengal it grows at Chittagong and Sylhet, and it is also found at Noatsoti, in Nepaul. B. grandiflora is figured in *Bot. Mag.*, t. 3213. The somewhat new B. fragrans closely resembles the older species, the chief differences being its shorter flowers and different calyces; the flowers of both species are deliciously perfumed and last well. *Ralph E. Arnold.*

HARDY FLOWER BORDER.

PLATYCODON GRANDIFLORUM, HOMESTALL VARIETY.

This fine variety of a beautiful flower came into bloom with me a little after mid-August and is very much admired at the present time. These Platycodons are delightful plants, and are usually met with in borders, while they are also capital subjects for large rock gardens. They appear to be much scarcer than they were at one time, and one looks in vain for the taller, single and double varieties in blue or white, besides the dwarfer and superior P. g. Mariesii, which was much sought after at one time. The Homestall variety, which emanated from the gardens at Homestall, and was recently described in the *Gard. Chron.*, is a delightful form, said to grow eighteen inches high, but with me it is only about twelve. It is grown on an elevated ledge in the rock garden and is a charming plant, attracting notice when in bud by the blue, unopened blooms being shaped like a balloon, whence the popular name of Balloon Flower. When open, the flowers are almost salver-shaped and of a light blue. In the past P. g. Mariesii, in blue or white, has been a favourite plant, but this Homestall form may take the place of it for it seems to be difficult to procure now. When these Balloon Flowers are grown on rockwork they look well hanging over a large stone, the fine flowers showing well when thus displayed. A moderately-light soil suits the Platycodons, but it should be well-drained.

HELIANTHUS LAETIFLORUS.

Perennial Sunflowers, or Helianthuses, are not in such great favour as was their lot a few years ago, but they are indispensable in the herbaceous border in autumn. One of those which have some claim upon us is that named Helianthus laetiflorus (syn. H. sparsifolius), which is suitable for the back of the border. The first season after planting it may not attain its usual stature of from five to seven feet, but, even at the five feet it reaches the first season, it is quite a good border plant. It has broad, rough foliage and many large, golden-yellow flowers, rather more than four inches across, which generally come semi-double but are occasionally single. The flowers, being produced in long stems, are valuable for cutting, but they should be cut before the central or disk florets are open. This vigorous plant should be planted in deeply worked, well-manured soil. It is all the better for a sunny position, although it grows fairly well in half-shade. Planting may be effected in late autumn or in spring. I am not aware of seeds having been offered, but propagation may be effected by division in spring. Some doubt has been cast upon its hardiness, but it is hardy here. *S. A.*

MIMULUS BARTONIANUS.

Too large for the rock garden, Mimulus Bartonianus may well find a place in the herbaceous border, or even in a semi-bog, although I think the latter may prove sometimes too wet for it, except in a dry district. Its parents are said to be M. Lewisii and M. cardinalis, and it has the stature of these, growing about three feet high, and soon making a good mass. It has flowers which have been well described as old rose with a yellow throat. The only danger connected with the cultivation of M. Bartonianus is that it may spread too rapidly for the welfare of less vigorous neighbours, so that discretion should be exercised in planting it beside less free-growing subjects. There is apparently some little doubt about its hardiness, but I do not think there need be this uncertainty, provided that it has a well-drained place. The grower may expect to have in a couple of years' from quite a small plant, one from two to three feet across.

With such a free-growing subject as M. Bartonianus, division affords a ready means of propagation. *S. Arnott.*

◆

GERANIUM WALLICHIANUM VAR. E. C. BUXTON.

Geranium Wallichianum is a Himalayan species which was introduced about a century ago. It is a trailing plant and a herbaceous perennial with fleshy, tuberous roots and bluntly-lobed leaves which are comparatively small for the size of the plant. These leaves are a medium, greyish-green, often clouded or mottled with a darker shade, and they, as well as the many-branched stems and sepals, are frequently tinted with red, especially when the plant is grown in full sun. The saucer-shaped flowers are about an inch across, their colour being rather a washy purple with a broad eye of a paler shade.

A much more charming plant than the type, however, is G. W. var. E. C. Buxton, which occurred as a seedling a good many years ago in the late Mr. Buxton's garden at Bettws-y-Coed.

While this fine form is precisely like the above in all other particulars, its flowers are a clear blue with a whiter, more distinct eye. Indeed, this is probably the bluest of all the so-called blue Geraniums, the flowers, when they first open, suggesting those of Nemophila insignis. Fortunately, this fine and distinct variety comes fairly true from seeds, but I find that the colour of the flowers varies a little with differences in soil and situation and also with the season. Like the type, this striking Geranium is late flowering, producing innumerable blossoms continually from July until fairly late in the autumn. Differing from most of its kind, it is a shade-lover and never does (or looks) so well as when in a border against a north wall or other sun screen. A light, gritty, even stony soil is desirable, and in such a medium the plant is quite reasonably hardy.

As it resents root disturbance, seedlings always make the finest plants. The seeds, which are not yielded very freely here, may be sown in the open ground in early summer, and if the seedlings are grown on without a shift they often flower the following year. For a position on the north or easterly side of a rock garden this is a delightful subject for autumn flowering. A well-grown plant soon cover a couple of square feet or more and, if given the opportunity, clambers up into a neighbouring shrub with a pretty effect. *J., N. Wales.*

GENTIANA ASCLEPIADEA.

The Willow Gentian, as it is called, is a native of European sub-alpine woods where, throughout the later summer and autumn, it makes great sheaves of its elegant Willow-like stems which lean over as if borne down with the weight of their prolific crop of blossom. Gentiana asclepiadea possesses a gracious loveliness, but it is not often grown to any extent in gardens, perhaps because it is so easy to manage. Flourishing almost anywhere, in sun or shade, in limey or other soil, it may be a very charming feature of one's autumn garden, but it never looks quite so well as when growing in thin woodland in association with hardy Ferns and other herbage of the sort.

It undoubtedly does best in a cool vegetable soil and in such attains a height of over three feet, a single plant putting up a score or more flowering shoots. I grow Erythroniums, such as E. revolutum and E. giganteum and other species among the largest colonies of this Gentian, and find they do very well, giving a delightful effect in spring and disappearing before their companions have made many inches of growth.

G. asclepiadea has a very wide natural range and is a copious seeder. It is not surprising, therefore, that one finds a considerable variation in its habit and the colour of the flowers. Some forms are perfectly rigid, upright, and only about a foot tall, and between these and the tallest with their slender, arching growths, one may get a complete gradation of intermediate and equally as attractive kinds.

And so it is with the blossoms which appear at the axils of the pairs of dark green, oval-pointed leaves. These big trumpets may be anything from a pale luminous azure, as in the var. G. a. Perry's Blue, to the rich and velvety violet-blue of G. acaulis.

There once existed, according to Farrer, G. a. phaeina, "with flowers of dazzling Cambridge-blue like a summer sky at dawn," and the dark-coloured forms are not infrequently streaked or flecked with white. Then there is the familiar pure white variety G. asclepiadea alba, which is rather effective in contrast with the deeper blues. G. asclepiadea naturalises freely in most gardens, especially in cool, woodland soil. Although it seeds so abundantly, I have never found the germination to be as good as one might expect. Root disturbance it dislikes when once established, but plants selected for colour or form may be increased with care by division in late spring, slugs being guarded against until the shoots are well up. *A. T. J.*

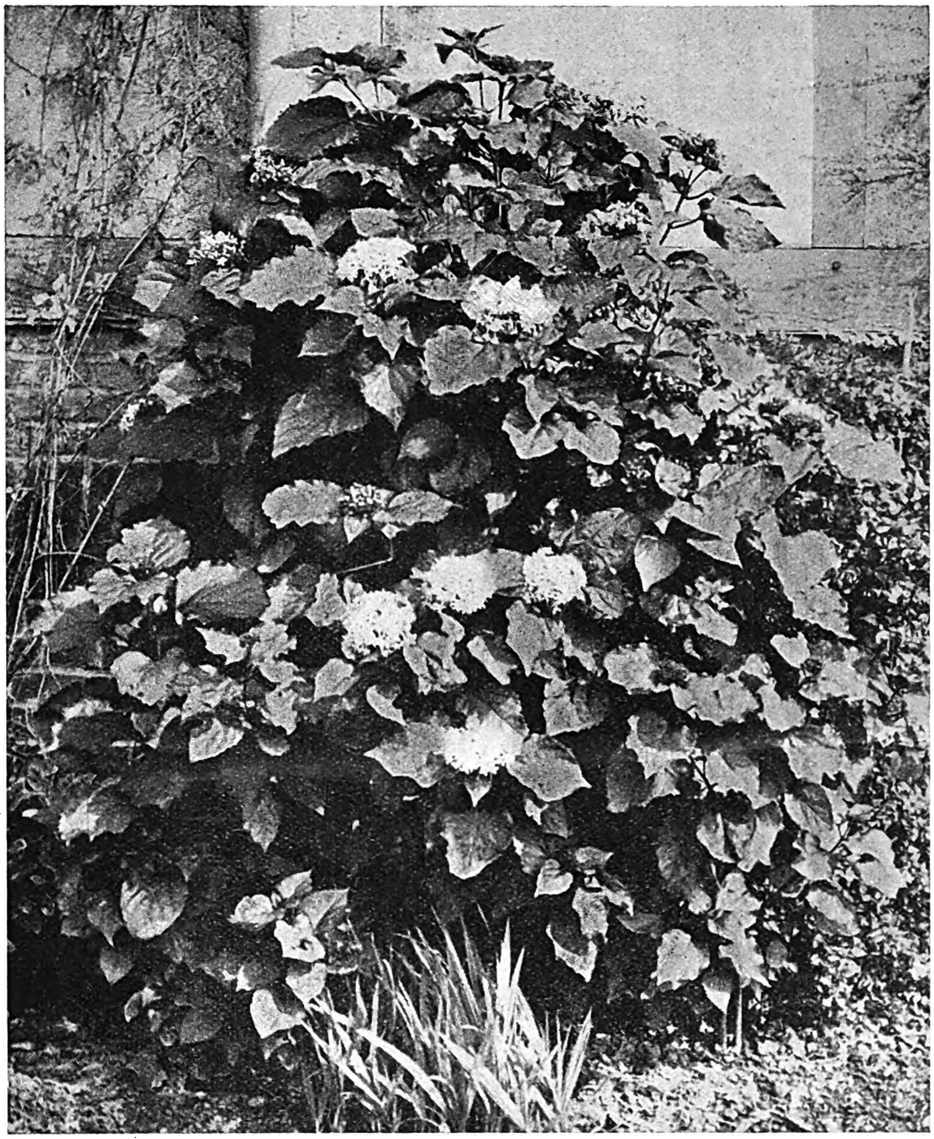

FIG. 94.—CLERODENDRON FOETIDUM.

TREES AND SHRUBS.

CLERODENDRON FOETIDUM.

Although Clerodendron foetidum belongs to a genus of trees and shrubs, its behaviour when grown in the open is scarcely that of a shrub, for it is usually killed to the ground by frost and its shoots are, therefore, of annual duration only. Of the plant illustrated, which is growing at the foot of the west wall of the Laboratory at Wisley, the strongest growths reach a height of six feet, bearing massive, broadly ovate, dark green leaves. These justify the specific name by emitting, when crushed, an objectionable odour. At the summit of each shoot is developed, in August, a dense corymb of small purplish-rose flowers. The larger clusters may be as much as eight inches across. Unlike the foliage, the flowers are not unpleasantly scented.

Young plants may easily be obtained by severing the suckers which arise at some little distance from the base of the plant. C. foetidum is a Chinese plant, and was introduced by Fortune in 1844. *N. K. G., Wisley.*

CYTISUS SUPRANUBIUS.

The Brooms are not shrubs of an extensive natural range, few getting beyond the confines of our own continent. But there is a lonely outpost of the genus stationed on the Peak of Teneriffe, Canary Islands, where it grows in great abundance, presumably in the volcanic rock or old lava stream. This is Cytisus supranubius, whose specific name (above the clouds) is eloquently descriptive of its lofty home.

In its general appearance the Teneriffe Broom resembles Spartium junceum, the somewhat stiff and upright, pale green twigs being Rush-like and very sparsely furnished with small trifoliolate leaves. It grows to ten feet or more in height, and flowers in May; the milk-white blossoms, about half-an-inch long, being produced in close clusters along the previous year's shoots. These blooms have a delicious fragrance suggesting Vanilla, which is unusual in the genus, and the opening buds are prettily tinted with pink. There is said to be a variety whose flowers also are flushed with that colour. This very charming shrub is not often seen in gardens or in nurseries, the probable reason being its alleged tenderness. But from my own experience, and that of others, even in eastern Scotland I think it is much hardier than it is generally believed to be. Although it has not yet flowered, a six feet specimen here, which is growing in the open border, the soil being very poor and dry, was not in the least injured last winter, yet its nearest neighbour, Olearia Solandri, was cut to the base by frost. While C. supranubius is not a shrub for bleak localities, it is obviously fairly trustworthy. That being so, and in consideration of its undoubted beauty and unique charm, one feels that it might well be given a wider trial. This species, when shown by Messrs. Robert Veitch and Son, was granted an Award of Merit at Vincent Square in June, 1924, and an excellent illustration of it appeared in *The Gardeners' Chronicle*, Vol. LXXV, p. 377. It is also known as Cytisus fragrans and Spartium nubigenum. *J., N. Wales.*

ACTINIDIA CHINENSIS.

This plant is a very effective subject for clothing pergolas, walls or old buildings, and particularly so when allowed to ramble over the roof of a garden building, summer house or shed; the leaves on the vegetative growths resemble those of a Vine, and are of more or less orbicular outline on the flowering branches; they are dark green on the upper suface and densely tomentose beneath, and in the immature stage are covered with red hairs.

Although well acquainted with several long-established specimens of this fine climbing plant, I have not yet seen it in flower, and believe that it flowers all too rarely; in China, however, it produces handsome yellow flowers in clusters on short shoots, and these are succeeded by edible fruits of the size of Walnuts and possessing a reputed flavour of ripe Gooseberries.

It is fairly hardy and well worth growing, for the handsomeness of its foliage.—*Ralph E. Arnold.*

DENDROMECON RIGIDUM.

Although by no means a new introduction to gardens, this charming Californian Tree Poppy is rarely seen except in those of keen shrub collectors. On visiting a garden near Oxted recently, I was surprised to find a fine specimen thriving luxuriantly against a south wall. The golden, Poppy-like flowers were in great profusion and had been since June. This species forms a shrub with woody stems and branches, while its leaves are rigid, entire and glaucous-blue in colour. Although reputed tender, this applies only to cold, wet or exposed districts, as I have seen specimens in various parts of Britain doing well. Last winter I was interested in a specimen near Sevenoaks, owing to severe weather conditions, and although cut down to the base it has grown since almost to its former size. Such a beautiful shrub is deserving of more extended culture, as if planted against a south wall in a well-drained position, in light, rich loam, it should be quite easy to establish, like its near ally, the Romneya. It may be increased by cuttings, although this is difficult, but I find root cuttings do best. I have so far not obtained fertile seeds from my plants, although imported seeds are generally obtainable; in this case, however, germination is slow and uncertain sometimes.

I have, so far, been more successful with root cuttings, about an inch or so long, inserted in pots or boxes in sandy soil, and kept moist in a frame or cold greenhouse, where they soon root and make useful plants. *E. Scaplehorn, Beckenham, Kent.*

CYTISUS DALLIMOREI.

Mr. S. Arnott (p. 148) is right in assuming that my experience with this Broom has been similar to his own. With its hardiness I have not much fault to find, but in this garden, where so many of its kindred do so well, it shows a depressing lack of vigour, growing with a feeble spirit and flowering but sparsely. This is the more surprising when one realises that C. Dallimorei is a hybrid, the offspring of two of the most robust and prolific Brooms we possess, viz., C. scoparius var. Andreanus (as seed-bearer) and C. albus. It was in looking about for an explanation for this that I thought grafting might be its grievance, but I am afraid my tests with the plant on its own roots have not yet progressed far enough to indicate any definite results. *A. T. J.*

SAMBUCUS CANADENSIS.

By no means new, nor a novelty, this fine Elder is not appreciated nearly so much as it deserves. Ranging in height from six to twelve feet, the plant is remarkable for the huge cymes of creamy white flowers which it produces in such profusion as to almost obliterate the foliage, and this, too, is bold and handsome. The purplish-black fruits are but sparingly produced, but the flower-stalks are persistent and assume a purplish hue.

Bold groups of this fine shrub at the waterside, or in the wild garden, are unusually effective and even striking, and the plant should fill a want in many carefully-wrought schemes.

Another most desirable Elder is S. racemosa serratifolia foliis aureis, which, despite its unwieldy name, is a plant rich in colour and graceful in form and habit.

FAGUS SYLVATICA HETEROPHYLLA.

Of the several forms of the common Beech, this is perhaps the most beautiful and especially so when represented by a large specimen. As a lawn or park tree I cannot conceive anything more graceful, and can but express surprise that it is not, or has not been, more freely planted. Aptly named, it bears a marked resemblance to a huge Fern, and few other trees produce such an effect of delicate tracery, by reason of its finely-divided leaves.

Another variety with divided leaves is F. s. quercifolia, but it does, I think, fall a little short in effectiveness, of F. s. asplenifolia.

There is a very fine example of this lovely Beech in the grounds of Further Bartonbury, Cirencester, where it attracts by reason of its elegant habit and light effect. *R.*

ALPINE GARDEN.

THE WALNEY ISLAND CRANESBILL.

That very able correspondent, Mr. Arnott, gives some interesting observations concerning the history of rock garden plants. I am under the impression that Geranium sanguineum var. lancastriense is a one-station plant, and am not aware that it has been recorded from any other place. It is about twenty years since I paid a visit to Walney Island for the special purpose of seeing this popular plant growing in its native habitat. It was my first visit to Walney, and I was somewhat dubious about finding a specimen of this most remarkable form. To my great joy and surprise, I had not to look a long time before I saw a few true plants, with their beautifully veined, magenta flowers, almost the size and colour of Geranium argenteum. Although I was fortunate enough in finding the plant quickly, the true form was not at all plentiful. I made a most diligent search, extended over several hours and covering most of the likely ground, during which time I was only able to find about a half-a-dozen patches in flower, although I have no doubt there were plenty of plants out of flower.

During my careful search I did, however, find a number of charming intermediate forms. The late Mr. Farrer, I believe, collected a number of these, but I understand they soon reverted to the typical G. sanguineum.

However, there is another story regarding the behaviour of this charming plant under cultivation. For a period of fifty years I had this plant growing in peaty soil at the Kew Nurseries, Southport. For forty years the plant kept true to name, then the entire stock began gradually to revert to the type—the ordinary form of Geranium sanguineum. This fact, I think, leaves no doubt whatever as to the parentage of Geranium lancastriense. The plants used to bear seeds freely, but I do not remember ever raising a batch of seedlings. Such is the story of the behaviour of this lovely Walney Island Cranesbill.—*W. H. Stansfield.*

SCHIZOCODON SOLDANELLOIDES.

This is one of the choicest of those delightful plants, like the Shortias, Pyrolas, Galax and others, which help to lend the charm of rarity and quality to one's woodland garden. If none of them is exactly rare they are never common and never will be, for the simple reason that they are not everybody's plants, demanding the right conditions, even where the skill is of the highest. Schizocodon soldanelloides comes from Japan. It is a low-growing, mat-forming plant with wiry, rather woody growths and almost round, glossy green leaves. These are hard and leathery and about an inch across, the older ones often being tipped with bronze and crimson, as also is the tender foliage of the spring shoots. Above this, on stately little red stems of six inches or so, the flowers appear in April or May, and we may generally depend upon getting a second crop of blossom in September. These singularly beautiful flowers are bell-shaped and pendulous, and while they have all the chaste elegance of line which one associates with those of the Soldanellas, they are more deeply, more finely fringed, and in colour they are a vivid rose-pink and deftly lined and fretted within with ruby-crimson. These enchanting blossoms, moreover, are very immune to rough weather, and they last several days, often more than a week.

S. soldanelloides will do well in full sun, provided an even supply of moisture is maintained, but I find it does best in part shade. For soil, it thrives here on almost pure leaf-mould mixed into a bed of good-sized stones, but in other gardens I have seen it getting along quite happily in sandy peat. In its own country it appears to haunt moist places in mossy mountain woods. It was introduced by Captain Torrens in 1891, who is said to have found it growing in damp places close to sulphur springs. This plant is slow to establish itself, especially when one has to make a start with scrappy little pieces which are often badly rooted. Given a decent clump, half the way to success is attained, but even then one must, as with Shortia uniflora, exercise some patience and avoid root disturbance as much as possible. *A. T. J.*

ASTILBE SIMPLICIFOLIA.

A fortunate find indeed was that of the veteran grower of alpine flowers, Mr. Stansfield, of Southport, when he discovered in an importation of Schizocodon soldanelloides, that delightful little plant, Astilbe simplicifolia, which has proved to be one of the best of our rock garden plants. It is a real gem when happy, while it should be given a cool and rather moist spot in light soil. Farrer called it "a gift of the gods from Japan," and praises its beauty with no uncertain voice. All of us who have grown this delightful Astilbe will agree with him in his high eulogy of this plant with its pretty, dark, shield-formed flowers, with their toothed margins, above which rise the eight or nine-inch stems, bearing their lovely white plumes. It has to be seen to understand how gracious is this little plant and how much it adds to the pleasures of a rock garden. It is said that it sometimes blooms itself to death, but I do not think that this misfortune happens frequently, and it appears to have a wonderful power of resistance against unhappy conditions of soil. I have seen it growing and flowering in stiff soil where no self-respecting alpinist would knowingly plant it. In combination with some taller Astilbe it has given us a set of hybrids of dwarf habit, but taller than it. These are good plants for the front of the border or for the large rock garden. They are known as Astilbe hybrida alba, A. h. carnea, and A. h. rosea. Of these, the last is generally considered the best, and is a free-flowering plant of much beauty.

Farrer hints at the probability of the introduction of another dwarf Astilbe called A. Tacquetii, with drooping white blooms, but, so far, it does not appear to be in commerce. *S. Arnott.*

GENETICS OF THE ROSE.

I HAVE read with a very great interest, in *The Gardeners' Chronicle* (July 14 and 21), Major Hurst's extensive and accurate work on the Genetics of the Rose, which reveals his competence on this subject, and therefore I submit a phenomenon that I am not able to explain.

Some fifteen years ago I crossed the single Rosa Banksiae alba, of Baroni (seed parent), with R. chinensis, or R. semperflorens (the common pink China Rose), with the object of inducing in the Banksian Rose the character of perpetual flowering. I have not been able until now to flower a large specimen from this cross, although I have made use of many artifices designed to provoke flowering in other plants, viz., cut down the specimen (twice in three years), ring-like incisions, and strangling some branches with iron wire.

There is another phenomenon that is, perhaps, in relation with the preceding one. My hybrid R. Banksiae of Castello (R. Banksiae fl. simpl. × R. Noisetti var. Lamarque), described in *The Gard. Chron.* some years ago, bears fertile seeds when pollenised with some other varieties. The cross of this hybrid with the aforesaid R. semperflorens (pink China Rose), gave me eighteen apparently perfect seeds, but not one germinated.

May these two facts that demonstrate some incompatibility between R. Banksiae and R. chinensis, be explained by the cytological structure of these two species ?

I shall be very obliged if Major Hurst will reply through the medium of *The Gardeners' Chronicle*. *Dr. A. Ragionieri, Castello, Florence.*

HYBRID CACTI.

THE group of Cacti (Fig. 95), flowered last June in a cool-house in my garden at Isleworth, where they have blossomed freely for the last twenty-three years. In this cool-house frost is barely excluded and the temperature has often fallen just below the freezing point. Hence we may disabuse ourselves of the supposition that this group of plants is either difficult to grow or does not flower freely. The colours in the group figured range from various shades of intense red to orange, and are flushed in many cases with bluish-purple. The brilliance of the colours is such that the brightest scarlet Pelargonium looks dull when brought up against them.

These garden Cacti have been raised by crossing Cereus grandiflorus with two Phyllocacti —P. crenatus and P. Ackermanni—and by subsequent crossing of selected hybrids.

I began with the Cereus × Phyllocactus named Cooperi (a very fragrant, white to lemon-yellow coloured hybrid) and Phyllocactus Ackermannii var. major. These I crossed both ways and named the progeny C. Coopermanni. P. Ackermanni is an intense red self with purple stigmas, and is not fragrant. Many Cerei, especially the night-flowering species, are almost overpoweringly fragrant, but the species of Phyllocacti are scentless. It is interesting to trace the decline of fragrance as the blood of C. grandiflorus becomes diluted with that of the scentless Phyllocacti, until the progeny of the third cross lose the character of fragrance.

C. Cooperi carries flowers eight inches or more in diameter, while those of P. Ackermanni are about seven to seven-and-a-half inches in across. It is worthy of note that C. Coopermanni received an award from the Royal Horticultural Society. It embraces the largest day-flowering forms known to me, these bearing blooms often nine inches or even more in diameter. All the flowers shown in the figure are of C. Coopermanni and its progeny.

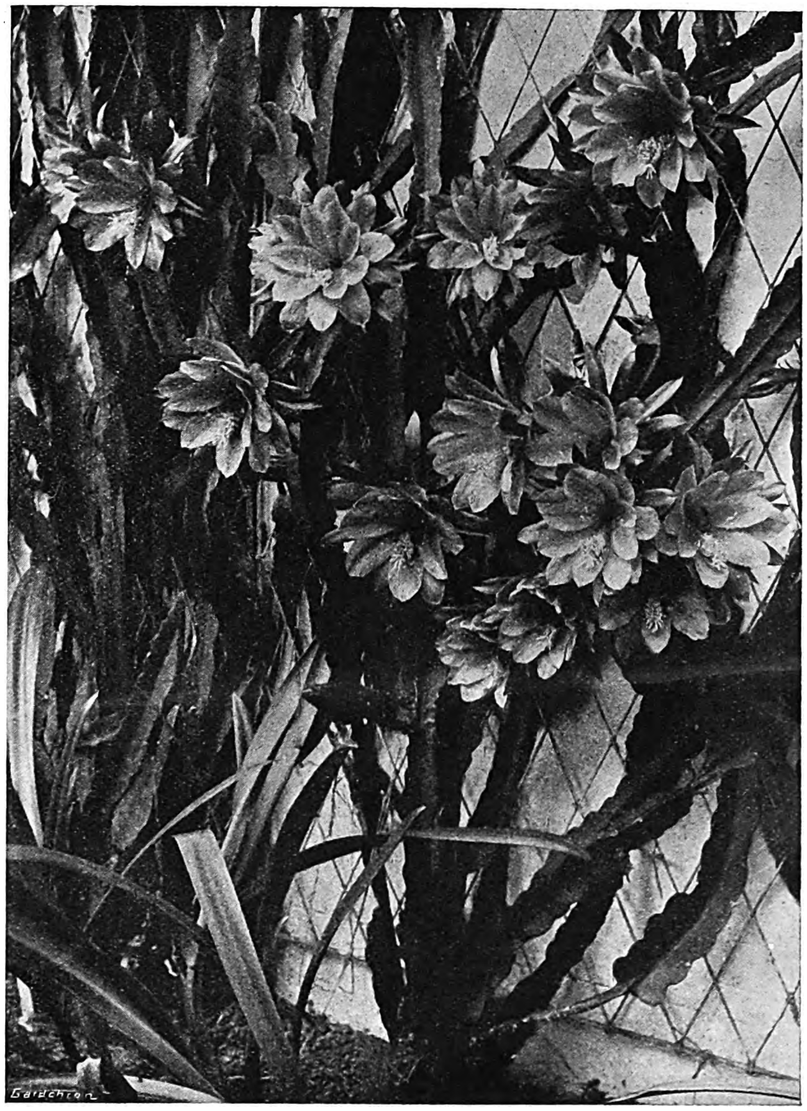

FIG. 95.—HYBRID CACTI AT ISLEWORTH.

The result of further crosses between the C. Coopermanni hybrids, either with themselves or with either of their parents, produced a wider range of colour, but did not result in any increase in the size of the flowers. I aimed, therefore, at raising crosses of those whose flowers were the most lasting. Some success was attained and several of the plants figured carry flowers which remain open for five days under favourable conditions.

The flowering stems are either flat, as in Phyllocactus, or generally three-ribbed, both forms often being found on the same plant. Occasionally a four- or five-ribbed stem occurs, and some plants carry no flat stems. Seedlings, before the flowering stems are formed, first produce five- to seven-ribbed stems. Those in the illustration were about ten feet high, and some of them five or six years old. With plants grown in pots it is best to cut out all stems that have carried flowers, and to rub off all lateral growths so soon as they are visible. They are not particular as to soil, and like to be watered freely for two months from midsummer onwards. Full exposure to the sun at all times and protection from frosts are their chief requirements.

When C. Cooperi first flowered with me in 1899, I induced the late Mr. Cooper of Kew, after whom the plant had been named, to visit my garden and verify the plant. This he did, and told me that this plant had been obtained between the years 1870-1875 from the Reigate collection of Mr. Wilson Saunders.* My plant of P. Ackermanni has been in my possession for forty years. It seems to be a selected form of this species, the origin of which has long been lost. It was not until the close of last century that I began hybridising Cacti. C. Coopermanni was raised in 1901 and produced 223 seedlings nearly four years later, from one fruit. Subsequently, other garden Cacti were introduced into my collection, but on account of their relative tenderness were eliminated.

These Cacti are pre-eminently amateurs' plants. They withstand occasional neglect without repining; their propagation is simplicity itself for one may put in the cuttings upside down if one so desires, and the cut flowers are excellent for table decoration.—*A. W.*

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* See *Journal of the Royal Horticultural Society*, Aug. 1913, p. 95, et seq. for detailed description.

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ROWALLANE.

MR. H. ARMYTAGE MOORE is known in horticultural circles as a keen and expert cultivator of Rhododendrons. When he inherited his Irish property a quarter-of-a-century ago, he found a place overgrown with common or garden trees, and he set to work to create a garden. How far he has succeeded in this ambition will appear.

Like most country seats in Ireland, Rowallane stands on high ground nearly half-a-mile back from the road, and the peculiarity of the soil becomes apparent as one approaches the house by a winding drive. Among the trees, outcrops of hard crystalline rock are seen, and that is the secret of the garden, whose foundations are indeed set on rock.

A beautiful old walled garden, hard by the house, is devoted to fruit trees, herbs and vegetables in the kitchen sense; but even here are grown many rare or unusual trees and shrubs, for the walls lend their high support to the half-hearted—and also to the half-hardy. Stone walls do not a prison make, but they certainly absorb and reflect heat. These walls are ten feet high, and on or against them the following shrubs are seen:—Myrtus Luma, an evergreen which in England is not hardy, although here it easily overtops the wall; Azara microphylla variegata, Leptospermum scoparium var. Nichollii, Fabiana imbricata, Fremontia californica, Coronilla Emerus, the blue-flowered Sphacele campanulata, also with scant claim to be considered hardy; Brachyglottis repanda, Callistemon coccineus, Exochorda macrantha, Bowkeria Gerrardiana, the white-flowered form of Abutilon vitifolium, Carpenteria californica, a collection of Ceanothus, including C. dentatus var. floribundus, C. papillosus, C. Veitchianus, C. rigidus and C. arboreus; the Tasmanian 'Everlasting' Helichrysum rosmarinifolium; Hoheria populnea var. lanceolata, sixteen feet high; Phygelius capensis var. coccinea, and Lonicera Heckrottii and L. tragophylla.

Near the house gate are beds rimmed with cushions of Saxifrages, Aubrietias and dwarf Phloxes, which have burst over the paths, scattering colour all around. Here grow commoner flowers, so that if the above may be considered caviare to the general, the tepid-minded may carouse among scented bush Lupins, including the shrill canary-yellow Sunshine; tossing red balloons of Oriental Poppies; clumped colonies of German and Siberian Irises, and the archaic charms of Sweet William. But even confirmed diehards who mistrust the unfamiliar cannot but be moved at the sight of Irish Yews, conic and comely, threaded through and through and bound from head to foot with a spider's webb of Tropaeolum speciosum, its strings of raw red beaks mutely gaping in June.

Other trees and shrubs in the beds are:—a collection of Magnolias, including M. Lennei, M. Veitchii, M. Wilsonii, M. parviflora, M. Kobus, M. Dawsoniana and M. Watsonii, the last-named about twenty-five feet high; Sophora tetraptera, twenty feet high and flowering beautifully; Pittosporum tenuifolium, a shapely bush, even taller; Leptospermum pubescens; a group of Cordyline australis, as tall as Palm trees; Rodgersia pinnata; Eucryphia pinnatifolia and E. cordifolia; Davidia involucrata; Salix magnifica, which is sometimes badly cut by frosts; Hydrangea Sargentiana, now eight feet high; the golden Chestnut, Castanopsis chrysophylla, and a specimen of Gaya (Plagianthus) Lyallii, nearly as tall as it grows in its native New Zealand, and as much round. In another compartment are Rubus lineatus and R. lasiocarpus, Rosa Moyesii, Viburnum hupehense, Abelia serrata and A. triflora, Acacia Riceana and Rheum Alexandrae. There are also a few Rhododendrons here, including R. Baileyi, R. sutchuenense and R. Aucklandii, although it must be confessed that the last-named is almost invariably cut and sadly disfigured by frosts.

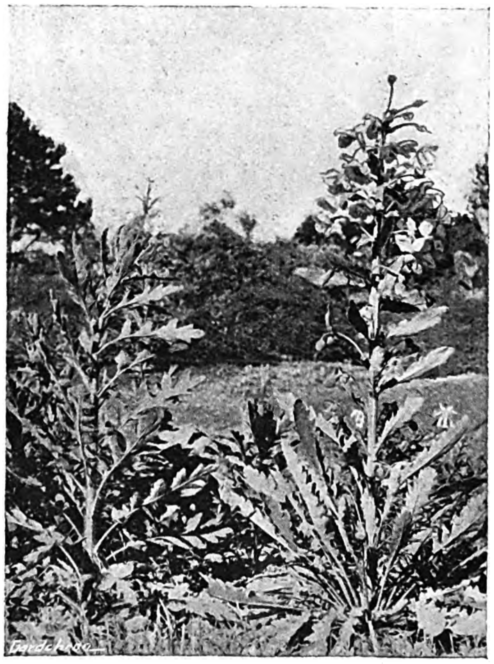


FIG. 96.—MECONOPSIS PANICULATA (right) AND M. WALLICHII AT ROWALLANE.

Then, among uncommon and non-hardy shrubs may be mentioned Kirengeshoma palmata, Carrieria calycina, Rosa rugosa repens alba, Caryopteris tangutica, and C. mongolica; Sambucus canadensis, Buddleia alternifolia, Eucryphia Moorei, Paeonia Cambessedesii (syn. P. corallina), and Cytisus Hildebrandtii.

The gardens surrounding the house, and known as the pleasure grounds, contain some fine trees, including Pinus muricata, Abies concolor violacea, bluest of Silver Firs; with the lovely sea-green Picea pungens pendula next door to it by way of contrast; Cupressus macrocarpa lutea, C. Lawsoniana in variety, Abies Veitchii, A. amabilis, the Serbian Spruce, Picea Omorika, Tsuga Brunoniana—another tree not generally regarded as hardy; the rare Japanese Abies firma, and Pterocarya caucasica. There is also an enormous bush of Pernettia mucronata, more handsome in fruit, perhaps, than in flower, and a sapling Aesculus indica; while close to the house one notices the Flowering Ash, Fraxinus Ornus; Nothofagus obliqua, and in the middle of the ancestral ash-pit, a healthy looking Tree Fern. Under the stately Elms grow sheaves of the orange Lilium croceum, which is naturalised in Ireland. From here the garden shades off into woods of Pine, Beech and Oak, with an occasional planted specimen tree, Deodar, Cedrus atlantica glauca, Picea Morinda, Abies magnifica and others, mostly on the drive. Hidden among the trees are the Rhododendron nursery beds, where baby plants from the Himalayas, China and Tibet, are being brought on and tested for hardiness.

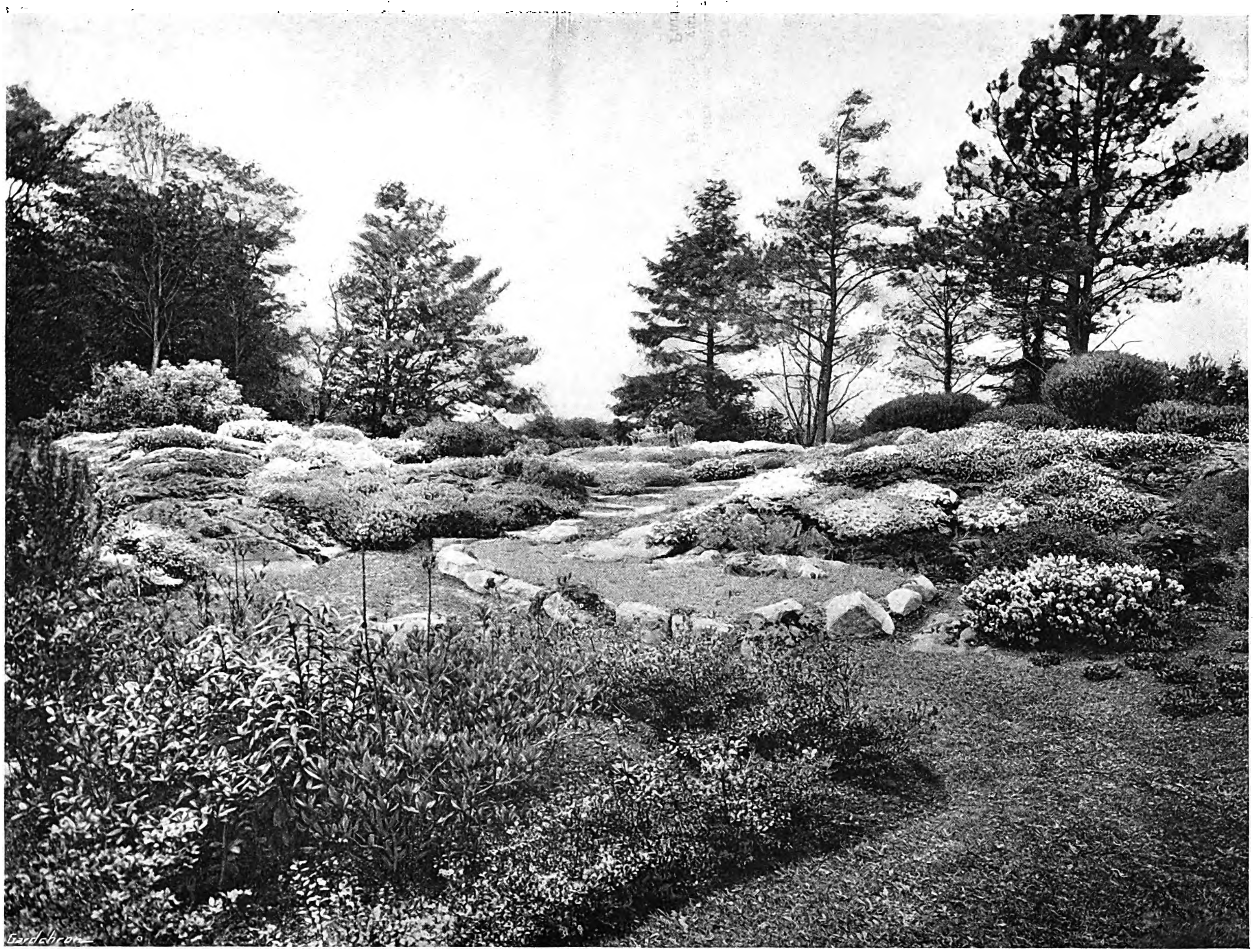
Beyond that are fields of waving grass, and what at first sight seems to be open pasture land, dotted with Furze bushes and Bramble. On the far side of the valley rises a line of low hills, all criss-crossed with hedges, dividing the slope into a chess board of cultivated fields, with trees for pawns and occasionally a white farm house. One might easily imagine oneself on a wild Heathland here, for among the high grass and Bracken grow fragrant Orchids and Bluebells; but the middle distance is filled in with Rhododendron bushes, and then, descending the grassy slope in the wake of the scythe, towards the densest thicket, the visitor finds that he is not in the wild at all, but actually on the threshold of a remarkable garden, where behind the protection afforded by Gorse and Bramble grow the treasures of the Chilean Andes, and the cream of the Sino-Himalayas. Notice the Antarctic Beeches, Nothofagus Cunninghamii and N. Fusca; Drimys Winteri, thirty feet high; Decaisnea Fargesii, sufficiently accommodating to supply a second impression of flowers when the first edition is cut by a late frost; Ilex Fargesii and Arundinaria Falconeri. We pass by a red-flowered Hawthorn standing cheek by jowl with a specimen of Cornus florida rubra, fully ten feet high; we turn to avoid a Whin bush and find ourselves peeping into a nest of shrubs, where Rosa sericea var. pteracantha and Acer palmatum vie with Parrotia persica and Lomatia ferruginea (L. pinnatifolia); this last-named is fifteen feet high and twelve feet through. Across the high grass the turf has been peeled off a slope, exposing the ice-worn rock, but that in turn is now almost concealed beneath drifts of Azaleas and Olearias.

Then come thickets of hybrid Rhododendrons, with more gardens beyond—beds cut out of the grass and containing a wealth of shrubs. Lest we become as dull as a nurseryman's catalogue, it will be sufficient to mention, as representing the four corners of the world:—Rosa Davidii, Spiraea Henryi, Corokia macrocarpa, Ligustrum ionandrum, the cut-leafed Alder, Alnus incana var. incisa (laciniata), the Dawyck fastigate Beech, Olearia nitida and O. Lyallii, Photinia villosa, and, from Chile, Eucryphia pinnatifolia again.

And now, passing through an iron gate in a low stone wall, we come to the real rock garden, the pride of Rowallane, which differs from every other rock garden known to the writer in that it is built, not of rocks, but of rock; nay, it is founded on rock. Here the crystalline slates which lie just beneath the surface drift, outcrop on a slope, smooth, bare and arid, as though an archipelago of Silurian islands had been heaved up from a grassy sea; and since emergence, their rounded whale-backs have become almost submerged again beneath a remarkably diverse vegetation. One large island is devoted entirely to bush Rhododendrons, among which Bailey's form of R. Maddeni, flowering at the end of June, is conspicuous. Other species include R. callimorphum, R. Roylei, R. crassum, R. calophytum, R. dichroanthum and the magnificent, if solemn, hybrid Purple Splendour; and in addition, Pieris formosa, Gaultheria nummularioides, and the ravishing Olearia semidentata, which has mauve flowers. There is a fine specimen of Rhododendron Falconeri which, raised from seed, has now reached its majority.

Another outcrop is devoted to dwarf Rhododendrons, destined some day to take a high position among the aristocracy of the rock garden. Such are, for example, R. hemitrichotum, R. sphaeranthum, R. keleticum, R. impeditum, R. Sargentianum, R. repens, R. Williamsianum, R. pubescens, R. muliense, and a whole lot more belonging chiefly to the series 'Lapponicum,' 'Cephalanthum,' and 'Saluenense.' The success of this use of

Supplement to THE GARDENERS' CHRONICLE.



ROCK SLOPES AND MORAINE AT ROWALLANE.

the living rock, so to speak, is shown by the fact that seeds germinate in the joints and crevices, and new plants spring up in the film of moss and Heather which coats some of the older exposures.

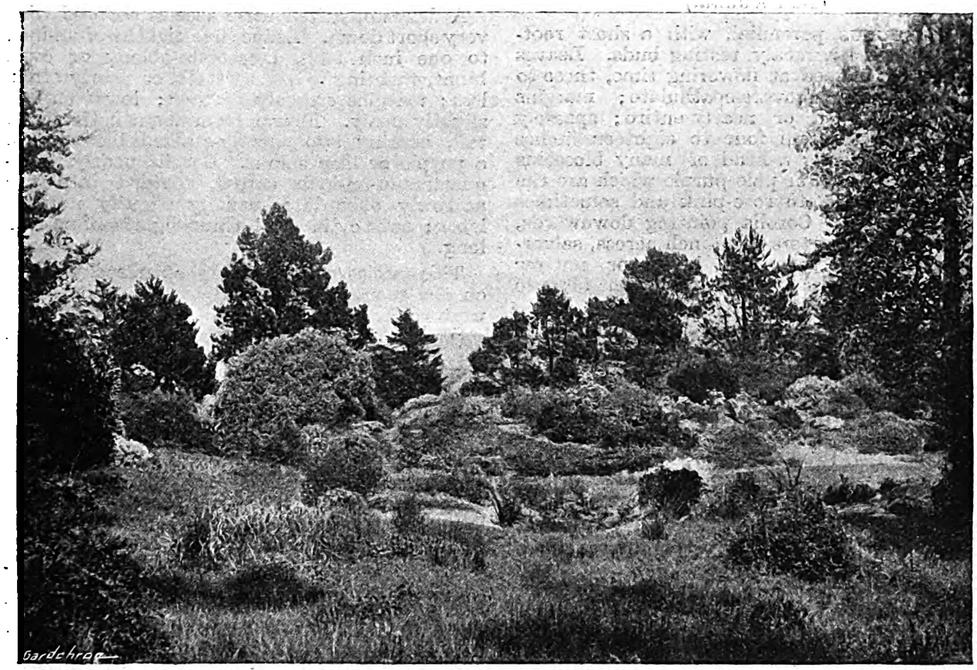


FIG. 97.—ROWALLANE: THE APPROACH TO THE ROCK GARDEN.

The main face reflects colour in an aura of heat. One can easily guess how much natural soil there is on this scalloped rock slant. The answer is, none. Every ounce of soil was laboriously carried there. We are down to bed rock gardening with a vengeance. But art conceals art, and the bare rock is mostly hidden beneath flowers. Plants grow at Rowallane which elsewhere are not hardy, and with a vigour which puts many rivals out of court. Stony stairs might daunt some gardeners, but do not, even when undressed, embarrass the ingenious owner of Rowallane. They are made to play their part in the important matter of central heating.

There is a remarkable bush of Calceolaria violacea for example, with thousands of nodding lavender pouches, orange-spotted inside. Senecio Greyii is equally wonderful, so are Philesia buxifolia and Coriaria terminalis, which in autumn bears orange berries. Olearia semidentata, the loveliest of the New Zealand Daisy Bushes, grows large and lusty, and, with tufts of Celmisia Munroi, gives an exotic appearance to the garden. Hardly less tempting is another beautiful shrubby Composite, its silver foliage bedewed and bedraggled by the rain, bursting out in an orgy of bright yellow flowers. Who can doubt that the sumptuous ease with which these unfamiliar plants grow is at least partly due to the calories bottled here and distilled to the Daisy bushes with such a fine disregard for their constitution.

More familiar objects, but not on that account contemptible, are Magnolia stellata, Kalmia latifolia, Berberis Wilsonae and Potentilla fruticosa. As for herbaceous plants, they are legion and sometimes almost legendary. Notable are Meconopsis integrifolia, M. paniculata, and a cream-flowered form of M. Wallichii; Roscoea cautlioides, Primula Littoniana, P. burmanica, and many other species; Saxifraga longifolia (Walpole's perennial), Androsace sarmentosa, and enough Gentians, Geums, Saxifrages and Veronicas to stock a nursery. And over all break blue seas of Lithospermum prostratum and the variety Heavenly Blue.

When one reflects that every rod, pole or perch of soil has been laid down here, the task assumes formidable proportions. This moraine soil is carefully prepared with sand, loam and sifted leaf-mould, and brickbats are placed underneath to a depth of a foot, to ensure good drainage. Not a little of the success achieved is due to such careful attention to details. Helped by the contours and by the grain of the rock which is well-jointed, there is no fear of the soil ever getting water-logged.

And now we are at the end of the round, although it must not be supposed that we have exhausted the garden, we shall exhaust ourselves first. While our heads are still reeling at what we have seen, our host remarks, in his humorous way, that 'that's all there is,' and that he is sorry he has nothing more to show us, but the spring frosts have spoilt his garden! But I think even he, although far from satisfied, is a little proud of what he has accomplished; anyhow, his friends would be! *F. Kingdon Ward.*

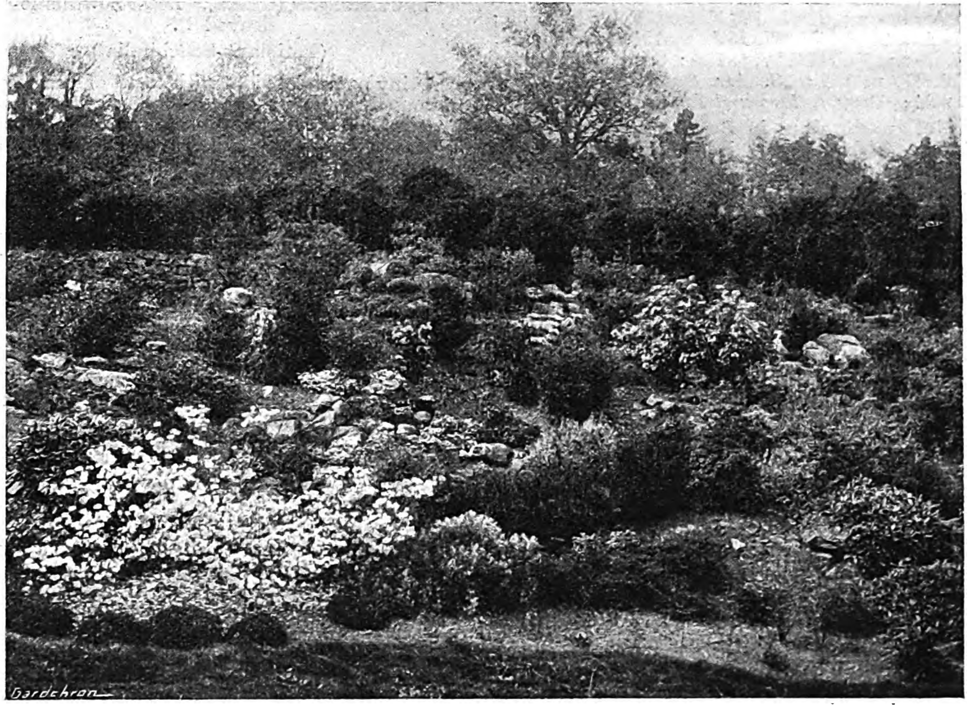


FIG. 98.—ROWALLANE: THE STREAM GROUND, PLANTED WITH RHODODENDRONS, AZALEAS AND HEATHS.

MESEMBRYANTHEMUM.

(*Continued from p.* 192).

17.—CRYOPHYTUM, N. E. Br.

D.—Flowers Red.

11.—C. Barklyi, N. E. Br. ex L. Bol. in *S. Afr. Gard.*, 1928, p. 83 and 84, f. 35.=M. Barklyi, N. E. Br. in *Hook Ic. Pl.* Vol. XIX, t. 1820; Berger, *Mes. und. Port.*, 45. M. Barklyi, var. obtusifolium, L. Bol. in *Ann. Bol. Herb.*, Vol. IV, p. 79.

Little Namaqualand. Hondelip Bay, Barkly and Pillans.

This plant has the stoutest stems and largest leaves of all the known species in any genus of this order of plants. The square stems attain to an inch in thickness, and the leaves up to as much as 15 inches long and 6 inches broad, and are very thick. Sir Henry Barkly, who discovered this fine species, informed me that the inhabitants of the region where it grows squeezed the water out of its leaves and used it for washing and drinking purposes in times of drought.

II.—Leaves narrowly spathulate or linear-spathulate; flowers rosy or colour unknown.

12.—C. inachabense, N. E. Br. = M. inachabense, Engl. *Bot. Jahrb.*, Vol. XLIII, pp. 192 and 194, f. 5.

Great Namaqualand: Sand-dunes at Inachab, Dinter 952.

13.—C. paulum, N. E. Br.—Plant in flower less than an inch high, with a few perfectly prostrate stems 1–4 inches long and up to 1 line thick, radiating from a central root, which is not more than 1 line thick, and apparently not descending more than 2–3 inches into the ground. The stems are terete, with internodes 1½–6 lines long, minutely papulose, green or purplish, bearing several very short axillary leafy branchlets 3–6 lines long scattered along them. Leaves opposite or some on the flowering part alternate, small, those on the main stems 5–9 lines long, 1–2½ lines broad and ¾–1 line thick near the apex, those on the branchlets smaller and crowded, flattish, usually spathulate, obovate to elliptic-oblong, shortly petiolate, sub-acute or obtuse, faintly channelled down the face, slightly or indistinctly keeled on the back, minutely papulose, green, tinted with red. Flowers in lax, terminal, few-flowered irregular cymes, or on weak plants solitary and terminal. Pedicels about 1 line long. Calyx unequally 5-lobed nearly down to its union with the ovary, papulose with much larger papulae than those on the stem and leaves; ovary-part hemispherical, sub-globose in very young fruit, 2½ lines in diameter; lobes 3–4 lines long, the outer about 1 line broad and linear-oblong, the inner 2–2½ lines broad, elliptic or elliptic-oblong, and with broad, membranous margins, all obtuse. Corolla apparently not more than 4–5 lines in diameter; petals numerous, in 3–4 series, united below into a tube about 1½ line long with the free part about 2 lines long and ¼ line broad, linear, obtuse, white, or very pale pink at the apical part. Stamens arising from the corolla-tube in about 4 superposed series, the upper at the mouth of the tube. Stigmas 4-5, erect, 2½ lines long, filiform, apparently pale yellow. Ovary partly superior, 4–5-celled, with the conical upper part slightly 4–5–angled and minutely papulose, the papulae being a very striking character on the young purplish-tinted fruit; placentas axile. Capsule when closed sub-globose, 3½ lines in diameter, with very prominent sutures and 4–5 valves and cells; when expanded about 5 lines in diameter; pallid within, structure as for the genus. Seeds ½ line in diameter, compressed, circular in outline, tuberculate, dark grey or fuscous when dry, blackish when wetted.

Riversdale Division: In grassy meadows near the Vet River, Muir 4145.

14.—C. Rogersii, *L. Bol.* in *S. Afr. Gard.*, 1928, p. 84.

Oudtshoorn Division: In a dry valley at Cango, 1,900 feet above sea-level. Bolus 11907. Zebra Siding: Rogers in Herb. Bolus 17177.

The flowers of this species are rosy according to a note on the label of Bolus 11907.

III.—Leaves sub-terete or probably flattened or concave on the face; flowers white.

15.—C. nodiflorum, *L. Bol.* in *S. Afr. Gard.*, 1927, pp. 326 and 327, and 1928, p. 84, f. 34. M. nodiflorum, Linn., *Sp. Pl.*, ed. 1, p. 480. Haw., *Obs.*, p. 118, *Misc. Nat.*, p. 54, *Synop.*, p. 250, and *Rev.* 166; Dc., *Pl. Grass.*, t. 88; Sibth. and Sm., *Fl. Graeca.*, t. 480; Cusin et Ansberque, *Herb. Fl. France*, Vol. IX, t. 50; Fiori et Paol., *Ic. Fl. Ital.*, p. 122; Reichenb., *Fl. Germ.*, Vol. XXIV, t. 156; Coste, *Fl. France*, Vol. II, p. 122; *S. Afr. Gard.*, 1927, p. 281, f. 9 E; Berger, *Mes und Port*, p. 41.

Not uncommon in South Europe, North Africa, Arabia, Persia, Baluchistan, Kurdistan, Madeira and the Canaries, where it is probably a native, and as it seems scarce in South Africa (from whence I have seen specimens from Little Namaqualand, at Walle Kraal, Pillans 17906; Van Rhynsdorp Division; Eenkokerboom, Schlechter 11068; and Cape Peninsula, Wolley Dod 2106, 3666) it has probably been introduced there, as it has been also into California. According to Aiton it was in cultivation in 1739.

16.—C. neglectum, N. E. Br.—Plant apparently about 4–6 inches high, glabrous, papulose. Branches erect, terete, 1–1½ line thick. Leaves alternate, ascending, incurved, 4–9 lines long and 1 line thick (dried), sub-terete or probably slightly flattened or channelled down the face, obtuse. Cymes terminal, 1½–2½ inches in diameter, 3–9 flowered, bracteate. Pedicels 1–2 lines long. Calyx unequally 5-lobed; ovary part hemispherical, 4–4½ lines in diameter; the longer lobes 3–4 lines long, with leaf-like tips. Corolla probably 10–12 lines in diameter; petals of the dried flower about 4–4½ lines long and ¼–line broad, apparently white.

Worcester Division: Near Worcester, Cooper 1660, 1745.

17.—C. Maxwellii, *L. Bol.* in *S. Afr. Gard.*, 1928, p. 84, name only. It may be a synonym of one of the above new species.

18.—C. Wilmaniae, *L. Bol.* in *S. Afr. Gard.* 1928, p. 84, f. 33.

South Africa: "Without precise locality, but probably from De Aar" *ex.* L. Bolus. *N. E. Brown.*

(*To be continued.*)

THE GENUS PRIMULA.

(*Continued from p.* 193).

DENTICULATA (Smith). Toothed P.
(Denticulata.)

A DECIDUOUS perennial, with a short rootstock and fleshy, mealy, resting buds. Leaves not fully developed at flowering time, three to six inches long, obovate-spathulate; margins minutely toothed or nearly entire; sparsely mealy. Flower stem four to eighteen inches tall, stout, bearing a head of many blossoms varying from lilac or pale purple which are the dominant shades, to rose-pink and sometimes very deep blue. Corolla pointing downwards, half- to three-quarters-of-an-inch across, salver-shaped, divided into five broad or narrow heart-shaped lobes; tube with an obscure ring at the throat.

Flowers from March until May. This well-known and variable species ranges in its various forms, from Afghanistan throughout the Himalayas and Khasia mountains, to the Alps of Yunnan, Western China. It covers large tracts of alpine and sub-alpine pasture in its native habitats. *Bot. Mag.*, t. 3959.

Culture: Plant in light fibrous loam, with an abundance of water when in growth, and keep dry in winter with a cone of dry cork cuttings, or Cocoanut fibre piled over the crown, and a pane of glass overhead; quite hardy, but may be more easily retained as a perennial in this manner.

Var. cachemiriana (Munro), stated to be from the western Himalayas, but possibly of garden origin, resembles the type, except that it is more mealy and the leaves more fully developed at flowering time. Flowers in February and March. It succeeds in a damp, half-shady spot, in rich fibrous loam.

Var. paucifolia (Hoof f.), also from the western Himalayas, is a weak form of the type, with smaller and fewer leaves and fewer flowers in the head of blossoms.

DEUTERONANA (Craib.). Least Sowthistle-leaved P.
(Petiolaris-Sonchifolia.)

A tiny perennial plant with a tuft of numerous, oblong-obovate, or oblong-ovate leaves about one inch long and three-quarters-of-an-inch wide, with a more or less distinct, winged stalk; margins sharply or coarsely toothed, more or less mealy when young, smooth when mature. Flower stem nearly obsolete; flowers purple with a yellow eye, on stalks about three-quarters-of-an-inch long. Corolla about three-quarters-of-an-inch across with oblong-ovate lobes, again divided into three small lobes at the tip; tube three-quarters-of-an-inch long, sparsely pubescent outside and minutely so inside.

This species is found at Jongri and Singeleelah in the Sikkim Himalayas, at 13,000 to 14,000 feet above sea-level.

Culture: As for P. Cunninghamii.

DIANAE (Balf. f.). Diana's P.
(Petiolaris-Roylei.)

This species has a short, stout rhizome emitting but few roots, and the young foliage is protected by fleshy scales. Leaves with oblong-elliptic blades about two-and-a-half inches long, rounded at the tip, smooth on both surfaces, thin, with thickened, finely-toothed margins; they taper into red-winged stalks about two-and-a-half inches long which clasp each other at the base. Flower stem six to eight inches tall, densely downy upwards, bearing an umbel of three to eight deep purple blossoms, with a nearly black ring at the throat, on stalks about three-eighths-of-an-inch long; the bracts are also deep purplish green. Corolla about half-an-inch across, divided into five oblong-obovate lobes; tube cylindrical, half-an-inch long. It is a sub-species of P. Roylei.

Flowers in June. This deeply tinted plant is found in grassy places among short herbage, in open spaces in Pine forests, at 12,000 feet above sea-level, in Bhutang, at Champa Pumthang.

Culture: As for P. amethystina.

DIANTHA (Bur. et Fr.). Twin-flowered P.
(Nivales.)

A delicate, tufted little species covered with very short down. Leaves five-eighths-of-an-inch to one inch long, lanceolate-oblong or oval, blunt, tapering to a short stalk, or nearly stalkless; margins coarsely toothed; lower surface slightly mealy. Flower stem about half-an-inch tall, bearing two shortly-stalked blossoms of a purple or lilac colour. Corolla nearly three-quarters-of-an-inch across, divided into five narrowly obcordate, usually slightly notched lobes; tube cylindrical, three-eighths-of-an-inch long.

This species grows in damp, open, rocky places on the mountains from Batang to Litang, in western Szechuan, at about 13,000 feet alt.

Culture: Fibrous peat and limestone chips in a damp, open spot, with protection from damp in winter, is indicated.

DICKIEANA (Watt.). Dickie's P.
(Amethystina.)

A beautiful deciduous perennial, with a tuft of elliptic-obovate or oblanceolate, pointed leaves, two to three inches long, with quite entire or serrate margins; they are smooth and fairly thin in texture. Flower stem slender, from four to five inches tall, bearing from two to six yellow blossoms in a loose umbel on very short stalks. Corolla three-quarters-of-an-inch to one inch across, consisting of five broadly heart-shaped segments; tube cylindrical, twice as long as the calyx, hairy within.

Flowers in June. Found on open banks in the Lachen Valley, Sikkim Himalayas, at 10,000 to 13,000 feet above sea-level.

Var. chlorops (W. W. Sm.) is a small plant two to four inches tall, with smaller, deep purple-blue blossoms with a green eye. It is found in moist, stony meadows in south-eastern Tibet.

Var. Pantlingii (King), a beautiful form about six inches tall, with shining spathulate-lanceolate, pointed leaves, toothed in the upper half, and umbels of white, greyish-mauve, violet, purple or orange-coloured blossoms, one-and-a-half inch across, with chocolate or orange-coloured centres. It flowers in June and is found in bogs and in marshy alpine meadows, at times among dwarf Rhododendrons, in the Sikkim Himalayas and south-eastern Tibet, at 12,000 to 13,000 feet above sea-level.

Culture: Plant in rich loam and peat and treat as bog plants.

DRUMMONDIANA (Craib.). Drummond's P.
(Petiolaris-Sonchifolia.)

A dwarf, perennial species, formerly considered a form of P. petiolaris under the name of P. petiolaris var. Stracheyi (Hook. f.). It produces a loose tuft of obovate-spathulate, irregularly toothed leaves, on long stalks which are frequently winged; they are free from meal on both surfaces. The flowers are produced in the same manner as those of the Primrose and are numerous. The corolla is purple, and measures about three-quarters-of-an-inch across; it is divided into five narrowly-obcordate, entire lobes.

Flowers in October. Found in damp spots, usually in shade, in the Kumaon Himalayas, at about 7,000 feet above sea-level.

Culture: As for P. Cunninghamii, and should prove perfectly hardy.

DRYADIFOLIA (Franch.). Dryas-leaved P.
(Dryadifolia.)

A most delightful, evergreen perennial, with a more or less woody rootstock, much branched towards the tip; the branches are densely covered with the remains of previous season's foliage. Leaves half- to three-quarters-of-an-inch long, with oval blades, more or less heart-shaped at the base and contracted into broadly-winged stalks; margins revolute and coarsely toothed; upper surface smooth, underside densely covered with yellow meal. Flower stem four to nine inches tall, rather stout, downy, bearing an umbel of three to five bright crimson-rose flowers with a yellowish-white eye. Corolla five-eighths to three-quarters-of-an-inch across, divided into five broadly oval lobes with four narrow teeth at the tip; tube funnel-shaped.

Flowers in July and August. The plant is found on sheltered limestone rocks and boulders, also in stony, peaty pastures, on the Meking-Salwin divide, and on the Lichiang Range, in Yunnan, at 15,000 to 16,500 feet above sea-level.

Culture: Plant in limestone moraine in full sun, or in a similar position in peat and limestone chippings, in a well-drained spot in the rock garden, with underground moisture. Protection from damp is necessary, as the plant is covered with snow for seven months of the year in its native habitat. *A. W. Darnell.*

(*To be continued*).

SWEET PEAS FOR EXHIBITION.

GROWERS who intend to exhibit Sweet Peas in 1929 will no doubt have made notes of the varieties they propose to grow for this purpose, and thus have avoided the most perplexing question of choice at the last moment; but if they have not already done so, there should be no further delay in placing their orders for seeds.

Preparations for sowing should be made during the first week in October. Use clean, well-drained, sixty-sized pots and a compost of good sifted loam three parts, and one part leaf-soil, with sufficient sand to render it porous. After sowing the seeds in this material, ample water must be given to assist germination, which should take place in a cold frame in an open position. A sheet of tissue paper placed over the pots will help to retain the moisture, but so soon as the seedlings appear this should be removed, admitting air in increasing volume and finally removing the lights altogether, always bearing in mind that, although germination is considerably assisted by artificial means, the Sweet Pea is a very hardy annual, and anything that impairs its robust constitution in the seedling stage is fatal, particularly in view of exhibition.

The choice of site and the all important preparation of the ground on which the plants are to be grown should also be given early consideration. The consolidation of the soil, which Sweet Peas delight in, is very often incomplete at the time of planting, and to this, among other causes, badly placed and coarse blooms may be traced. Having chosen the ground, which should, if possible, be sheltered from the cold and rough winds, the trenching should be commenced, particularly on heavy retentive soil, so early in the autumn as time will permit.

The keenness of exhibitors with Sweet Peas has had the effect of increasing deep cultivation, but although it would be very unwise to disparage good tillage, I fear this is sometimes overdone, and many are inclined to estimate their prospects of good blooms by the depth of their trenches. The great differences in the nature of the soil in each locality compels the grower on the spot to determine the exact depth and method of trenching, and although there is a unanimous opinion in favour of deep working of the soil for Sweet Peas, it is not to the interests of intending exhibitors to encourage the roots into unfertile subsoil, or beyond a depth of two feet.

The incorporation of crushed bones, soot and well-decayed farmyard manure at the base of the trench is desirable, but the amount allowed should be governed by the texture and condition of the soil. On completion of the trenching the whole plot will benefit by being forked over and left rough for the winter. *Thomas Baines, Marks Tey.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante pp. 112-118.)

(*Continued from p.* 194).

NORTHAMPTONSHIRE.—Apples promise a good crop, but the drought is affecting the crops seriously and if it continues the fruits may be small. Pears are an average crop, and where it has been possible to afford water to the roots, promise well. Peaches are a failure (the first for several years), owing to the severe frosts and cold winds which prevailed during May. Plum trees flowered profusely, but failed to set, owing to unfavourable weather conditions. Bush fruits generally are satisfactory, but owing to the drought and great heat, the later fruits are ripening prematurely, and are consequently of inferior quality. *F. W. Gallop. Lilford Gardens, nr. Peterborough.*

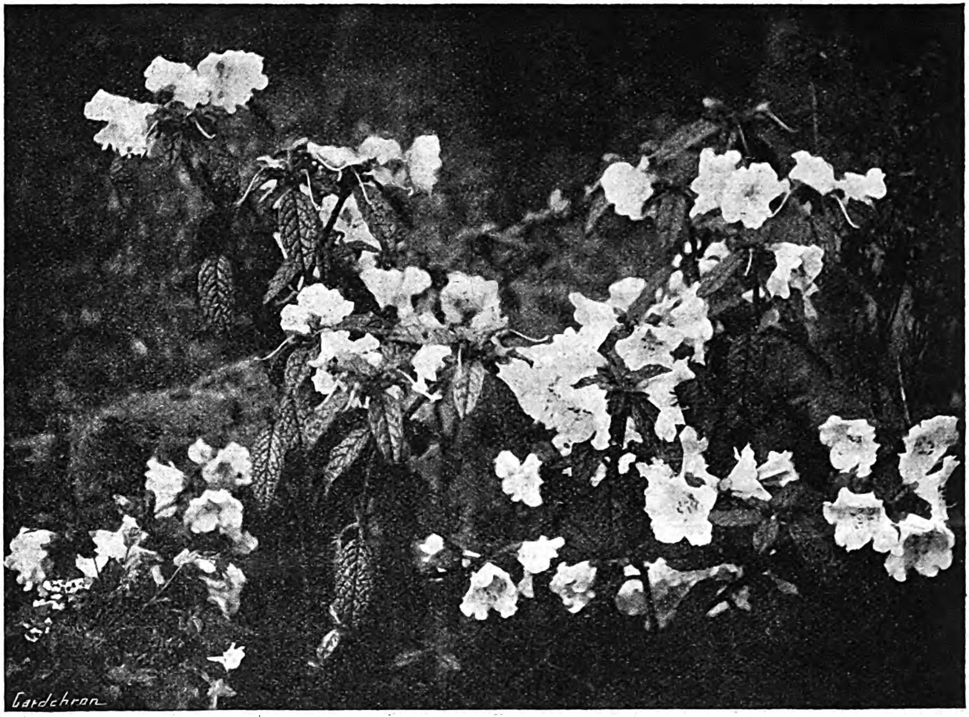


FIG. 99.—ROWALLANE: RHODODENDRON BULLATUM.
This specimen carried over sixty trusses of flowers in April and May, 1928.
(see p. 210).

NOTTINGHAMSHIRE.—The fruit crops here generally are good. Apples, with the exception of Cox's Orange Pippin, should be over average if no further dropping of fruits occurs. At the moment the trees are suffering from lack of moisture, for the rainfall from July 1 to 25 was almost nil; this, combined with brilliant sunshine, and the fact that the soil is of a light, sandy, loamy nature, is not conducive to good results. Thinning and watering are being carried out so far as possible. Small fruits are over the average and good, but Strawberries finished early owing to the drought. Pears are over average and promise well. *S. Barker, Clumber Gardens, Worksop.*

OXFORDSHIRE.—At the beginning of the season one thought that the crops, as a whole, would be over average, but the frosts dispelled this optimistic view and considerable damage was done to nearly all classes of fruits. Now, what with the drought and the insect pests, there is little hope of even an average crop of fruits. *Samuel Heaton, 38, Botley Road, Oxford.*

——The fruit crop in this district is very poor with perhaps the exception of small bush fruits, everything else being very much under average. Dull, sunless weather, north-easterly winds and frost during the setting period spoilt a promising display of blossom, and through the same cause insect pests have been very bad and most difficult to control. *Ben Campbell, Cornbury Park Gardens, Charlbury.*

——The fruit crops, on the whole, are very good considering the late frosts which prevailed when the trees were in bloom. The small fruits especially are good. Peaches, Nectarines and some varieties of Apples seem to have suffered mostly. Wall fruits, I am afraid, may be affected by the long spell of drought for these gardens are very open, and situated three hundred feet above sea level. The water supply is very short, and the soil is light, on a bed of rock.—*B. Elkington, Cotefield Gardens Banbury.*

——The fruit crop on the whole is very satisfactory, with the exception of Peaches and Nectarines, which commenced well, but could not endure the prolonged cold spell during their early stages. At the moment, rain is required very badly for the Apples and Pears. Insect pests have been very troublesome and I find that one summer spraying did not clean the trees so well as usual, owing to, I think, the exceptionally dry state of the atmosphere. The soil is a heavy loam, over stiff clay. *Victor Gammon, Eynsham Hall Gardens, Witney.*

STAFFORDSHIRE.—The fruit crops in this district, although under the average, are of very good quality. The shortage in some cases is due to frosts which were experienced late in the season. Red Currants suffered very much, but the bushes on walls carried good crops. Early Plums were badly damaged. Victorias suffered most. There was a good crop of Apples here in 1927, which may account for the small one this year. Aphis has been very troublesome this season, Pears, Plums and Apples especially being badly infested. The Pears and Apples, however, are now free of this pest and are producing good, clean wood, but Plums are still badly infested. The soil here is a stiff clay, consequently our trees have not suffered much from the present drought. *J. W. Miskin, Woodseat Gardens, Rocester.*

STAFFORDSHIRE.—The soil here is sandy, over a subsoil of sand and sandstone. Strawberries produced an abundance of flowers, but the prospect of a good crop was spoilt by the late frosts. Apples and Pears also flowered extremely freely, but here again the majority of the blooms were damaged by the frost and cold north-easterly winds experienced at that season. *W. R. Phillips, Tittensoe Chase Gardens, Stoke-on-Trent.*

——Apples are a good crop and in spite of the dry weather the fruits are swelling fairly well; Cox's Orange Pippin, Irish Peach, Bramley's Seedling, Worcester Pearmain, Devonshire Quarrenden and Lord Suffield being among the best. The trees are healthy and free from pests. Pears are average but the fruits are dropping through lack of moisture. Plums and Damsons are also plentiful in places, while small fruits such as Strawberries, Gooseberries, Raspberries and Black and Red Currants are all bearing good crops. Morello Cherries are good. The soil is of a gravelly nature, over rock, and dries out quickly. *Edwin Thomas Gilman, Hillside, Rugeley.*

WARWICKSHIRE.—Severe weather, both wet and cold, prevailed during the flowering season, greatly reducing the prospects of good crops of fruits. Recently the drought, accompanied by attacks of aphis, which have caused defoliation on many Apple trees and Plum trees especially, have naturally resulted in many fruits dropping. Black Currant bushes were almost denuded of fruits. Apples are bearing well, those bearing the heaviest crops being James Grieve, Worcester Pearmain and King of the Pippins, Alfriston, Bismarck, Lord Derby, Bramley's Seedling and Pott's Seedling. Gooseberries are bearing the best crop since 1921, and Strawberries were good where the walls afforded extra protection. The soil here is clay, over limestone. *Charles Marchment, Moncton Hall Gardens, Warwick.*

——Although in many places the fruit crops were severely injured by frosts, in some parts of this district there were excellent crops of Apples and Plums in early June. The prolonged drought and severe attacks of aphis, have, however, greatly reduced the weight of crops generally, and have also had a very adverse effect upon the quality of the fruits. Thus, the bright prospects of early summer have gradually vanished and fruits of good quality are scarce. *H. Dunkin, 86, Emscote Road, Warwick.*

——The fruit crops in general appear to vary a good deal in this district. Small fruits have been a very good crop, but at the time of writing it is rather difficult to give a fair estimate of other hardy fruits. Apples and Pears, which promised to be a large crop, are falling badly owing to drought and also to aphis, which is very prevalent in the district. Plums are also patchy. Most of my trees, which were sprayed late, are carrying good crops, but nearby some growers have scarcely any. *A. E. Moss, Billesley Manor Gardens, Alcester.*

——I think the season of 1928, so far, has been the most trying from a gardening point of view in my experience, and most things have suffered in consequence. During the flowering season we had such variations of temperature that one was surprised to see any fruits set at all, but, strange to say, Pears set well and are a clean crop. Apples have dropped heavily and the trees have been badly infested with aphis, but now that the drought has broken we may hope to retain the remaining fruits. Cherries, both dessert and Morello, have been and are still clean and good. Strawberries were plentiful and the fruits of good quality, but we have the usual difficulty with plants dying off. The soil is very heavy and requires very careful handling, if this is given the results are good. *James Page, Moreton Paddox Gardens, Warwick.*

——The Apple crop this season promised to be an exceptionally good one, but, at the time of writing, the prospects are not so good owing to the drought; only 0·06-inch of rain has fallen from July 1 to July 20. This dry and hot period is having a marked effect on fruits, especially Strawberries, Raspberries and Plums. Late frosts and cold winds also did considerable damage in exposed positions. Aphis is very prevalent, especially the American type, and caterpillars are attacking Gooseberries badly. *H. F. Smale, Warwick Castle Gardens, Warwick.*

——The fruit crops here are very good, especially Apples and Pears. Gooseberries and Cherries are also excellent. The soil is light in nature, containing plenty of gravel, and therefore needs a plentiful supply of manure every two years. *J. S. Buckby, Bilton Grange Gardens, Rugby.*

(*To be continued*).

HOME CORRESPONDENCE.

Campanula patula.—A coloured plate of this interesting native of comparative rarity, whose English name is the Spreading Bell-flower. is to be found in Johns' *Flowers of the Field.* It is singular that there is no reference to it in the text. I have not so far found the plant in this neighbourhood. In the late autumn of 1927, a good friend and neighbour of mine, Dr. T. W. Teltey, brought back with him a few plants of various species from the heights above Zermatt, and among them was what turned out to be Campanuala patula, carrying a few flowers and seed capsules. I succeeded in raising a few plants from the seeds, with which I was very pleased when they attained the flowering period. For awhile I was ignorant of what species they really were, until recently, through the kindness of that ardent lover of our native wildflowers, Sir Maurice Abbot-Anderson, I became acquainted with their identification. The plants are thriving, some in full exposure to sunshine throughout the day, and others only partially so, but all of them in a poor alpine compost, possessing an ample content of lime. The colour of the corolla is a pleasing shade of pale mauve, and fades very slightly, retaining its beauty nearly throughout the flowering phase. On a damp day the corolla, if not too old, partially closes—a measure of protection of the sexual organs—and expands again when dry conditions have been restored. After the process of fertilisation has been fulfilled the flower gradually contracts and withers, without displaying the unsightliness of many other Campanula species. None of the plants have so far exceeded eighteen inches in height. Campanula patula is said to be biennial, but it may be that, under some circumstances of soil and climate, the plant may continue to exist through three summers before surrendering to the inevitable. Some other kinds of plants that are not perennial are believed to have lasted so long, Anagallis arvensis (Scarlet Pimpernel) and Myosotis Welwitschii for example, having pursued their course on a scree or moraine. I have not so far found Campanula patula listed by any of the nurserymen who specialise in alpine and rock plants, but few, possibly, are personally acquainted with the charms of the plant, not the least important of which are its modesty and absence of rampageousness. It may be grown with other and smaller kinds of plants without betraying the habit of over-crowding some of its neighbours which characterises many of its cousins.—*J. Carter, Kirbymoorside, Yorks.*

NEW PLANTS REGISTERED.

The two following Roses have been registered by the International Bureau of Registration of Horticultural Novelties:—

Rose Maréchal Petain.—Very vigorous, growing freely, branching well and very floriferous. Flower brilliant carmine-cochineal; a H.T. variety, very good for bedding. Raised by M. Joseph Sauvageot, Chateau de Vaire par Roche-les-Beaupre, and distributed by M. Francis Gillot, Trepillot-Besancon (Doubs.).

Rose Helene Robinet.—A vigorous H.T. variety, growing freely, and floriferous; flower salmon, shaded with pink. Good for cut flowers. Raised by M. Joseph Sauvageot, and distributed by M. Francis Gillot.

SOCIETIES.

ROYAL ENGLISH ARBORICULTURAL.

"During the course of our visit we have seen the most marvellous woods it is possible to see in Great Britain, and we will look back upon this week as one of the happiest of our lives." This was the opinion expressed by Colonel Gerard F. T. Leather, President of the R.E.A.S., in summing up the experiences of the visits paid to some of the noted Highland woodlands in northern Scotland by members of this Society. The members, numbering over a hundred, met at Inverness, on Monday, August 27, and on the following day visited Castle Grant, the home of the Seafields in Bonnie Strathspey. There they were received by Lieut.-Col. Grant Smith, D.S.O., and the officials on the estate. Major Scott, Divisional Officer of the Forestry Commission in the northern area, who accompanied the party, introduced the officials. Malton Wood was the first area visited. This fine old wood, of very fine quality and size, was planted with trees from seeds collected from Abernethy, which had been a natural forest for many centuries; in fact, there was no reason to think it had ever been anything else. In this forest there has developed two types of Scots Pine. These types were distinguishable by their branch formation. One has hanging branches more like the Spruce, and the other short, thick branches and drooping points. No doubt, it was contended, those trees had evolved from the process of elimination. In the heavy snowfalls common to these altitudes, trees with long branches and broad points would be continually broken down, and could not withstand the rigours of northern winters for any length of time. The other type survived, hence their predominance.

Tominourd, an enormous forest area, was next visited, but the attention of the visitors was confined to the natural Larch found here. To most of the visitors it was a revelation, and they were keenly interested. Comment was made on the healthy appearance of the trees. While disease appeared on some of the suppressed stems, very little was observable on the dominant trees. Remarking on the density of the yield, the visitors concluded it would be impossible to raise a planted crop with so many trees per acre, but being naturally grown, they are more irregular, and consequently there is not the same fight for supremacy.

After lunch, served by the Seafield Trustees in a large marquee, Balnagown was visited. Here was found a pure crop of Scots Pine standards and natural plants. On half of the area the old standards have been removed, but in the remainder the parent trees are still standing, because the ground is not yet fully stocked. The visitors were, however, able to see the effects of self-seeding in different forms, and also under adverse conditions. The soil is not only of low-grade quality, but there is a "panny" sub-stratum a few inches from the surface. The appearance of the crop made a great impression on the visitors, one of whom exclaimed: "We often hear of Germany leading in forestry, but if the Germans came here they would get some object lessons in overcoming natural difficulties, and in utilising the soil to the best advantage."

The tit-bit of the day's proceedings was the final objective—Curr Wood. It is one of the finest examples of self-seeding to be found anywhere, and the visitors declared they had never seen anything to equal it. The trees are remarkably regular and healthy, and the crop is much heavier than can be found on a planted area. Several of the company expressed doubts as to the advisability of leaving such a valuable crop growing without thinning. Mr. Brown, the woods manager on the estate, said similar doubts had been voiced during the past ten years, yet the trees were looking as well as they had ever done. In this wood the Forestry Commission have laid down four sample plots, thinned out in different ways, with the idea of ascertaining whether increment will be increased under any special treatment of this kind. All the trees have been carefully taped and numbered. Warm thanks to all for the kindness extended to them brought a memorable day to a close.

On Wednesday the party went to the famous Darnaway Forest. This forest was founded about 1765 by the great-grandfather of the present Earl of Moray, and planting and developing continued until about 1805. The late Mr. Scott, who had been head forester for forty-five years, drafted a report on the forest, dividing it into sixty-five sections. This report was adopted and has advanced a step farther in respect to the planting of Conifers. Mr. Matthew Feaks, the present head forester, has a theory as to what this forest should be fifty years hence, and a scheme has been adopted which should adjust itself a quarter of a century hence. Here the visitors found a forest with an unusual record, so far north, of hardwood. Oak and Ash predominate in size and quality, the latter being extensively used for aeroplanes. The forest is ideal in size, about five thousand acres altogether, and by clean felling the deciduous trees are being removed and Scots Pine, Spruce and some of the exotic Conifers substituted for them. The arable farms intersecting and surrounding the forest bear proof of the excellent quality of the soil and gain the advantage of the woodland shelter. The party had the opportunity of witnessing forestry development from the seedling stage at the nursery to the finished product at the estate sawmills. Keen interest was taken in the restocking process, which has followed the denudation during the Great War, and an area of two hundred acres which was cleared by a Canadian Forestry Company in war time, and planted with Scots Pine four years ago, was inspected. Visits were paid to the Conicavel Nursery, formed in 1920 from land previously under arable cultivation, and the Copperhill Sawmill, the entire production of which is used for estate purposes.

In Darnaway Forest the ideal aimed at is the formation of a Pine forest with a sustained annual yield of equal amounts. Birch scrub treatment and sheep and deer interests do not affect the forest management on Darnaway, nor do they impinge on the costs, as is the experience in many other forests. The tour included the inspections of a forest of fine old Scots Pine, about one-hundred-and-fifty years old, and an area of six hundred acres which is to be maintained as an Oak forest. Altogether the day was most profitably spent.

Lord Novar personally conducted the party, about a hundred strong, over the Novar Woods on Thursday. There is a fine range of woodland on this estate and the visitors had the pleasure of inspecting some exceedingly interesting experiments in forestry that are now being carried out on the estate. The Novar forests extend to 4,000 acres, and rise from a few feet above sea-level to 1,460 feet. Examples of natural regeneration of Scots Pine and Larch at 800 feet above sea-level proved of great interest to the visitors, and special attention was directed to the Abies grandis area, in which increment sample plots have been established by the Forestry Commission.

Mr. Frank Scott, the Divisional Forestry Commissioner for the northern area, in introducing Lord Novar, suggested that his Lordship's activities in many spheres of usefulness were known to them all, but he wished to refer to two outstanding features with reference to his property at Novar and his work in forestry. Lord Novar was the first in Scotland to introduce a seriously considered scheme of management with regard to estate woodlands. The record feature of his work was his inplanting of Larch.

Colonel Leather, President of the R.E.A.S., in reply, stated that in days to come Lord Novar's memory would be kept green by the fact that his monument would be the woods he had planted. No man could wish for a greater monument than the one Lord Novar would leave behind him. Lord Novar, who was loudly cheered on rising to reply, said it was a great pleasure to him to bid the company welcome. His only regret was that their visit had come too late. If they had come to Novar in 1914 there would have been less scope for criticism than there was that day. The most interesting objects they had seen during their inspection had been the plantations of exotic Conifers, mostly from North America. The original woods, extending to 4,000 acres, were Scots Pine and Larch, and they had gradually disappeared, and were replaced by younger woods, most of which went down the pits in the war. After the war, when he returned from Australia (his Lordship was Governor-General there for several years) he found that the rabbits had dug themselves in along with the rate and tax collectors, and other vermin! The result is what was

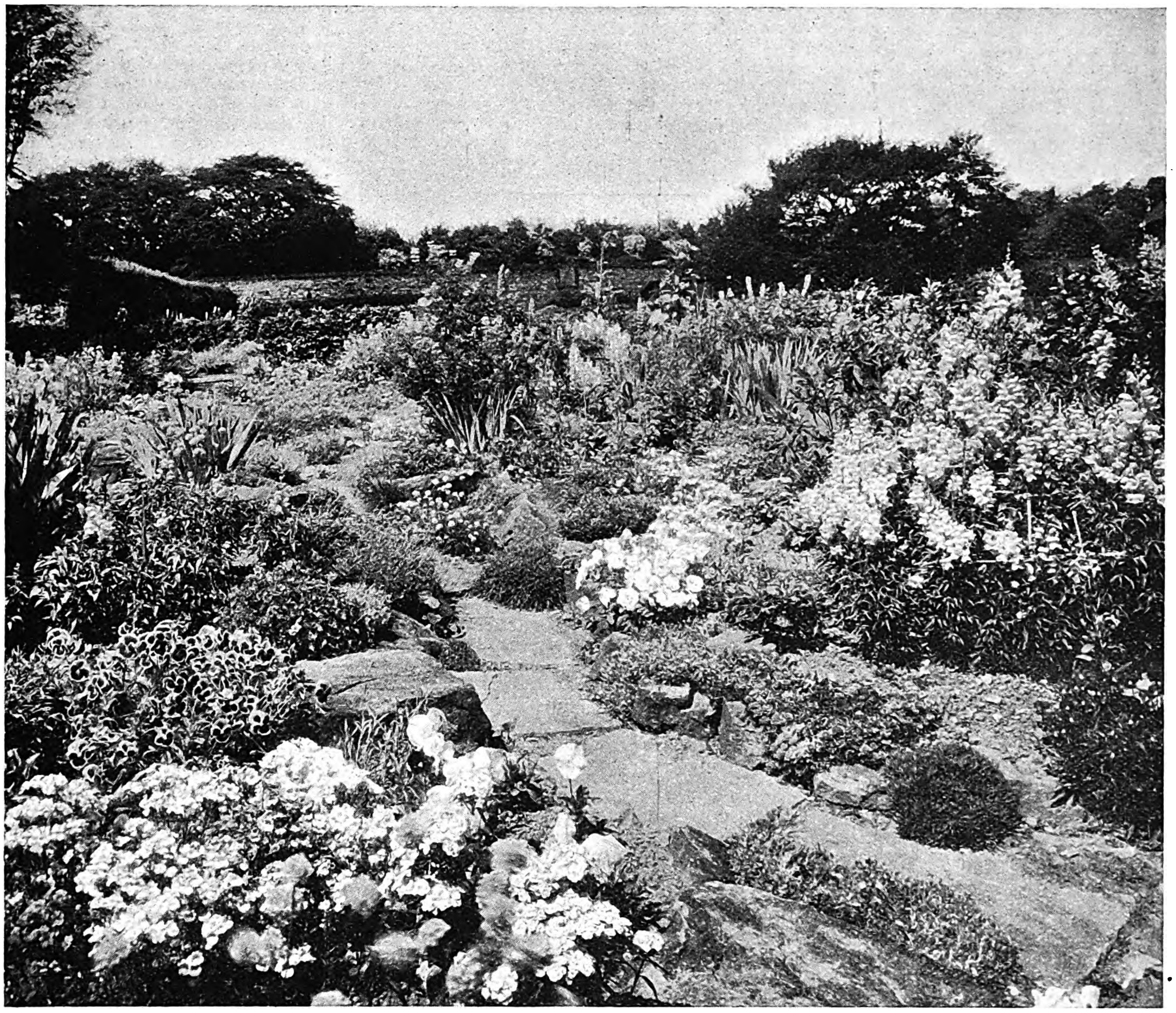


FIG. 100.—BRIGHTER SHEFFIELD.—A VIEW IN MR. J. CYRIL LOCKWOOD'S GARDEN.
(see p. 202).

seen. The nurseries, which he would indeed have been proud to show them before 1914, have disappeared. Lord Novar endeavoured to combat Larch disease first by using Common Silver Larch, and then, after about ten years' work, they were able to grow what had been seen at an economic rate—that is, almost as cheaply as Scots Fir and Larch. They used to turn out seedlings, on an average, at about 8s. per thousand. The planting was done very cheaply, but the nurseries have gone, and the problem now is to keep down the rates. The mainstay against the rabbits was trapping, and they have got the better of them now. If they could only get rid of death duties, then the private adventurer would be able to compete with the Forestry Commission. The individual in the end, if he knows his business, will always be much better than the public authority. Concluding, Lord Novar said that in this country it was obvious that Coniferous plantations were the most profitable use to which most of the land could be put. While Conifers provided their main requirements, there was still an opening for hardwood plantations, and he was confident they could grow hardwood as they could grow Coniferous timber, as well in this island as any part of the world.

Beaufort estate, the property of Lord Lovat, was the venue on the Friday. Unfortunately, and to his Lordship's great regret, he was called away for duty in the Dominions overseas, and hence could not, as he was anxious to do, meet the members of the R.E.A.S. The last thing his Lordship did before setting out for Canada was to go round the woods and map out a programme for the Society's visit. Than Lord Lovat there is no more enthusiastic forester in Great Britain, and there were many pleasant and instructive things to see in the Beaufort woods. The weather being gloriously fine, the rambles around Beaufort proved very enjoyable.

The Culbin Sands, once the richest agricultural district of Morayshire, concluded the itinerary. This desert, for we may call it nothing else, is being vigorously attacked by the Forestry Commission in order, if possible, to bring the whole area under wood. Marram grass is the first form of attack, and where this species of "bent" takes hold, then follows the planting of Corsican Pines. It is really wonderful how very successful the experiment is turning out. Evidently those in charge feel pretty sure of the result, for quite recently the Forestry Commission purchased some 1,300 acres not very far from these famous sands, which have been threatened with a similar catastrophe by sandstorms. Naturally, great interest is taken by every visitor in this remarkable experiment, and not least by the members of the R.E.A.S. who visited the area on the concluding day.

During the week the annual meeting and the annual dinner were held in the Station Hotel, Inverness, Colonel Leather presiding at both functions. At the former, over a hundred being present, the adoption of the accounts for the past year was moved by Mr. Leslie Wood. The receipts amounted to £1,186, the excess of receipts over expenditure being £110. This was considered very satisfactory, and the accounts were unanimously adopted. The annual report was submitted by Mr. Edward Davidson, the secretary and treasurer, and was also unanimously adopted.

The President then announced that the choice of the Council, with whom lay the appointment of a new president, had fallen upon Mr. W. B. Havelock, head forester to the Earl of Yarborough at Brocklesbury Park, North Lincolnshire. The choice was heartily endorsed. Mr. Havelock, who it was evident felt very deeply the great honour that had been conferred on him, gave a resumé of his life's activities in the forest, a most enthralling story, and concluded by expressing his great appreciation of the honour done to forestry in asking him, "a common or garden forester," to be President of the Royal English Arboricultural Society.

Colonel B. J. Petre, of Westwick, Norwich, was appointed Vice-President, the President mentioning that Colonel Petrie had won the Society's Gold Medal for the best forestry estate in Norfolk. Mr. Edward Davidson, J.P., was re-elected Secretary and Treasurer. Messrs. B. W. Atkin, Long, and the new President, Mr. W. B. Havelock, were re-elected judges of essays. It was unanimously decided to alter the Society's rules so as to allow the admission of forestry students as members at half the ordinary subscription.

After a good deal of discussion, parts of Lincolnshire and Yorkshire were selected for next year's summer meeting. The annual dinner, which proved a most enjoyable affair, was also held in the Station Hotel. Colonel Leather presided over a large and representative company, and all the speeches were warmly appreciative of the hospitality received and the wonderful woods they had seen. Mr. Frank Scott, the Forestry Commission Officer, came in for a special meed of praise for the capital manner in which he had acted as guide, philosopher and friend during the excursions, and he was presented on behalf of the Society with a beautiful silver cigarette case. This is the fifth time in the Society's forty-six years' existence that the summer excursion has been to Scotland, but if the auguries are anything like correct the visits will be more frequent in future.

NATIONAL ROSE.

September 7 and 8.—Another very successful show of autumn Roses was held by this Society at the Horticultural Hall, Westminster. The hall was filled with Roses of good quality, and before the advertised time of opening the doors there was a goodly queue of members awaiting admission. The Nurserymen's classes for groups of cut Roses were exceptionally well filled, and these occupied the whole of the wall space. The Clay Cup, which is offered for the most fragrant variety of the year, was awarded to Portadown Fragrance, shown by Messrs. S. McGredy and Son, and the Cory Cup for the best new climbing Rose, which also has been open to competition throughout the season, was awarded to Chaplin's Pink Climber, which was shown on April 20 last. The Silver-gilt Medal blooms were Frau Karl Druschki, in the Nurserymen's classes, shown by Messrs. Thomas Smith and Sons, and Molly Bligh, in the amateurs' classes, shown by Mr. H. Mitchell.

Gold Medal.

J. C. Thornton.—This wholly admirable H.T. Rose received a Certificate of Merit in 1926, and has now deservedly been given the highest award. It is a very shapely, fully double flower of useful medium size and the substantial broad petals roll over gracefully. The colour is a glowing scarlet-crimson, lightly flushed with maroon in the heart of the flower. Shown by Messrs. Bees, Ltd.

Certificates of Merit.

Mrs. G. A. van. Rossem.—A medium-sized H.T. variety of good form and stated to have been raised by crossing Souvenir de Claudius Pernet with Gorgeous. It is a showy Pernetiana variety of rich golden-yellow colour, flushed and lined with peach-pink on the outer petals. Raised by Mr. G. A. van Rossem, and shown by Messrs. D. Prior and Son.

McGredy's Scarlet.—For a very short time this H.T. variety is true to name, but all too soon the bright scarlet becomes a crimson-maroon with more than a suggestion of magenta. The habit and foliage are good. Shown by. Messrs. S. McGredy and Son.

The Cory Cup.

Chaplin's Pink Climber.—The parentage of this very attractive climber was stated to have been American Pillar and Paul's Scarlet Climber, although it was classed as a hybrid Wichuraiana. In general appearance it is more like the first-named variety, but the soft pink flowers are larger and have golden stamens. Shown by Messrs. Chaplin Bros.

The Clay Cup.

Portadown Fragrance.—This most deliciously fragrant H.T. Rose is of very variable colouring, and ranges from orange to pink. Shown by Messrs. S. McGredy and Son.

Some Other Novelties.

A large number of novelties were staged, and their general degree of merit may well be assessed by the few awards which were given. In truth, it must be stated that too large a proportion of these new seedlings, which should have been the newest and best of the Rose world, were not even mediocre—their proper place was the fire and not the show table.

As usual, the novelties included varieties which had previously received the Certificate of Merit, and their condition confirmed the judgment of the Council for, with the exception of J. C. Thornton, which was "The Rose" of the collection of novelties, they gave the impression of being just good Certificate of Merit varieties of garden value, but nothing more. Of course, it is not to be expected that all new seedling Roses of merit shall reach the Gold Medal standard. Messrs. S. McGredy and Son again submitted several of their certificated varieties, and these included Cherry, a good garden Rose of bright yellow colour, flushed and veined with deep rose-pink; Portadown Bedder, of rich deep orange colour flushed with pale peach-pink; Mrs. S. Paton, a bright carmine H. T. variety; Marion Cran, which has only its rich yellow and cerise colouring to recommend it; and Rose Berkeley, Salmon-rose flushed with orange. Messrs. B. R. Cant and Sons showed The Belle, a large, fragrant, pale cream-coloured flower with a flesh-pink centre. It would probably be a useful exhibition variety, but the foliage had been badly attacked by mildew; Aroma is a sweetly-scented flower of crimson colouring, passing to magenta, and it also appears to be susceptible to mildew; Souvenir of the Old Rose Garden is apparently not a good autumn flower. Lord Stair, shown by Messrs. Thomas Smith and Sons, is a medium-sized H.T. variety of velvety-crimson colour but lacking in substance. Little Miss Dorrit, from Messrs. A. Reevest and Co., is a richer-coloured Coral Cluster. E. Pemberton Barnes, shown by Mr. J. H. Pemberton, was, at its best, a desirable exhibition flower of La France colouring, but it seemed to be a variable variety in size and form. The chief interest in Mrs. R. M. Finch, shown by Messrs. D. Prior and Son, lay in its being an Australian variety. It is a bedding Rose, bearing clusters of about ten rather more than semi-double flowers of pale pink colour. Marion Horton, one of Messrs. Bees' varieties, is a delightful little garden Rose of rich buttery-yellow colour, occasionally flushed with cardinal on an outer petal. The flowers are very shapely. George Howarth, from the same source, is a bright carmine H.T. variety. Mrs. C. Aveling, another variety from Messrs. Bees, Ltd., is a large, single H.T. of deep old rose-pink colour, with a distinct golden zone.

Nurserymen's Classes.

The many groups of representative Roses were a very attractive feature of the show. While there was no novel method of arrangement, it was especially noticeable that greater attention had been paid by most exhibitors to the finish of the front of the group. This is a great improvement and adds to the general attractions of these admirable displays.

The competition was greatest in the larger class, and here the best group was set up by Messrs. S. McGredy and Son, who had a magnificent basket of Mrs. A. R. Barraclough, with pillars of Miss Willmott, Lady Pirrie, Lord Charlemont, Mrs. Henry Morse, Augustus Hartmann and Mrs. C. Lamplough. Mr. C. Gregory, who was second, had a gorgeous basket and arch of K. of K., with pillars of Independence Day, Mrs. A. R. Barraclough, Emma Wright and Dame Edith Helen. Messrs. Waterer, Sons and Crisp were a good third in this large class, and they included beautiful baskets of Madame Butterfly, Shot Silk, Madame A. Chatenay and Betty Uprichard. The Stanway's Rose Gardens were fourth, and attractive groups were also shown by Messrs. Chaplin Bros., Messrs. B. R. Cant and Sons, Messrs. D. Prior and Sons, Messrs. F. Cant and Co., Mr. J. H. Pemberton and Dowtry's Rosery.

The best of the smaller representative groups of cut Roses was a handsome display arranged by Messrs. R. Harkness and Co., who employed

W. F. Dreer, Christine, Doris Traylor, Rev. F. Page Roberts and Mrs. Henry Moore to good effect. Mr. George Lilley, in his second prize group, had a delightful basket of Shot Silk and stands of Golden Emblem, Mabel Morse, Madame Edouard Herriot and Christine. Messrs. A. J. and C. Allen were third, and their predominant varieties were Shot Silk, Charles P. Kilham and Betty Uprichard. Mr. D. Long was fourth. Groups were also arranged by Mr. Henry Drew, Messrs. H. Morse and Sons, Messrs. Laxton Bros., Mr. E. B. le Grice and the Crastock Roseries. By the gallery stairs, Mr. George Prince had a very attractive group of fruiting sprays of Rosa Moyesii, R. rubrifolia, R. pomifera, R. Fargesii and other sorts.

The baskets of Roses were of very good quality. The best four of decorative Roses were of Betty Uprichard, Shot Silk, W. F. Dreer, and Col. Oswald Fitzgerald, shown by Mr. William Ferguson. Messrs. Wheatcroft Bros., who were second, included Hortulanus Budde and Mrs. H. Stevens. Messrs. F. Cant and Co. were third. Messrs. D. Prior and Son had, with excellent sprays of Greta Poulsen, Else Poulsen and Kirsten Poulsen, the best three baskets of Polyantha varieties, and Messrs. A. Warner and Son, who were second, had good baskets of Else Poulsen and Coral Cluster.

The exhibits of twenty-four varieties were of considerable merit. Mr. John Mattock won the first prize with excellent vases of such sorts as George Dickson, Mrs. Henry Morse, Lady Inchiquin, Dame Edith Helen, Golden Emblem and Los Angeles. Mr. William Ferguson was a good second, and he included Frau Karl Druschki, Betty Uprichard, Lady Inchiquin, George Dickson and Mrs. Henry Bowles. Messrs. A. Ward and Sons were third.

Exhibition Roses were not so good as the decorative varieties. Mr. Henry Drew was first with eighteen varieties of fair quality. The best were W. R. Smith, White Maman Cochet, George Dickson and Mrs. Henry Morse. In his second prize exhibit, Mr. D. Long included Mrs. Henry Morse, Snow Queen, Dame Edith Helen and George Dickson, while Mr. George Burch had Modesty, Mrs. L. Crette and Lady Plymouth. The best two baskets of exhibition Roses were of Mrs. Henry Bowles and Lady Inchiquin, shown by Messrs. T. Smith and Sons, while Frau Karl Druschki and George Dickson, shown by Mr. William Ferguson, were second.

Amateurs' Classes.

The class for six distinct varieties, arranged in large vases on a space not exceeding three square feet was very popular, both with exhibitors and visitors. The best of the many collections was set up by Mr. George Marriott, Carlton, who had delightful vases of W. F. Dreer, Shot Silk and Hoosier Beauty. In her good second prize exhibit, Mrs. Harold Cribb, Northwood, included Charles E. Shea and K. of K., of considerable merit.

Two classes for amateurs who grow and stage their Roses without any assistance also amply justified its inclusion. Mr. W. G. Cox, Mitcham, Taplow, was first, and his six varieties included Los Angeles, Marcia Stanhope and Golden Emblem. The very best of a good second prize exhibit from Mr. W. E. Moore, Ickenham, were Los Angeles and Shot Silk. The first prize in a similar class for growers of fewer than two hundred-and-fifty varieties was won by Mr E. Tattershall, Orpington, whose collection included Dainty Bess, Mrs. H. Stevens and Simplicity; while Mrs. D. W. Walker, Northwood, had very good vases of General MacArthur and Etoile d'Hollande.

Exhibition Roses, in boxes, were also of commendable quality. Mr. G. Speight, Market Harborough, included very good specimens of Augustus Hartmann, M. Bulkeley, Lemon Queen, Coronation and George Dickson among his twelve first prize varieties. Mr. H. F. Spicer, Hitchin, who was second, had Mrs. Henry Morse, Coronation and George Dickson among his best blooms. Mr. H. Hitchell, Bradford, was third, and had, in a lovely example of Molly Bligh, the best bloom in the amateurs' classes. First prize was won by Mr. Robert White, Thame, with six very good varieties; and Dr. W. P. Pankridge, Petersfield, was second. Mr. G. Speight was the most successful amateur who grows his exhibition Roses unaided, and in the very large class for growers of fewer plants, Mr. E. H. Pleasance, Cambridge, excelled.

The Metropolitan class, for blooms grown within a radius of seven miles of Charing Cross, contained very good blooms. The best six, shown by Mr. A. N. Rogers, Putney, included Gladys Holland and Mrs. Foley Hobbs.

Baskets of Roses shown by amateurs were very attractive and contained really good blooms. In the chief class for decorative varieties, Mr. H. F. Spicer was first, with mixed varieties, and Mr. George Marriott was second with K. of K. Mr. Eric Holroyd was the best of the amateurs, and Mr. S. E. Tattershall excelled among the growers of fewer varieties.

Artistic Classes.

The classes for Dinner Table and other artistic arrangements with Roses continued their great popularity with the lady members of the Society, who displayed great skill and taste. In the Dinner Table classes the variety Roselandia seems likely to supersede the hitherto favourite, Madame Butterfly, for with it Mrs. Courtney Page, Haywards Heath, made a very charming table, and won the first prize. Mrs. Oakley Fisher, Wembley, was second with the same variety. In the nurserymen's section, Mrs. C. A. Tisdall was a good first with Madame Butterfly, although Mrs. A. T. Chaplin and Mrs. L. R. May were second and third respectively, with Roselandia. Mrs. May had the best bowl of Roses in her section. Mrs. Courtney Page was deservedly first with a vase, and Mrs. Charlton, Yiewsley, had the best bowl of Roses.

SOCIÉTÉ ROYALE D'HORTICULTURE ET D'AGRICULTURE D'ANVERS.

An eight-day exhibition of more or less international character was opened on Saturday, September 8, to commemorate this Society's hundredth anniversary. A very pretty and fairly extensive display was provided in the handsome Salon des Fêtes, in the Place Meir, Antwerp.

This Society is under Royal patronage, and M. Emile Draps is the energetic President, with MM. Mulder and Berckelaars as Secretaries, and M. Georges Peeters, Treasurer. The occasion was rendered the more interesting because the Belgian National Dahlia Society associated itself with the exhibition, and M. Albert Kreglinger, the President, took a prominent part in the proceedings.

Although very few countries were represented among the exhibitors, the Jury was more widely representative and included horticulturists from England, Scotland, Wales, Belgium, Holland, France, the United States, the Argentine and Luxembourg. The Britishers present were Mr. Treseder, of Cardiff; Mr. Charles H. Curtis (*The Gardeners' Chronicle*); Mr. Stuart H. Low, Enfield, and Mr. J. S. Brunton, Burnley.

The Jury met at 9.30 on Saturday, September 8, so that the Britishers who arrived by the night boat from Harwich had just time to go to their hotel prior to presenting themselves at the Salon des Fêtes before M. Emile Draps gave his opening address of welcome—and instructions.

As always on the Continent, the disposition of the Jury occupied some time. M. Boret, a former French Minister of Agriculture, was appointed President d'Honneur, and Mr. E. Krelage (Holland), and Mr. C. H. Curtis (England) Vice-Presidents; with Mrs. F. King (U.S.A.) and Mr. J. Ketten (Luxembourg), Secretaries. The Jurymen appointed to judge the Orchids were M. le Comte O. de Kerchove, President; Mr. C. H. Curtis, Secretary; Mr. Stuart Low, M. J. S. Brunton, M. Emile Praet, M. Charles Pynaert, M. Van Kam, M. Rene Behiels and M. Eugène Draps. The President of the important Dahlia section was M. F. Cayeaux, France; with Mr. J. G. Ballego, Holland, Secretary; while M. Henri de Wilde, M. J. Closon and Mr. Treseder, Cardiff, were also engaged in this section.

Other old friends present included M. Louis Gentil, M. H. van Orshoven, M. D. Draps, M. Wyngaerden, M. J. Buyssens and M. Gilson, of Brussels; M. P. Dekens, of Bruges; M. Delarue, M. L. de Cock and M. A. Desmet, of Ghent; and M. Lemoine, of Nancy, France.

At the conclusion of the judging, the members of the Jury were quite ready for the free-and easy stand-up lunch arranged in a convenient anteroom, where there was ample opportunity for the renewal of old, and the making of new, friendships.

During the evening of the opening day, the Society entertained the members of the Jury and leading exhibitors to dinner at the Restaurant du Paon Royal, Place de la Gare. A very excellent dinner was provided, and under the genial chairmanship of M. Emile Draps, the proceedings that followed the dinner were equally entertaining. The speeches were numerous, frequently humourous and, of course, congratulatory, and they were given, variously, in Flemish, French, Dutch and English. From the British point of view, there were too many speeches, although we contributed to the excess; several were also far too lengthy, but in this particular we were not guilty. Altogether, however, it was a very pleasant gathering, and among those who responded to the President's request for speeches, were M. Cauwelaert, the Burgomaster of Antwerp; the Burgomaster of Namur; M. J. Junes, a member of the Corporation of the City of Antwerp; Mr. E. H. Krelage, M. E. Lemoine, M. Charles de Bosschere—the silver-tongued Flemish orator; M. V. Boret, M. Kreglinger, M. Devuyst, who represented the Belgian Ministry of Agriculture; M. Nagels, M. Charles Pynaert, President of the Chambre Syndicate des Horticulteur Belges; and Mr. Charles H. Curtis.

On the Sunday morning, the members of the Jury paid a visit to the Town Hall, where they were received by M. J. Junes, who acted efficiently as guide over the beautiful and historic building.

Then followed a trip through the famous docks of the Port of Antwerp, but the early part of this entertainment became a punishment. As the result of a misunderstanding, the boat that was to have taken the party from a point on the Scheldt "two minutes" from the Town Hall, did not materialise, and presently there came a message that it was waiting in a distant dock. M. Draps gallantly led the way, and the party walked for what seemed to be at least two miles through narrow, unsavoury streets, and around several large docks, over cobblestone paving under broiling sunshine, and although there was "water, water all around," there was not a drop to drink. However, the boat was found, and over the wide waterways of the docks the party was taken to the new and wonderful lock that will admit the largest vessels at low water and at a point much further down stream than the usual entrances. The huge steel bridge was raised and lowered to show the amazed party how easily it may be worked and controlled. This trip by water was extremely pleasant and instructive.

At the end of the journey, motor-buses were waiting, and while some folks returned to the city, others crossed it, proceeding to the Chateau du Brandt, at Wilryck, where M. and Mme. Kreglinger were very charming hosts to a few *amis du Dahlia*. In their beautiful home, set in a beautiful and well wooded garden, M. and Mme. Kreglinger gave an altogether delightful luncheon. There were only two speeches, that of the host in welcome, and that of M. Emile Draps in thanks. After lunch, the little party explored the garden, and here Mdlle. Kreglinger proved that she has inherited the horticultural tastes and instincts of her father and mother. Needless to state, Dahlias are largely grown at Chateau du Brandt, and we may add that Mme. and Mdlle. Krelinger demonstrated the value and beauty of Dahlias for the decoration of a luncheon table and dining room.

Regarding the exhibition, there were three exhibits of outstanding excellence, *i.e.*, M. Nagel's Dahlias and Messrs. Stuart Low and Co.'s Orchids, described below, and the splendidly grown examples of Begonia Elatior and B. Optima, shown by M. Baardse, of Aalsmeer; incidentally, we learned that these plants find a ready sale at high prices in the principal cities of the Netherlands.

These three exhibits were worth going a long distance to see. There were many groups of Roses, consisting mostly of well-known varieties, but the blooms were of poor quality and not arranged boldly.

Mr. Charles Good, Avenue Reine Elizabeth, Antwerp, an amateur grower, showed a large and pleasing group of fine specimen plants of Adiantums, Nephrolepis and Rex Begonias; and M. Peeters, Director of the Public Gardens of Antwerp, decorated the vestibules and entrance with foliage and flowering plants.

M. Juchem, Vieux Dieu; M. J. Espagne, Shaarbeck; M. Louis Lens, Warre; MM. Op de Beek fils, Putte; M. J. Vermulen, Antwerp; M. Ed. Cools, Vieux Dieu; MM. L. and A. Plasschaet, Brussels; M. Eugene Draps, Brussels; and MM. E. Marico et fils, Brussels, were other leading exhibitors, while splendid Grapes, Peaches, Pears and Melons were exhibited by the Hoeylaarte and other growers.

Dahlias.

The half-domed end of the hall, with its supporting columns, provided a delightful background and setting for a very handsome semi-circular group of decorative Dahlias finely arranged by M. Francois Nagels, Wilryck. Among many beautiful varieties grandly displayed we were greatly pleased with Goldrose of medium size, rose-pink, shaded gold; Fournaise, a clear soft orange; Pride of San Francisco, gold and salmon; Marmion, large yellow; Verdun, orange and gold; De Scheldt, large, intense ruby-crimson; Mme. Emile Thierrard, large, scarlet, tipped cream; Tendresse Anversoise, large, pure white, like a Water Lily; and Nagel's Ideal, large, mauve-heliotrope. Siskyon is an enormous flower, rather coarse, rose-pink, with golden glow in centre; Nagel's Meesterstuck, yellow, was another enormous flower. Every bloom was in the pink of condition, consequently everyone agreed with the verdict of the Juré d'Honneur, *i.e.*, that the Grand Prix of the exhibition should be awarded to M. Nagels, so he received the special prize offered by the King of the Belgians.

The competitive classes for Dahlias appeared to have been overlooked, or lacked entrants, or were misplaced, which was unfortunate, as such an exhibition should encourage amateur growers to compete with each other. New Dahlias, however, were abundant, and each of the following varieties received Awards of Merit:—

Pallister.—Reflexed decorative; gold, shading to scarlet at the tips.

Exquisite.—A decorative sort of large size; pale rosy-mauve.

Francois Nagels.—A large, broad-petalled decorative sort; light golden orange, very attractive.

President Albert Kreglinger.—A very large and full decorative variety of pleasing rosy-mauve colour.

J. Wauter's Favourite.—A coral-red, decorative variety of medium size, with reflexed, fluted petals.

Meesterstuck.—A very big decorative Dahlia of fine form with long, stout stems; the colour is clear golden yellow. Very fine.

Ministre Baels.—A large, decorative sort, broad-petalled, of lovely form; salmon-rose, with an orange glow in the centre. Like a lovely Nymphaea.

All these varieties were raised and exhibited by M. Nagels.

Mabel Lawrence.—This popular, large, decorative variety, of rich, deep scarlet colour, was raised by Messrs. Stredwick and Son. It was shown by M. J. G. Ballego.

Orchids.

An annexe was almost filled with Orchids, and the principal display was from Messrs. Stuart Low and Co., Bush Hill Park, Enfield, to which an Objet d'art was awarded. This group was notable for its display of Cattleya Maggie Raphael, C. Hardyana alba, C. Iris, Laelio-Cattleya Mrs. Medo (very fine), L.-C. Momus, L.-C. Aeneas, Sophro-Laelio-Cattleya His Majesty, S.-L.-C. Goodsoni, of brilliant ruby colour; Brasso-Cattleya Poilu, Cypripedium Maudiae and C. Rossetti, Vanda Kimballiana, V. coerulea, Oncidium Papilio, O. Lanceanum and Odontoglossum Pescatorei—a very fine display.

M. Firmin Lambeau was awarded a Prix d'Honneur for Orchids, and he had a charming exhibit in which the plants were bedded in Maidenhair Ferns. Especially good were his Laelio-Cattleya Clio var. aurea, L.-C. Mme. Despret, L.-C. lustrissima, L.-C. Lonqueval, L.-C. Soulange, Lambeau's var., Brasso-Cattleya Miscelle var. Volgelsang—a beautiful plant; B.-C. Mme. Maron alba, Cypripedium Emerald, C. Rossetti var. Goliath, C. Maudiae in quantity, and C. Germaine Opoix.

A Gold Medal was awarded to Messrs. A. and G. Janssens, Merxem, for a pretty and varied display, wherein Odontiodas and Cypripediums were notable features.

M. Charles Vuylsteke, Loochristy, displayed an interesting group of Odontiodas and Odontoglossums, and some of the finest sorts were the soft rose-pink Odontioda Rose Marie, O. President Draps, O. Burgmeester var. Cauwelaert, O. Mdlle. Marguerite Levie, with deep rose Picotee edge; Odontoglossum ornatissimum, O. Vuylstekeae and several unnamed hybrids.

Some well-grown Cattleyas and Laelio-Cattleyas, including C. Hardyana alba, were shown by Mme. E. Draps, Merxem; while Dr. Jan de Laet, Lichtaart, a new amateur Orchid grower, exhibited a very interesting collection that contained Cypripedium niveum, Coelogyne speciosa alba, Platyclinis glumacea, Catasetum Russellianum, Oncidium Harrisonianum, Odontoglossum Rossi and a few good Cattleyas and Odontoglossums. To each of these exhibitors a Gold Medal was awarded.

ROYAL HORTICULTURAL.

September 11.—There was an interesting show at the Horticultural Hall, Westminster, in connection with the fortnightly meeting of the Society held on this date. The principal floral features were Begonias, Sweet Peas, Roses, Dahlias, seasonable border flowers and Carnations. The Floral Committee recommended one First Class Certificate and eight Awards of Merit to novelties, and selected six new early-flowering Chrysanthemums for trial at Wisley. Orchids were not largely shown, but the Orchid Committee recommended one First Class Certificate and three Awards of Merit to novelties. The Joint Dahlia Committee selected a number of seedlings for trial at Wisley next year. There was an excellent group of fruit trees in large pots and some dishes of very good Apples. The chief work of the Fruit and Vegetable Committee was the naming of fruits, chiefly Apples; the few new fruits which were submitted were considered to be inferior to the standard varieties.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Mr. Gurney Wilson (Hon. Sec.), Mr. Lionel de Rothschild, Colonel Stephenson Clarke, Mr. Richard Thwaites, Mr. R. Ashworth, Mr. A. McBean, Mr. Robert Paterson, Mr. J. Cowan, Mr. H. G. Alexander, Mr. Charles H. Curtis, Mr. G. Shill, and Mr. Fred Sander, and Mr. G. Baldwin (U.S.A.), visitor.

First Class Certificate.

Laelio-Cattleya Valencia, Stonehurst var. (*L.-C. Soulange* × *C. Dinah*).—A very handsome hybrid with flowers of very large size and fine substance. The broad petals are soft violet-mauve, with violet shading at the tips; the large lip is purple, with ruby shading towards the gold-veined throat, while the frilled portion is light violet-purple, with still paler edge. Shown by Robert Paterson, Esq. (gr. Mr. A. Merry), Stonehurst, Ardingly.

Awards of Merit.

Cattleya Esther Waldegrave (*Astron* × *gigas var. Firmin Lambeau*).—A dainty Orchid of exquisite form. It is pure white, save for a lemon-yellow blotch at the base of the lip. Shown by Baron Bruno Schröder (gr. Mr. Shill), Dell Park, Englefield Green.

Cattleya Heliodor var. Mahmea (*iridescens* × *Venus*).—A very attractive hybrid of moderate size and good form. The colour is clear buttercup-yellow, the lip being ruby-crimson at the bi-lobed apex and old gold and red-brown at the base. Shown by C. G. Osborne, Esq. (gr. Mr. J. E. Jones), Highfield, Marlow.

Cattleya Lady Veitch, Stonehurst var. (*Luddemanniana var. Empress* × *C. Warneri alba*).—A somewhat vigorous and large-flowered form of a beautiful Orchid. Shown by Robert Paterson, Esq.

Groups.

The contribution from Messrs. Charlesworth and Co. consisted of admirable plants, all well displayed, of Cattleya Hardyana alba, C. Adula, C. Hemtshelli, Laelio-Cattleya Soulange, Brasso-Cattleya Dietriechiana, Sophro-Laelio-Cattleya Senator, Odontonia Dora, Miltonia Mona, Dendrobium Phalaenopsis, and other good things.

Messrs. Cowan and Co. showed charming plants of Cattleya Helidor, C. Mrs. Gratrix, and richly-hued C. Hardyana, C. Lady Veitch, and Brasso-Cattleya Penelope with four fine blooms.

Messrs. Sanders brought up Cattleya Hardyana alba, C. Bridal Veil, and Laelio-Cattleya Carmania, and the rare Lindleyella (Bifrenaria) aurantiaca.

Three well-grown and showy Brasso-Cattleyas were exhibited by C. G. Osborne, Esq., Highfield, Marlow; these were B.-C. Hannibal, B.-C. Andromeda, with three big blooms; and B.-C. Penelope, also with three very large, purplish-mauve blooms. A pan of Habenaria radiata—a miniature of H. Suzannae—was shown by Mr. Amos Perry. A specimen of Cattleya Lord Rothschild, shown by Messrs. J. and A. McBean, had two spikes and a total of nine flowers.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. J. F. McLeod, Mr. Arthur Turner, Mrs. Ethel M. Wightman, Mr. C. F. Langdon, Mr. D. Ingamells, Mr. Hugh Dickson, Mr. Montagu Allwood, Mr. William Howe, Mr. Courtney Page, Mr. A. E. Vasey, Mr. R. Findlay, Mr. Donald Allan, Mr. James B. Riding, Mr. D. B. Crane, Mr. Charles E. Pearson, Mr. G. W. Leak, Mr. E. R. Janes and Mr. W. D. Cartwright, Secretary.

Section B.—Mr. Gerald W. E. Loder (in the chair), Mr. W. J. Bean, Mr. Amos Perry, Mr. F. G. Preston, Mr. Reginald Cory, Mr. W. B. Cranfield, Mr. L. R. Russell, Mr. A. Bedford, Mr. E. H. Wilding, Mr. G. Yeld, Mr. Mark Fenwick, Mr. Hiatt C. Baker, Mr. E. A. Bowles, Sir William Lawrence, Bt., Mr. T. Hay, Mr. Charles T. Musgrave, Colonel Stephenson Clarke, Mr. A. Worsley, visitor, and Mr. N. K. Gould, Secretary.

First Class Certificate.

Brunsdonna Parkeri alba.—A good illustration of this fascinating bi-generic hybrid accompanied a fairly exhaustive article by Mr. A. Worsley in *The Gardeners' Chronicle* of November 14, 1925. But the half-tone illustration necessarily fails to depict the lemon-yellow base of the flower, and suggests a true albino. A good spike of ten flowers was shown and Mr. Worsley finds that it is a hardy subject. Shown by Mr. A. Worsley, Mandeville House, Isleworth, Middlesex.

Awards of Merit.

Amaryllis (*Brunsdonna*) *blanda.*—In this hybrid the Belladonna parentage is much more dominant, and in general appearance it is a fairly vigorous Belladonna Lily of beautiful soft pink colour, with a yellow base to the perianth. Shown by Mr. A. Worsley.

Bursaria spinosa.—This half-hardy evergreen shrub was introduced from New South Wales in 1793, and is illustrated in *Bot. Mag.*, t. 1767. The small, obovate leaves taper towards the base, and have very short stalks. The flowers are produced in dense, branching, terminal panicles, and although the individual, whitish flowers are small and almost inconspicuous, the effect in the mass is very attractive. Shown by Mr. P. D. Williams, St. Keverne, Cornwall.

Perowskia atriplicifolia.—The illustration in *Bot. Mag.*, t. 8,441, under the name Perovskia atriplicifolia, rather glorifies the floral effect of this sub-shrub, and fails to do justice to the beauty of its graceful, grey foliage. The contrast between the long, slender panicles of violet-blue flowers and the silvery stems and grey foliage has made this Himalayan plant popular in many gardens. An exceptionally vigorous form was submitted to the Committee by Major F. C. Stern, Goring-by-Sea.

Rosa Moyesii hybrid, No. 2.—The award was apparently given to this "natural hybrid" on account of its freedom in fruiting. The hips are also rather brighter than those of the species. Shown by Major F. C. Stern.

Montbretia Mrs. Edwin Montagu.—A vigorous variety bearing large, orange-coloured flowers, which have a small yellow zone.

Montbretia Sir Matthew Wilson.—A very brilliant variety of which the parentage was given as Princess × Queen Charlotte. The rounded flowers are of rich orange-cardinal colour, and have a small golden-yellow zone, with carmine markings. Both varieties were shown by the Hon. Mrs. Montagu, Attleborough.

Nymphaea hybrida Mrs. Whittaker.—A tender Water Lily, raised in America. The medium-sized flowers are of uncommon pale lavender-blue colouring.

Nymphaea hybrida Panama Pacific.—Another tender American variety. When the sepals first appear they are of bright purplish colour. The medium-sized, fully-expanded flower is blue-purple. Both were shown by Mr. Amos Perry.

For Trial at Wisley.

The following Chrysanthemums were selected for trial at Wisley :—

Robin.—A valuable dwarf, early-flowering variety of compact habit, approximating a large Pompon. The colour is a glowing reddish-chestnut.

Pink Domino.—A good, dwarf, border variety of bright mauve-pink colouring. This and the above were shown by Mr. A. W. Thorpe.

The Ashes.—The best of the early yellow spray varieties, and a great improvement on Horace Martin. It is very dwarf, and the colour is a rich golden-yellow. Shown by Mr. W. T. Roots.

Old Gold.—A border variety recommended for growing as sprays. The colour is old gold, shaded with bronze. This and the following were shown by Mr. H. Shoesmith, junr.

Little Gem.—A very decorative, large Pompon of bright yellow colour and borne on graceful stems.

Royal Purple.—A compactly-formed border variety of deep rosy-mauve colour.

New Dahlias.

The Joint Dahlia Committee selected the following novelties for trial at Wisley :—

White Swan.—A large single, classed as a Paeony-flowered variety. Shown by Mr. C. Turner.

Rubin.—A rosy-salmon, miniature Paeony-flowered variety. This and the following were shown by Messrs. J. Cheal and Sons.

Pride of Crawley.—A medium-sized, white decorative variety.

Hookwood Star.—A pretty white flower, heavily flushed with pink.

Mrs. Besley.—A large single, heavily flushed with pink on a yellow ground. There is an orange-carmine zone.

Mrs. Raymond Warren.—A medium-sized decorative variety of good form and glowing scarlet-crimson colour.

Robert.—A rich crimson, miniature Paeony-flowered variety which shows the dull underside of the florets.

Other Novelties.

Mr. A. Worsley showed a good spike of the rich yellow Lycoris aurea, and Sir William Lawrence, Bart., sent a pot of Habranthus Oberwetteri, a dull, ruby-coloured Liliaceous plant. Parasyringa sempervirens, shown by Mr. H. Armytage Moore, Rowallane, Co. Down, is an uncommon, dwarf, evergreen shrub. The opposite ovate, coriaceous leaves are suggestive of a Ligustrum; the small, dull, waxy-white flowers are produced in long, narrow racemes.

Groups.

An exceedingly interesting collection of excellent tuberous-rooted Begonias was staged by Messrs. Blackmore and Langdon. Usually, it is the double-flowered varieties with huge Camellia-like flowers that Messrs. Blackmore and Langdon stage, but on the present occasion they illustrated the fact that they grow the singles equally well. In addition to the usual type, they had fascinating batches of the frilled, crested and fimbriated varieties, and these were shown in such useful colours as crimson, rose, salmon and yellow.

A month ago, such an exhibit of Sweet Peas as that Messrs. Dobbie and Co. staged this week would have induced most favourable comment, of such excellence were the blooms. A long stretch of tabling was filled with excellent spikes of such sterling varieties as Hero, Pinkie, Mrs. A. Searles, George Shawyer, Olympia, Mrs. Arnold Hitchcock, Youth, Sunkist, Gleneagles and Flamingo.

Roses similar to those they staged so well at the previous week's Autumn Rose Show were displayed by Messrs. B. R. Cant and Sons, Mr. J. H. Pemberton, Messrs. F. Cant and Co., and Messrs. D. Prior and Son, while Messrs. Alex. Dickson and Sons also had a goodly collection. Messrs. C. Engelmann, Ltd., and Messrs. Allwood Bros. set up their customary collections of fresh Carnations. Gladioli were shown in quantity by Messrs. R. H. Bath, Ltd., who included lovely spikes of Romance, Rose Ash and Madame Mounet Sully. No doubt, in anticipation of the next few days' show, Dahlias were arranged by Mr. H. Hemsley, who also had some Sidalceas; Messrs. H. Langridge and Co., Mr. S. J. Goodliffe and Messrs. J. Cheal and Sons, who had good singles with excellent Pentstemons.

A useful collection of early-flowering Chrysanthemums arranged by Mr. H. Yandell included Red Almirante, Goldfinder, Sanctity, Harvest Glory and Crimson Circle. He also showed good Violas. In an attractive corner group, Messrs. L. R. Russell, Ltd., had well-flowered Clematis with Pittosporums and other shrubs.

A space at the end of the table was well-filled by Mr. Amos Perry with Lilium Henryi, L. ochraceum, L. neilghenense, L. Maximowiczii, Liatris pycnostachya, and other border flowers. Very good varieties of Rudbeckia laevigata and Wilson's Aconitum were shown with other border flowers by Mr. Baggeson. Messrs. M. Prichard and Sons had an effective group of seasonable border flowers, including Rudbeckia laevigata, various Heleniums and Montbretias, and on the staging, had excellent alpines.

Opposite their Begonias, Messrs. Blackmore and Langdon showed splendid secondary spikes of Delphiniums and, in another part of the hall, Mr. T. Carlile arranged good spikes. Messrs. B. Ladhams, Ltd., displayed varieties of tall Lobelias, Sidalceas, Coreopsis and Lonicera belgica. Messrs. Daniels Bros. associated Montbretia His Majesty with Gaillardia Tangerine. Mr. George E. P. Wood had border flowers.

Their excellent Michaelmas Daisy, Barr's Pink, was arranged with Gaillardias, Montbretias and other seasonable flowers by Messrs. Barr and Sons. Mr. W. Wells, junr., staged Walkden's Pink and Boy Blue with other Michaelmas Daisies, herbaceous Phloxes and Heleniums; and the Misses Hopkins displayed hardy border flowers.

Fruit and Vegetable Committee.

Present : Mr. C. G. A. Nix (in the chair), Mr. Jas. Cheal, Mr. G. F. Tinley, Mr. H. Prince, Mr. T. Pateman, Mr. A. W. Metcalfe, Mr. A. Poupart, Mr. H. Markham, Mr. G. Woodward, Mr. E. A. Bunyard and Mr. A. N. Rawes, Secretary.

There was no business of importance before this Committee.

Groups.

Messrs. T. Rivers and Son, Ltd., displayed an excellent and extensive collection of well-fruited trees in pots, embracing Apples, Plums, Peaches, Nectarines and Figs. The Plum trees were bearing exceptionally heavy crops and included such varieties as President, Coe's Violet and Coe's Golden Drop; while Apples were represented by Ellison's Orange, James Grieve and Peasgood's Nonsuch; Peaches by Princess of Wales, Sea Eagle and Thomas Rivers; and Nectarines by exceptionally fine examples of Pineapple, Humboldt, Victoria and Spenser. Of Figs, there were several unnamed sorts.

A collection of Apples of good quality and well-coloured was staged by Messrs. S. Spooner and Sons. There were about two dozen varieties, including James Grieve, Redcoat Grieve, Cutler Grieve, Cellini Pippin, Rosebery, Rival, Charles Ross, Ellison's Orange, Worcester Pearmain, Lady Sudelly and Guelph, all finely coloured; Rev. W. Wilks, of good size and form; Lord Suffield, Golden Spire, Royal Jubilee, Stirling Castle and Pott's Seedling.

ANSWERS TO CORRESPONDENTS.

Annuals Failing.—*W. M.* All three kinds of plants—Aster, Clarkia and Salpiglossis—are affected with root-rot, but the disease is too far advanced for us to determine the original cause of the failure.

Names of Plants.—*H. S. B.* 1, Aster luteus hybrida; 2, Saponaria officinalis fl. pl.; 3, Galega patula; 4, Hemerocallis fulva.—*W. H. D.* 1, Prunus Laurocerasus var. (Cherry Laurel); 2, Prunus lusitanica (Portugal Laurel); 3, Berberis Darwinii; 4, Myrica Gale; 5, Ruscus aculeatus; 6, Olearia Haastii.—*L. S.* 1, We do not undertake to name florists' flowers; 2, Geranium pratense; 3, Montbretia rosea; 4, Gentiana asclepiadea.—*O. N. B.* Eucomis punctata.—*C. B.* 1, Berberis Darwinii; 2, Hypericum Androsaemum; 3, Osmanthus Fortunei; 4, Ficus stipulata (syn. F. repens) arborescent form; 5, Veratrum nigrum; 6, probably Tecoma radicans; 7, probably Abutilon var. (cannot name without flower); 8, Acer Negundo var. variegata.

Sax-blue-flowered Lathyrus.—*V. S.* The specimens are Lathyrus sativus, a species that grows here and there in the south of France, Belgium and Switzerland, Asia, North Africa and the Canary Islands. It is sometimes cultivated for its seeds and for fodder. It is only an annual, so that seeds should be collected. It may be recognised by its solitary sky-blue flowers, short, broad pods with two narrow wings along their back, one pair of narrow, smooth leaves, etc. Lord Anson's Pea has many bluish-purple flowers on a stalk, and one pair of ovate or oblong-ovate leaflets, and is altogether a stronger plant than L. sativus. If Lord Anson really gathered it at the Straits of Magellan, it must be widely distributed, as it is found growing widely in the Argentine. Its correct name is L. nervosus, but has two synonyms in L. magellanicus and L. Armitageanus. First introduced in 1744. The plant is doubtfully hardy, but might withstand the winter in your mild district. Elsewhere it should be grown in a cool greenhouse.

Communications Received.—J. C. G.—J. C.—J. K. and Sons.—G. D.—T. A. W.—G. T.—W.—A. F.—T. P.—J. W.—S. A.—A. G.—S. S.—J. B. H—L. C.—K. Y.—J. B. W.—J. A. P.—J. L.—W. P.—C. M., Hunts.—H. F. B.—M. A. R. H.—W. McG.—T. H. B.—Nemo.—M. McN.—J. H. C.

NEW HORTICULTURAL INVENTIONS.

THESE particulars of New Patents, of interest to readers, have been selected from the Official *Journal of Patents*, and are published by permission of the Controller of H.M. Stationery Office.

LATEST PATENT APPLICATIONS.

22,727.—Bamford, C. J., and Bamford, J.—Potato, etc., diggers. August 7.

22,828.—I. G. Farbenindustrie Akt.-Ges.—Manufacture of fertilizers. August 7.

22,981.—Wight, A. N.—Shears for trimming lawns, etc. August 9.

22,357.—Bamford, T.—Devices for attachment to garden hose, etc. August 2.

22,080.—Simpson, W. P.—Manure distributors. July 30.

SPECIFICATIONS PUBLISHED.

276,297.—Adelantado, L.—Manufacture of phosphate fertilizers.

294,275.—Gschlacht, O.—Device for protecting turfed surfaces.

Printed copies of the full Published Specifications may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at the uniform price of 1s. each.

THE LATEST TRADE MARKS.

This list of Trade Marks, of interest to readers, has been selected from the Official *Trades Mark Journal* and is published by permission of the Controller of H.M. Stationery Office.

SIMAR.

487,996.—Rotary soil-tilling machines.—Piccard Pictet and Company. (London), Ltd., 58, Compton Street, Goswell Road, London, E.C.1. August 15, 1928.

EVERREST.

491,802.—All goods in Class 12, which includes pruning knives, shears, etc.—W. Seelig, 23, White Street, Moorfields, London, E.C.2. August 15, 1928.

KIREKA.

492,470.—All goods in Class 13, which includes trowels, spades, forks, etc.—Robert Brooks and Co., Adelaide House, London Bridge, London, E.4. August 15, 1928.

MARSTERS'.

491,113.—Seeds for agricultural purposes.—C. W. Marsters, Ltd., 34, Broad Street, King's Lynn, Norfolk. August 15, 1928.

TRADE NOTE.

WASPS are a great nuisance this season, therefore those who are troubled with these pests and have tried the usual remedies may well test the efficacy of the Marvel Wasp and Fly Trap, supplied by Messrs. Corry and Co., Ltd., while the same firm's wasp-nest destroyer named Safe and Sure, will commend itself because it is a non-poisonous preparation.

GARDENING APPOINTMENTS.

Mr. Colin Goodchild, for nearly six years gardener to Sir JOSEPH TICHBORNE, Bart., Tichborne Park, Alresford, Hants., as gardener to Mrs. ERIC ROSE LEWESTON, Manor Gardens, nr. Sherborne, Dorset. [Thanks for 2/6 for R.G.O.F. Box.—EDS.]

Mr. H. E. Cosham, for the past two years gardener to E. W. King, Esq., Coggeshall, and previously gardener to Major CAPEL CURE, Ongar, as gardener to F. W. PYM, Esq., Hassells Hall, Sandy, Bedfordshire. [Thanks for 2/- for R.G.O.F. Box.—EDS.]

Mr. G. Austin, for the past two years gardener to Col. A. G. SHAW, Manor House, Stoke Poges, and previously at Shenley Hill House, Barnet, as gardener to H. W. MANSELL, Esq., Beechwood, Marlow, Buckinghamshire. [Thanks for 2/- for R.G.O.F. Box.—EDS.]

MARKETS.

COVENT GARDEN, Tuesday, September 11, 1928.

Plants in Pot, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz. ...	10 0–12 0
—elegans	10 0–12 0
Aralia Sieboldii	8 0– 9 0
Araucarias, per doz. ...	30 0–40 0
Asparagus plumosus ...	12 0–18 0
—Sprengeri ...	12 0–18 0
Aspidistras, green ...	16 0–60 0
Aspleniums, doz.	12 0–18 0
—32's ...	24 0–30 0
—nidus ...	12 0–15 0
Asters, white and coloured ...	9 0–12 0
Cacti, per tray, 12's, 15's ...	5 0—7 0

	s. d. s. d.
Chrysanthemums per doz. ...	12 0–18 0
—white, per doz.	15 0–18 0
—yellow, per doz.	12 0–18 0
—pink, per doz.	18 0–21 0
—bronze, per doz.	12 0–18 0
Crotons, doz. ...	30 0–45 0
Cyrtomiums ...	10 0–12 0
Kochia, per doz.	15 0–18 0
—60's	9 0–12 0
Lilium longiflorum, 48/32's ...	15 0–21 0
Nephrolepis in variety ...	12 0–18 0
—32's ...	24 0–36 0
Palms, Kentia	30 0–48 0
—60's ...	15 0–18 0
Pteris in variety	10 0–15 0
—large, 60's ...	5 0—6 0
—small ...	4 0—5 0
—72's, per tray of 15 ...	2 6—3 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	8 0–10 0
—cuneatum, per doz. bun. ...	5 0—8 0
Asparagus, plumosus, per bun., long trails ...	2 6—3 0
—med. sprays	2 0—2 6
short „	— 1 0
—Sprengeri, bun. long sprays	2 0—2 6
med. „ ...	1 0—1 6
short „ ...	0 6—1 9
Asters, white, per doz. bun. ...	3 0—6 0
—pink, per doz. bun. ...	3 0—5 0
—single var., per doz. bun. ...	2 6—3 6
—mauve, per doz. bun. ...	4 0—8 0
Carnations, per doz. blooms	1 6—3 6
Chrysanthemums —	
—white, per doz. blooms ...	3 0—6 0
—yellow, per doz. blooms ...	3 0—5 0
—bronze, per doz. bunches ...	5 0—9 0
—bronze, per doz blooms ...	2 0—2 6
– pink, per doz. bunches ...	8 0—9 0
—pink, per doz. blooms ...	3 0—4 0
Coreopsis, per doz. bun. ...	1 0—1 6
Cornflowers, blue, per doz. bun.	2 0—2 6
Croton leaves, per doz. ...	1 9—2 6
Daisies, large white, per doz. bun. ...	2 0—2 6
Fern, French, per doz. bun.	10 0–12 0
Forget-me-nots, per doz. bun.	8 0—9 0
Gaillardia, per doz. bun. ...	2 6—3 6
Gladiolus, giant varieties, coloured, per doz. spikes ...	2 0—4 0
—primulinus, 6's, per doz. bun.	5 0—6 0
Gypsophila paniculata, double, per doz. bun. ...	21 0–24 0

	s. d. s. d.
Heather, white, per doz. bun.	9 0–10 0
Lily-of-the-Valley, per doz. bun.	18 0–30 0
Lilium longiflorum, long, per bun.	2 0—2 6
— — short, per doz. blooms	2 6—3 0
—speciosum, long, per bun. ...	3 6—4 0
— — — short, per doz. blooms	2 6—3 6
— speciosum rubrum, long, per doz. ...	3 0—3 6
— — — short, per doz. ...	1 6—2 6
Marigolds, per doz. bun. ...	3 0—4 0
Myrtle, green per doz. bun.	1 6—2 6
Orchids, per doz.	
—Cattleyas ...	36 0–48 0
—Cypripediums	10 0–15 0
Physalis, per doz. bun. ...	12 0–24 0
Roses, per doz. blooms—	
—Mme. Butterfly	1 6—3 0
—Columbia ...	2 6—3 6
—Golden Ophelia	1 6—2 6
—Richmond ...	2 0—3 0
—Aaron Ward	1 0—1 6
—Roselandia	1 6—3 0
—Hoosier Beauty	3 0—4 0
—Molly Crawford	1 6—4 0
Scabiosa caucasica, per doz. bun.	4 0—6 0
Smilax, per doz. rails ...	4 6—5 0
Statice sinuata, blue, per doz. bun. ...	5 0—8 0
— — white, per doz. bun. ...	5 0—8 0
— — pink, per doz. bun. ...	5 0—8 0
— — yellow, per doz. bun. ...	5 0—8 0
Stephanotis, 72 pips ...	2 6—3 0
Stocks, white, per doz. bun. ...	8 0–12 0
— — mauve, per doz. bun.	6 0—8 0
Sweet Sultan, white, per doz. bun. ...	3 6—4 6
— — mauve, per doz. bun. ...	3 6—4 6

REMARKS. Chrysanthemums are still arriving in very large quantities, disbudded blooms having retained a fair price, as also have spray varieties, such as Rio dos Blancs and September White. Coloured sorts have been too plentiful, especially bronze, which have been difficult to clear at very low prices. Asters have also been too plentiful, and prices have been generally low, even for best quality blooms. Michaelmas Daisies and Physalis have increased in quantity. Liliums have been more than sufficient to meet the moderate requirements, while Carnations, Roses and other subjects show no change. Single Violets are increasing in quantity, but practically all blooms have arrived in a very curled condition owing to the warm weather, the chief supply coming from Cornwall.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples, English—	
—Miller's Seedling, ½-sieve ...	3 0—6 0
—Worcester Pearmain ...	2 0—6 0
—Lord Derby, per bushel ...	5 0—8 0
Apples, Californian—	
—Graves ...	11 6–12 6
Bananas, per bun. ...	13 0–25 0
Figs, hothouse, per doz. ...	3 0—6 0
Grapes, English—	
—Muscat of Alexandria, per lb.	2 0—5 0
—Canon Hall Muscat per lb.	2 0—6 0
—Black Hamburgh, per lb. ...	1 0—2 0
Grapes, Guernsey—	
—Muscat of Alexandria ...	1 3—1 9
—Canon Hall Muscat ...	1 9—2 6
—Black Hamburgh ...	0 9—1 0
—Gros Colmar...	1 3—1 6
Grape Fruits—	
—Porto Rico ...	30 0–37 6

	s. d. s. d.
Lemons, Messina and Palermo, per case ...	35 0–50 0
—Naples ...	40 0–65 0
Melons, hothouse, each...	1 0—4 0
—Cantaloupe, each ...	1 6—3 0
—Valencia, 24's and 36's ...	10 0–12 0
Nectarines, per doz. ...	6 0–24 0
Oranges, Cape Navels ...	20 0–30 0
—Valencia Late	20 0–25 0
Peaches, hothouse, per doz.	6 0–24 0
Pears, Williams's bon Chretien,	
—ditto, per crate ...	9 0–12 0
—Californian, Beurre Hardy	17 0–19 0
Pineapples, each	2 0—5 0
—English, Monarch	8 0–10 0
—Victoria, 12 lb. chip ...	5 0—6 0
—Princess, ½ sieve ...	6 0—7 6

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans—	
—French, ½-bush.	3 0—3 6
—Scarlet Runner, half bag ...	4 0—5 0
Beet, per bag...	5 0—6 0
Cabbage, per box	3 0—4 0
Cucumbers, doz. 36's, 42's, 48's	10 0–12 0
Lettuce, Cabbage, English, doz.	3 0—3 6
—Cos	1 0—3 0
Marrows, outdoor, per tally ...	5 0—7 6
Mint, per doz bun. ...	1 0—1 6

	s. d. s. d.
Mushrooms—	
—Cups ...	2 6—3 0
—Broilers ...	1 0—1 6
Peas, English—	
—flats, special	6 0—8 0
Potatos—	
—English, cwt.	6 0—7 0
Tomatos, English, pink ...	2 0—4 0
— — pink and white ...	2 0—4 0
— — white ...	1 6—2 6
— — blue ...	1 6—2 6
—Dutch, 28 lb. box	2 0—3 0
—Guernsey ...	1 9—2 0

REMARKS.—Owing to the continued spell of warm, dry weather, the demand for dessert fruits is good, and fruits of good quality sell readily and realise high prices. The best grades of English-grown Apples and Pears are in heavy demand, and Plums sell freely at reasonable prices; Blackberries are also in demand. In the vegetable market the chief feature is the shortage of salad material, especially of Lettuces, which, when available, are disposed of at prices profitable to the producer.

GLASGOW.

There was a good demand for cut flowers last week, but the daily supplies were more or less affected by the weather. Spray Chrysanthemums ranged in price from 3d. to 6d. per bunch, and disbudded blooms from 9d. to 1s. 6d. for 6's; Carnations, 1s. to 2s. per dozen; pink Roses, 3s. to 4s.; white and red Roses, 1s. 6d.; Gladioli 3d. to 6d. for 3's; Lily-of-the-Valley, 2s. per bunch; Richardias, 2s. to 2s. 6d.; Statice, 3d. to 9d.; Asters, 1d. to 2d.; Sweet Peas, 2d. to 6d.; Pompon Dahlias, 3d. to 6d.; Ferns, 1s. 8d. and Gypsophila paniculata, 1s, to 1s. 6d.

In the fruit market, the demand for Victoria Plums exceeded the supply, and up to 1s. 2d. per lb. was paid for good quality fruits. Orleans Plums made 5d. per lb.; Monarch, 6d. and Switzer, 3d. Damsons sold at 10s. per sieve; Raspberries, 10d. per lb.; cooking Apples, 10s. to 14s. per keg; Gravenstein Apples, 12s. per case; Black Pears, 13s. to 14s. half-case, and 20s. to 26s. per case; Hazel, 12s. per keg; Melons, 5s. 6d. for 36's; and imported black Grapes, 1s. per lb.

Vegetable prices were steady. Cauliflowers varied in price from 3s. to 6s. per dozen; Cucumbers, 3s. to 5s.; Lettuces, 1s. to 1s. 6d.; Marrows, 3s.; Celery, 3s. to 4s.; Mushrooms, 2s. 6d. to 3s. per lb.; French Beans, Scotch-grown, 1s. to 1s. 3d., English, 4d. to 6d.; and Tomatos 6d. per lb.

CATALOGUES RECEIVED.

GEORGE ELSOM, Spalding, Lincs.—Bulbs.

J. W. BARR, Daffodil Nurseries, Three-Legged Cross, nr. Wimborne, Dorset.—Bulbs.

SALE AND SON (WOKINGHAM), LTD., Wokingham, Berks.—Roses, Fruit trees, etc.

THE ROWAN SEED SERVICE, Capel Street, Dublin.—Bulbs.

F. M. ELLIS, P.O. Box 491, Griffin, Georgia, U.S.A.—General.

THE
Gardeners' Chronicle

No. 2178—*SATURDAY, SEPTEMBER* 22, 1928

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 54·9°.

Actual Temperature—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, September 19, 10 a.m. Bar. 33·. Temp. 59°. Weather, Overcast.

The Bayley Balfour Memorial.

As was announced in our issue of June 12, 1926 (p. 413), the generosity of Mr. H. G. Younger in placing his estate of Benmore at the disposal of the Forestry Commission enabled the latter body to propose to the Bayley Balfour Memorial Committee that the beautiful valley at Benmore, known as Puck's Glen, would furnish a more suitable *locale* for the proposed memorial to Sir Isaac Bayley Balfour than the site originally chosen at Glenbranter, a few miles to the north. The Committee's acceptance of the Commission's handsome proposal was no doubt influenced in some measure by the comparative accessibility of Benmore, for the estate lies within three miles of Kilmun pier and six of Dunoon, at both of which the Clyde steamers call, and it is within easy distance of Glasgow. Benmore has another advantage over Glenbranter in that the estate carries several hundreds of acres of woods, planted in the early part of the century, and many fine Conifers about fifty years old. Between Dunoon and Benmore is Inveresk, which Sir William Hooker rented for many years in the 'forties. The dedication ceremony, which took place on the 8th of this month, showed the wisdom of the change of site, for there can be few places better fitted by nature for the purpose in view than this delightful valley. There can be little doubt too, that Sir Isaac Bayley Balfour himself would have given the place his whole-hearted blessing. On a fine day, such as that with which the ceremony was blessed, the view from the head of Puck's Glen, where the Balfour Rest Hut has been placed, is one of singular beauty. In the distance, and through the faint blue haze more typical of Italy than of the Clyde, Ben More thrusts up its hump with the wooded canopy of A'Cruach immediately in front of it (Fig. 102). The glen stretches out below, and anyone who knows his plants can picture the scene of a few years hence, when the banks of the burn which tumbles through the glen to the river Eachaig are carpeted with Primroses which came nearer Balfour's heart, perhaps, than other plants. Some he never saw except as field specimens, and many can never hope for a footing away from their native alps; but there are enough and to spare to make Puck's Glen a sight for glad eyes in June. Already something has been done to this end under the wise direction of the Regius Keeper of the Edinburgh Botanic Garden, in whose care, as is only fitting, the planting of the glen will rest. Of the money subscribed to the Memorial by Sir Isaac's friends, a certain amount was allocated to the expense of the tablet which, as was reported and illustrated in our issue of December 18, 1926, was set up to his memory in the Edinburgh Botanic Garden. The balance was available to defray the cost of the small Rest Hut which it was decided to place in Puck's Glen as an outward and visible sign of its permanent association with the distinguished botanist; and to perpetuate the association in years to come when Balfour's personality will be unknown, an inscription on the chimney breast makes it clear that: "This hut and glen are dedicated by his friends to the memory of Sir Isaac Bayley Balfour in fulfilment of a plan he cherished." On the other side of the room visitors are enjoined to "Remember James Duncan, who had the foresight and courage to originate the planting which clothed these hills and glens with the woods you now enjoy." Incidentally, it is to this James Duncan that we owe the representative collection of Conifers of several hundreds of acres, many of the trees having made astonishing growth since they were planted between 1870 and 1883. Many specimens of Abies nobilis and A. grandis are at least one hundred feet high. Of the Rest Hut itself (Fig. 101) little need be written, except that in the simplicity of its outline it accords as well with its rugged surroundings as the works of man ever can. It was a happy thought of the designer, Sir Robert Lorimer, to employ sections of the many kinds of timber growing at Benmore for the internal panelling. The dedication ceremony was in tune with the day, the occasion and the surroundings, and Sir Herbert Maxwell gave felicitous expression to the sentiments cherished by those who knew the man to whose memory the Rest Hut and the glen are dedicated. Mr. J. D. Sutherland, Assistant Forestry Commissioner for Scotland and Secretary of the Memorial Committee, announced that of the fund subscribed by Sir Isaac's friends, a balance of about £100 remained, after the cost of the Rest Hut had been defrayed, and that the Committee considered an appropriate way of dealing with that would be to use it as the nucleus of a fund for the formation of a botanical library at Benmore House. He was also able to set at rest all doubts as to the future of the Memorial by declaring that it would be maintained for all time by the Forestry Commission. The dedication ceremony was attended by a distinguished company, which included Dame Helen Gwynne Vaughan, Sir David Prain and other representative botanists from the British Association; Sir John Stirling Maxwell, Mr. John Sutherland, Professor W. Wright Smith, and representatives of the staff of the Royal Botanic Garden, Edinburgh; Major T. F. Chipp and Mr. G. W. Loder, representing the Director of Kew Gardens and the Council of the Royal Horticultural Society, respectively. In the unavoidable absence of Lady Balfour, her son-in-law, Sir Francis Aglen, and his two sons, represented Sir Isaac's family. Since Mr. H. G. Younger's generous gift of the Benmore estate to the nation was announced in 1925 (see *Gardeners' Chronicle*, p. 121, February 21, 1925), there have been developments, and he has now made the country, and especially the cause of forestry, still more his debtors, not only by placing Benmore House itself at the disposal of the Forestry Commission (see *Gardeners' Chronicle*, p. 23, July 14, 1928), but by the establishment of a trust fund for the maintenance of the house and its surroundings, as well as for the furtherance of botanical and arboricultural education and research there. Benmore House is to be adapted for use as a school for forestry pupils, and there will be accommodation in it for University students, and for representatives of scientific societies who may wish to study forestry conditions in the west of Scotland. It is the expressed intention of the Forestry Commission to use Benmore as the centre of a great forest which will stretch from Benmore along the west side of Loch Ech to Strachur, then—with a gap here and there—on to Arrochar and down the sides of Loch Goil and Loch Long. The area is probably as suitable for afforestation as any in the country. The average rainfall is between eighty and ninety inches per annum, and frosts are seldom severe. Comparatively tender plants such as Drimys aromatica, Fitzroya patagonica and Pittosporum tenuifolium, are at home at Benmore. The geological formation is mica schist, which is known to suit many Conifers. Our illustrations (Figs. 101 and 102) are reproduced by courtesy of the proprietors of the *Glasgow Herald*.

Royal Horticultural Society's Autumn Show. For several years the Royal Horticultural Society has held its Autumn Show at Holland Park Hall, but this year it will be held in the Society's Halls in Vincent Square and Greycoat Street, Westminster, on Thursday and Friday, September 27 and 28. The applications for space have been heavier than in any past year, and there is every prospect of an exceedingly fine show. For the convenience of visitors, all the exhibits of one kind will be grouped together, so far as possible, in one or other of the two halls. The greater part of the wall space in the new hall will be devoted to Dahlias and Orchids, while the centre will be occupied by groups of shrubs, stove and greenhouse plants, and hardy flowers. Roses, which will be shown by an unusually large number of exhibitors, will take up practically the whole of the wall space in the old hall, while rock garden plants will occupy a large proportion of the tables in the centre. The New Plant stand, together with the table for the plants which are submitted to the Committee, but which receive no awards, will be in the Lecture Room on the second floor. The Committee appointed by the Council of the Society to decide constructional details of the new hall, chose for the interior bricks of a grey tint, which it was thought would make a suitable background for most exhibits. Consequently, no drapery of any sort will be used for backgrounds to the exhibits in the new hall, and it is believed that the uniformity of the permanent background will enhance the appearance of the show as a whole. In order to allow of the show being opened early on the morning of Thursday, September 27, the staging and judging of the exhibits will be completed on the preceding afternoon. On the Thursday, there will be a private view from 9 a.m. to 12 noon for Fellows and Associates and those presenting Fellows' transferable tickets. From noon to 7 p.m. the public will be admitted on payment. On Friday, September 28, the show will open at 10 a.m. and close at 7 p.m. The Fruit and Vegetable, Floral and Orchid Committees will meet at 11 a.m. in the new hall on Thursday, September 27.

Royal Botanical Society of London.—At the eighty-ninth anniversary meeting of this Society, over which Sir Walter Gibbons presided on September 12, Viscount Lascelles was re-elected President. The Council's Report and the Statement of Accounts for the year ending on December 31, 1927, were adopted unanimously.

"Gardeners' Chronicle" Medals.—*The Gardeners' Chronicle* Silver-gilt Medal, offered to the Royal Horticultural Society of Ireland, has been awarded to Captain Lewis Riall (gr. Mr. T. Webster), Old Conna, Bray, Co. Wicklow, for his exhibit of hardy flowers at the Society's August show. The medal offered to the Guildford Gardeners' Association has been awarded to Lt.-Col. Browne (gr. Mr. E. Hewett), Send, for Begonias; while the one offered to the Glasgow and West of Scotland Horticultural Society has been won by Col. Kennedy (gr. Mr. J. S. Cowan), Doonholm Gardens, Ayr.

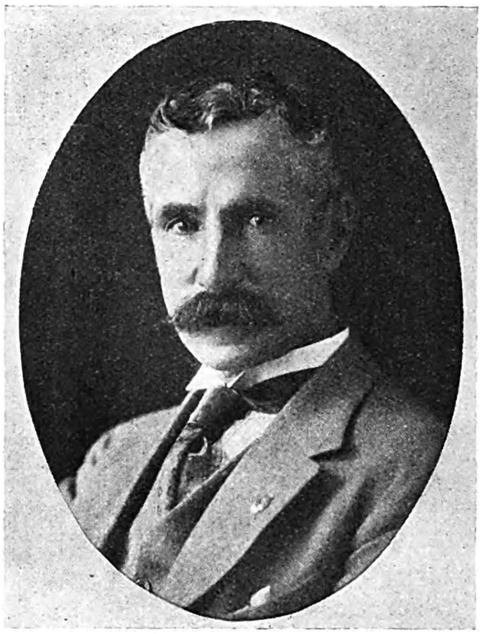
Horticultural Lectures by the Rothamsted Staff.—Certain members of the staff of the Rothamsted Experimental Station are prepared to give lectures during the coming winter to horticultural and agricultural clubs, societies, etc., free of charge. Any association engaging a lecturer will be expected to defray his travelling expenses. Applications should be addressed to the Secretary, Rothamsted Experimental Station, Harpenden, Hertfordshire.

Sphaeralcea acerifolia, Nutt.—We are informed that the plant which received an Award of Merit at the Royal Horticultural Society's meeting on August 28, under the name of Sphaeralcea rivularis, Torr. (see p. 179), was originally described by Nuttall under the name of Sphaeralcea acerifolia, and therefore the latter is the correct name.

British Mycological Society.—The Annual meeting and thirty-second Autumn Fungus Foray of this Society will be held at Littlehampton from October 1 to 6. The headquarters will be at the Bungalow Café, Beach Road. The following programme has been arranged. Monday, October 1: Council meeting, Beach Hotel, 6 p.m.; Annual General Meeting, Beach Hotel, 8.45 p.m.—Tuesday, October 2: Bus to Arundel, 10 a.m.; Visit Paine's Wood and Rewell Wood. Presidential address: on "Problems of Development in the Fungi," at 8.45 p.m.—Wednesday, October 3: Start from headquarters 11.30 a.m.; proceed by charabanc to Michel Grove; Mr. Alex Smith and Mr. W. C. Moore will discuss New and Interesting Plant Diseases at 8.45 p.m.—Thursday, October 4: Start at 11 a.m.; charabanc to Stane Street; work Eartham Woods and North Wood; at 8.45 p.m., Col. C. Theodore Green will give a talk, illustrated by lantern slides, on "Fungi and their Haunts."—Friday, October 5: Start 11 a.m. to Arundel; visit Arundel Park; at 5.30 p.m., Mr. J. Ramsbottom will give a lecture to the Littlehampton Nature and Archaeology Circle on "Fairy Rings." (members of the British Mycological Society are invited to attend); at 8.45 p.m., Mr. Carleton Rea will comment on the finds of the week.

Fruit Crops in Scotland.—In the August report on the condition of the crops in Scotland, the Board of Agriculture states that with the exception of Strawberries, most varieties of small fruits yielded satisfactorily, but in many cases the quality of the fruits was adversely affected by wet weather. In north and east Perth the yield of Raspberries exceeded expectations, and the crop proved to be quite a large one; in south-east Perth the yield was satisfactory, although not quite so heavy as in other parts of the county. In north-west Lanarkshire, Gooseberries were a full crop of good quality, while the prospects of Plums, Apples and Pears are said to be good. Owing to the lack of sunshine, tree fruits generally are ripening slowly.

Mr. W. H. Walker.—With the object of rounding off his early training, Mr. W. H. Walker entered the service of Messrs. James Veitch and Sons, at Chelsea, where he spent two-and-a-half years under the late Mr. John Heal, in the New Plant Department. Like all other young men who worked under Mr. Heal, he had opportunities of inspecting the plants and work done in other departments, and these he took full advantage of as occasion offered, thus gaining a very wide knowledge of plants grown under glass. It was Mr. Walker's intention to go to Kew, but an appointment in British Guiana was offered him, and this he accepted. In this tropical country he added greatly to his experience, but, unfortunately, he suffered severely from fever and became so crippled by rheumatism that at last, almost helpless, he was carried on board a steamer bound for London; the voyage occupied twelve weeks, and at the end of it he had made a fair recovery. Many years after, following a varied experience, he decided to go to New Zealand, where he arrived on Labour Day in 1912, with his wife, and four children under twelve years of age. Strenuous efforts and self denial for sixteen years, have ended in success and a seven months' holiday in the homeland. He and his sons are engaged in a nursery business at Omahu Road, Hastings, New Zealand, where, in addition to trees and shrubs, they grow enormous quantities of bedding plants, Tomato and Cucumber plants, Physalis, etc., for florists and market gardeners. Mr. Walker believes that many young would-be nurserymen would do well to exchange jobs—as teachers do—with young New Zealanders, for six or twelve months, and thus gain useful experience and a greater breadth of vision. They would also understand how empire fruits are grown, sprayed, packed and marketed. Mr. Walker states that in Covent Garden Market, any day, one fruit grower's Apples sell readily at £1 a bushel, while another grower's stuff sells with difficulty at 1s. 6d. per half-sieve; if such poor samples as the latter were exposed for sale in New Zealand the grower would soon become bankrupt by the payment of fines rightly imposed by the law.



MR. W. H. WALKER.

Association of Parks and Botanic Gardens Superintendents.—Many of the members of the north-western branch of the Association of Parks and Botanic Gardens Superintendents recently availed themselves of the invitation of Mr. W. W. Pettigrew, V.M.H., President of the Association, to visit Wythenshawe Park. The members present included the General Secretary of the Association, Mr. A. Blackburn and Mr. M. Morgan, Chairman of the North-western Branch Committee. Wythenshawe Park was recently gifted to the Manchester Corporation by Mr. E. D. Simon, a former member of the City Council, and contains about 250 acres of well timbered park land. It is situated to the south of the city, and despite its proximity to industrial Lancashire, the sylvan character of the park and the surrounding countryside is as yet unspoiled. The park and grounds contain some very fine specimen trees and shrubs, and form an ideal picnic spot for the busy Manchester people. Mr. Pettigrew conducted the party round the grounds and very kindly pointed out the chief features. In his remarks, Mr. Pettigrew stated that in the event of any future developments, great care would be exercised in maintaining the cultured simplicity of the estate. The members of the party were entertained to tea in Wythenshawe Hall by Mr. and Mrs. Pettigrew, and after tea an interesting half-hour was spent in inspecting the interior of the hall.

Centenary Exhibition in Gotha.—The Thüringian Horticultural Society celebrates its centenary in 1930, and the occasion is to be marked by a horticultural exhibition at Gotha, and by the addition of a Rose garden to the already very beautiful Castle Gardens. The preliminary preparations for the new garden will be commenced almost immediately, with the hearty collaboration of the local members of the German Rose-lovers' Society, and it is anticipated that the garden will appear in full beauty in time for the exhibition in 1930.

Legacies to Gardeners.—The late Mrs. Margaret Ann Fitton, of Tormead, Northwood, Middlesex, who died on June 3, left £250 to her gardener, Mr. Arthur Whiting.—The late Mr. Henry Charrington, of Castlemans, Kiln Green, Reading, who died on July 11, left a life annuity of £78 to his gardener, Mr. George A. Bacon.—The late Mr. William John MacGreagh MacCaw, of Rooksnest, Park, Godstone, who died on March 3, left £100 to his gardener, Mr. Charles Penton.

Société Nationale du Dahlia of Belgium.—This Society was established on March 21, 1926, at Brussels, and has now a considerable number of individual fellows, and several Belgian horticultural societies in affiliation. The original promoters were M. E. Nagels, of Dahlia fame, of Wilrijck, who is Vice-President of the Société d'Horticulture et d'Agriculture d'Anvers, and M. Van Wyngaerden, the head of the Government Horticultural School of Vilvorde and a member of, or adviser to, various horticultural societies of Belgium; the Secretaries being M. Verboomen and M. Combez, Professor of Horticulture at Mons. The Society's immediate object is to stimulate the cultivation of Dahlias and to organise lectures, exhibitions and practical trials in an appropriate nursery, and to popularise the Dahlia by offering membership upon a democratic basis. The Society held its first exhibition in Namur on September 4, 1926, where it had been invited by the Fédération des Sociétés Horticoles de Namur et du Luxembourg, whose President is an enthusiastic floriculturist, viz., M. Golenvaux, Burgomaster of Namur. This first exhibition proved to be a great success, which was confirmed on the second occasion, viz., in Brussels in September, 1927, where the Society was invited by the Société Royale d'Horticulture et d'Agriculture de Bruxelles to exhibit in the magnificent hall of the Cinquantenaire. Other flowers were displayed, but these were overshadowed by the gorgeous show of Dahlias, among which some remarkable novelties were to be seen. Again, in Antwerp, the Société Nationale du Dahlia has shown its influence and usefulness. A large space was occupied by Dahlias at the recent show (see p. 218), and once again it has been shown that the Dahlia is resistant to the heat and the unfavourable climatic conditions of this year. It is the intention of the Société Nationale du Dahlia to hold an exhibition in each successive year. Apart from this, limited competitions are being organised and strict rules are being applied for the issuing of awards for novelties, and these have to show distinctive merit before they obtain a certificate. The Society's address is: 18, Avenue Victor Berteaux, Brussels, and the composition of its management remains as at the constitution, viz., M. Albert Kreglinger, Chateau du Brandt, Antwerp, President; M.M. E. Nagels and E. Van Wyngaerden, Vice-Presidents; and M. G. Verboomen, 18, Avenue Victor Berteaux, Brussels, Secretary, together with various assistants. A challenge cup, which headed the list of prizes in various competitions, has been definitely won by M. Bram-Sira, of Adinkerke, while a number of cups and other prizes have been won, such as a cup offered by Mr. Reginald Cory, President of the British National Dahlia Society, and another by the National Dahlia Society of Holland.

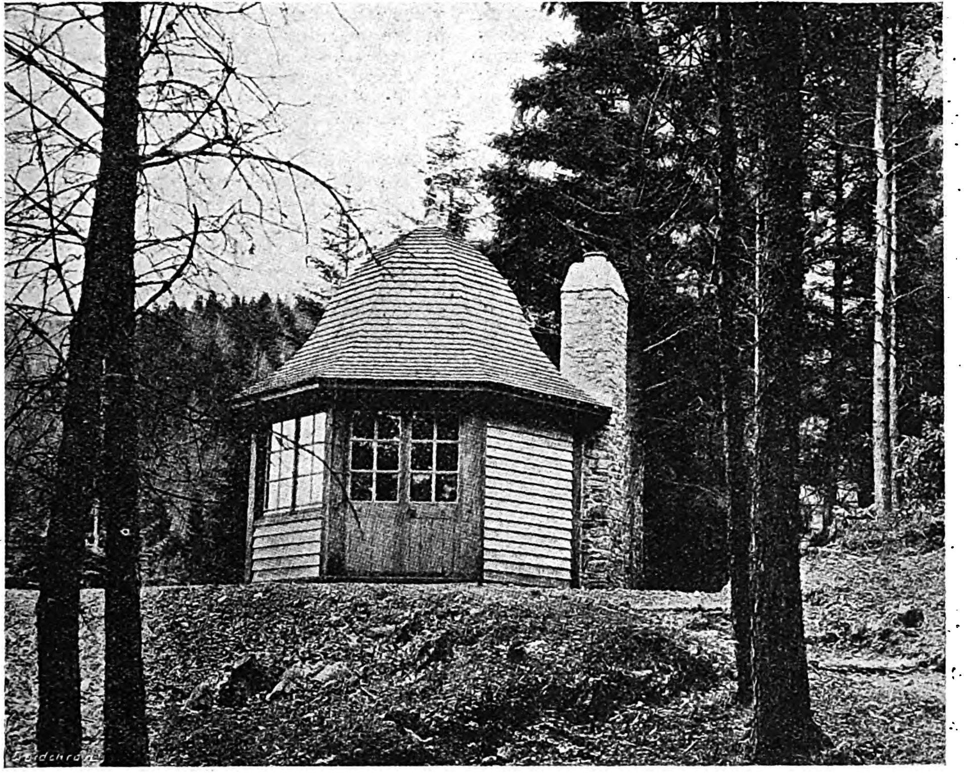


FIG. 101.—THE BAYLEY BALFOUR MEMORIAL REST HUT, PUCK'S GLEN, BENMORE.

Neill Prize for Mr. C. Webster.—The Neill Prize, which took the form of a silver salver, was presented to Mr. Charles Webster, gardener to the Duke of Richmond, at Gordon Castle, Fochabers, at a meeting of the Council of the Royal Caledonian Horticultural Society, on Tuesday, September 11. The President, Mr. J. T. Jeffrey, was in the chair, and, in handing over the prize, said that in singling out Mr. Webster for this distinctive honour the Society had made a happy choice. They had proof of what he was capable of doing on the exhibition table. Some people might consider that it was easy to grow fine fruits at Gordon Castle, but while Mr. Webster might be fortunate in regard to climate, they had seen from his exhibits that he had taken full advantage of the favourable conditions. In a brief reply, expressing appreciation of the honour, Mr. Webster said that his staff in the garden was as delighted as he was himself. The salver bore the following inscription:—"Royal Caledonian Horticultural Society. Neill Prize awarded to Charles Webster for his services to Horticulture, June, 1928."

Bermuda Easter Lilies.—According to the *Report* of the Bermuda Department of Agriculture for the year 1927, the exports of Bermuda Easter Lily bulbs has increased from 823 cases in 1918 to 6,043 cases in 1927, but it is also stated that "It is regrettable that the price of Bermuda bulbs has not kept pace with their quality"—The *Report* announces that the quality of the bulbs was better than ever before, and great credit is given to the Department's Plant Pathologist, Mr. Lawrence Ogilvie, for the investigations which he has conducted into cultural methods for the improvement of the bulbs. Under his guidance, arrangements were also made with various institutes in the United States of America, Bermuda's principal bulb market, by which the behaviour of the Bermuda Lily bulbs is being studied under glasshouse conditions. It is interesting to note that in 1927, and again in 1928, attempts were made to cultivate Lilium regale in Bermuda, but both attempts met with failure. The bulb growers of Bermuda owe a great debt of gratitude to Mr. Ogilvie, who recently resigned from the Bermuda Department of Agriculture to take up a position in this country as Advisory Mycologist at Long Ashton, Bristol, for through his endeavours the growers are now familiar with the various pests and diseases of their bulbs, and with the methods of control, so that with respect to freedom from disease and trueness to type, the Bermuda Lily bulbs have reached a standard never attained before.

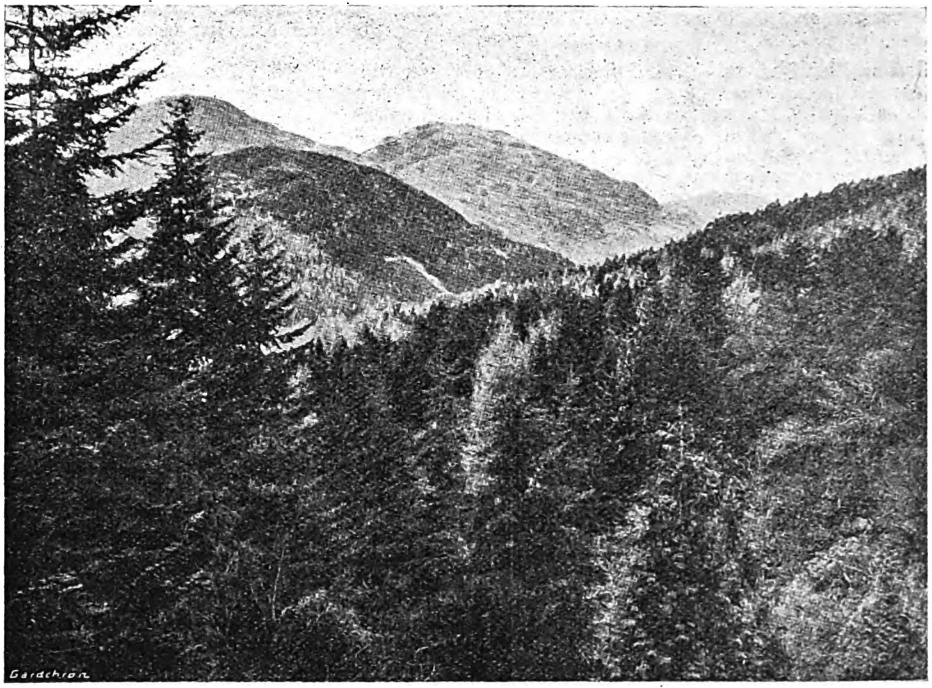


FIG. 102.—VIEW OF A'CRUACH AND BEN MORE FROM THE BAYLEY BALFOUR MEMORIAL REST HUT.

Appointments for the Ensuing Week.—MONDAY, SEPTEMBER 24: Harrogate Horticultural Association's meeting. TUESDAY, SEPTEMBER 25: Royal West Renfrewshire Horticultural Society's Council meeting. THURSDAY, SEPTEMBER 27: Royal Horticultural Society's Great Autumn Show (two days); Paisley Florists' Society's meeting; Bideford Horticultural Society's meeting. SATURDAY, SEPTEMBER 29: Leigh-on-Sea Horticultural Society's exhibition.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Gomphrena Amaranthus.*—A new annual called by this name was highly spoken of last spring. I should like to hear what any of your readers think of it. I grew it, and consider that our Thistle is as superior to it as the finest China Aster is to the worst common Daisy. People may be deceived once by new humbugs and bad seed, but not twice. Some one making a speech at Sheffield a few days ago said, the British manufacturer, by making an inferior article and giving it a superior finish, got an article of very inferior quality passed off in the market; but as people were getting their eyes open to the deception, the foreigner would cut out the British manufacturer entirely. It will be the same with the British seedsman who recommends his seeds as something very fine, and when proved they turn out trash. This spring, I procured some China Aster seed advertised as being first-rate; it has turned out trash. At the same time, I got some seed of China Aster from Paris, which, with the same treatment, has turned out first-rate. The French seed was the same quantity and half the price. I wonder if the English seedsman thinks that next year I and my friends will send to him for seed in preference to the French seedsman. *A. L.* (There is no such plant as Gomphrena Amaranthus; the name is an imposition as well as the seed.) *Gard. Chron., September* 17, 1853.

Publication Received.—*Calendar,* 1928-29; The East Anglian Institute of Agriculture Chelmsford.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

Masdevallias.—Members of the robust-growing Masdevallias, such as M. coccinea var. Harryana, and M. Veitchiana, that have flowered during the summer months and were not re-potted in the early spring, may receive attention at the roots at this season. Specimens that have lost their leaves in the centre should be carefully broken up and have decayed portions and old roots removed; each portion may be potted separately or several arranged together with some leads toward the centre, to make compact specimens. These brilliantly-flowered Orchids are strong-rooted, and along with other vigorous kinds, including M. macrura, M. elephanticeps, M. Ephippium and others, are best grown in pots or deep pans provided with ample drainage. A compost consisting of three parts Osmunda fibre cut moderately fine, one part chopped Sphagnum-moss and a sprinkling of broken charcoal or crushed crocks, suits them well. The smaller-growing species and hybrids, such as M. O'Brieniana, M. simula, M. Arminii, M. Leda and others, only require a small amount of compost to grow in, and may be accommodated in small pots or pans; these succeed best in a position near the roof glass. The compost should be made moderately firm among the roots and the base of the plant kept just below the pot rim, allowing room for copious watering during the growing season. Masdevallias thrive well in the cool house, where the surroundings are moist and the plants shaded from strong sunshine; any excess of moisture at the roots and in the atmosphere should be avoided as the short days appear, or black spot disease may be troublesome. Newly-potted plants require watering very carefully, only sufficient water being given to moisten the compost, until the roots are well established in it; saturation at this stage will cause the leaves to fall. Thrips often attack these Orchids and should be kept in check by spraying with a weak nicotine solution during fine weather, and occasional fumigations during the winter months.

Masdevallia Chimaera.—The Chimaera section of Masdevallias, which includes such interesting kinds as M. bella, M. radiosa and M. Chestertonii, are best grown in Teak-wood baskets without any hard material for drainage, to allow the flower spikes to pass through the baskets when these are suspended from the roof; these should receive attention to potting in the early spring months, and they grow best at the cool end of the intermediate house during winter. The flowers and buds of the beautiful M. tovarensis, which usually open about the end of the year, also M. muscosa, are easily damaged when fumigated, and should be removed until the fumes have cleared.

THE KITCHEN GARDEN.

By Allan Falconer, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Spring Cabbages.—The earlier sown batches of seedlings, which were advised to be pricked out into a seed-bed so soon as they could be handled, should now be ready to transfer to permanent quarters, and should be quite sturdy plants. Plants transferred direct from the seed-beds are usually very succulent and fall easy prey to the slugs, in spite of the usual attention with various dustings, and it is time well-spent pricking out the seedlings so soon as they may be handled to secure sturdy, slug-proof plants. The land for the permanent plantation should be in a firm condition, for if it is loose the plants do not heart up so well; ground which has been used for Onions, Peas, Beans or Potatos, is usually in good condition for this important crop, and if cultivated to a depth of about four inches before planting, sufficient tilth is available for hoeing, and later for drawing soil up to the stems before hard frosts occur. The distance apart at which they should be placed depends on the varieties grown, but where such small-growing sorts as Harbinger are grown, eighteen inches between the rows and one foot between the plants should answer admirably, cutting every other plant early in the spring for use. Larger varieties need two feet between the rows and eighteen inches or two feet between the plants, to allow ample space for development. The presence of lime in the soil is essential to their healthy growth, and a good dusting at the time of planting should also help to keep vermin away. Plants from the later sowings may be pricked out in rather poor soil, so as to keep them in good, firm condition; it is also advisable to prick plants out into skeleton frames where some slight protection may be given during hard weather, and these plants are often useful to fill blanks in the permanent beds, and also to provide a succession in the spring.

Maincrop Potatos.—The lifting and storing of Potatos is often left until quite late in the season under the mistaken idea that the tubers are not ripe until the tops have died down completely, and much wastage of the crop through disease and vermin is often caused through the tubers being left in the ground too long. A little rubbing should not affect the tubers, and provided fine weather for harvesting the crop is taken advantage of, no loss should occur. On the other hand, if the tubers are left in the ground and rains occur, disease becomes rife, the task of collecting and cleaning them is made more difficult and disagreeable, and, in addition, the land becomes in very bad condition for future crops. Unless the Potatos are turning out clean and the weather is settled, it is best to delay lifting them. Digging should cease each day in time to permit the crop to be picked up and stored. The question of seed-saving was dealt with in an earlier issue. The best place to store Potatos is in a dry, cool, frost-proof shed, where they may be attended to easily at any time; but if large quantities have to be dealt with, the clamp system is best. Before being placed in the clamp, the Potatos should be fairly dry, and any showing traces of disease should be carefully picked out. Pile them up in a long, ridge-shaped heap, according to the quantity to be stored, and cover them with straw or Bracken to a depth of six inches. Over this place a six-inch covering of soil, and make the surface firm and smooth with the spade so that rain will run off. Ventilation holes should be left about six feet apart by pulling a tuft of the straw through each hole, or inserting a drain pipe. Further protection may be necessary during severe frosts.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Early Vines.—Vines that were started early have now been cleared of their fruits, but the cultivation of the vines is not finished, although the crop has been harvested. If good Grapes are to be produced next season the vines need every attention with regard to watering of the border, and every endeavour should be made to ripen the growths thoroughly. The laterals may be shortened to four or five eyes so that the sun and air may do their part in attaining this end. Young vines may require a good deal of ripening, and the vinery in which they are growing should be kept somewhat warmer by the use of fire-heat; at the same time, it is necessary to admit air freely by keeping the top and side ventilators open both night and day, as nothing favours the ripening of the growths better than sun and fresh air. Older vines that are not so vigorous will, in all probability, mature their growths more easily, but ventilation in this case should be liberal whenever the outside conditions allow.

Late Muscat Grapes.—To obtain that rich amber colour which indicates the perfect finishing of the fruits, it may be necessary, for the time being, to allow as much light as possible to reach the berries. This is best done by tying back the foliage over and above each bunch, until such time as they have finished colouring. Then, if it is desired to keep the bunches hanging for so long as possible, it may be wise to shade them slightly to prevent shrivelling of the berries, and this is best done by placing sheets of tissue paper over the bunches, making them secure by tying each corner to a lateral growth. Pay careful attention to watering, and when the vines require moisture it should be given early in the morning so that the atmosphere may become dry by nightfall. Muscats should, however, be kept somewhat on the dry side until the crop has been gathered, after which the borders should be watered with luke-warm water.

Late Melons.—Hasten the development of late Melons by closing the house early to trap the sun-heat, and maintain moist atmospheric conditions. At the time of writing, the weather has been most favourable for this crop. Once the fruits have reached the stage when the skins are netting it may be wise to reduce the atmospheric moisture somewhat and to use sufficient fire-heat to allow of the admission of a small amount of air through the top ventilators at night, so as to prevent an excessive accumulation of moisture. Watering should be done carefully, especially if the soil ridges are on the large size. I always favour small ridges of soil for late Melons and also close planting, another important point being that of allowing only one or two fruits to develop on each plant. Should the plants require assistance to mature their crops, liquid farmyard manure should be given, but it is not wise to aim at growing these fruits to a large size; those of a medium size are preferable for table use, for they generally keep longer when cut and have a better flavour.

PLANTS UNDER GLASS.

By J. Coutts, Assistant Curator, Royal Gardens, Kew.

Chrysanthemums.—Where the buds of early-flowering varieties are well advanced, the plants should be housed before there is danger of the buds suffering from dampness; at the same time, it is a mistake to take them indoors before it is really necessary. It is a good plan to arrange them out-of-doors, where it is possible to place some light protecting material over them during the night. The plants generally will require attention as regards tying, feeding and disbudding. A sharp outlook should be kept for mildew, to which some varieties are subject; dust the foliage with flowers of sulphur, or spray with liver of sulphur, applied at the rate of one ounce to three gallons of water; a little soft soap mixed with it will render it more adhesive. A species of capsid bug has proved troublesome this season, the attack starting during the hot spell experienced during July; among various remedies tried for this pest, Volck has proved the most effective.

Pelargoniums.—The Zonal varieties, which are so bright and useful for winter-flowering, and have been standing out-of-doors in an open, sunny position, should be placed under cover without delay, as they quickly suffer from damp. They should be given a light position in a warm, airy greenhouse, where a little fire-heat may be applied during dull, wet weather. Unfortunately, in the immediate neighbourhood of London and other large towns, winter fogs quickly spoil them; indeed, a few hours' fog is sufficient to ruin Pelargoniums in winter.

Nerines.—Specimen Nerines which have been kept dry all summer should now be commencing to grow again, and therefore require a thorough soaking at the roots. As a rule, Nerines flower with greater freedom when the pots are crowded with bulbs, thus it is unwise to repot them until it is really necessary. If repotting is contemplated it is best done at the present time, *i.e.*, when they are commencing to grow; they are thus encouraged to make fresh roots quickly. After repotting, great care should be taken for some time with regard to watering, until they have made a quantity of fresh roots and are growing freely. During the winter Nerines should be kept well up to the roof-glass of a cool house. N. filifolia, N. Bowdeni and N. pudica are more or less evergreen, and should never be dried off completely. They should be given a compost consisting of good medium loam with enough coarse sand added to ensure free drainage; a six-inch potful of bone-meal should be mixed with every bushel of compost.

HARDY FRUIT GARDEN.

By T. E. TOMALIN, Gardener to the EARL OF BESSBOROUGH, Stansted Park, Emsworth, Sussex.

Gathering and Storing Fruits.—Midseason Apples and Pears now require constant attention so that each variety may be gathered when it is quite ready, *i.e.*, when the bulk of the fruits part readily from the spurs. Late-keeping sorts should hang on the trees for another fortnight or three weeks yet, and the longer they do so the better should the fruits keep. The young grower is often tempted to gather crops of late Apples or Pears because a few fruits are being blown down by the wind, or perhaps damaged by birds and wasps, but to do so is to invite disappointment in the end, because the fruits will surely shrivel long before their proper period of usefulness arrives. The exact date for gathering each variety does, of course, vary each year according to the season, but if the test mentioned above is observed, one cannot go far wrong. Among mid-season Apples which should be ready for picking at any time now are the cooking varieties, Loddington or Stone's, Hambling's Seedling, The Queen, Warner's King, Peasgood's Nonesuch and Cox's Pomona; while dessert Apples which require attention include American Mother, King of the Pippins, Ribston Pippin, Christmas Pearmain, Ellison's Orange, Wealthy and Rival. Dessert Pears of the following varieties, among others, may be ready to gather at any time now:—Beurré Hardy, Beurré Superfin, Marguerite Marillat, Triomphe de Vienne, Louise Bonne of Jersey, Marie Louise and Emile d'Heyst.

Arrangement in Store.—Where Pears and Apples have to be stored in the same fruit room, the upper shelves should be reserved for the Pears because the air is usually drier near the ceiling. Continuing on this same principle, the middle shelves should contain the mid-season Apples, and the ground floor space should prove most suitable for the latest keeping Apples and late stewing Pears, where, provided that no damaged fruits are included, they may be piled in heaps. This method of storing helps to check evaporation and consequent shrivelling of the fruits, which so often takes place when the fruits are laid in single layers. All badly spotted, pecked, or otherwise damaged fruits should be discarded by the pickers, and afterwards gathered up and used, or disposed of, immediately.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to the DUKE OF DEVONSHIRE, Chatsworth, Bakewell, Derbyshire.

Hardy Fuchsias.—Among the interesting and showy plants in the borders at the present time, hardy Fuchsias are prominent. The season has been quite favourable for their successful growth and flowering, as the drier conditions in the early part of the season led to their flowering more profusely than usual. It is singular that a more extended use is not made of this charming family, as it presents no serious difficulties under cultivation. The several kinds will thrive in almost any good garden soil and in most situations, some of the more robust growers making a charming effect against a grey wall. Young plants put out early in the season in good soil make rapid progress, and when well established should be left undisturbed if possible, when they should increase in size and vigour each season. In colder districts they are usually cut to the ground during the winter, but start again from the base with renewed vigour in the spring. To keep them growing well and in good health, some rotten manure and leaf-soil should be forked in around the roots in the early spring months. Although not strictly hardy everywhere, Madame Corneillison is well worth inclusion, as it is one of the most attractive varieties, the scarlet and white flowers being produced in great profusion. F. Riccartoni is another excellent kind, and others recommended are F. coccinea, F. sanguinea, F. gracilis, F. microphylla, F. globosa and F. Thompsoni. All are valuable additions to the mixed border, where a clump in the forefront of the border is a conspicuous object, and they may also be used with advantage with dwarf shrubs and in clumps along the woodland walks. The propagation of hardy Fuchsias may be carried out by division of the clumps in the winter months, by strong root cuttings, and by rooting young shoots in the ordinary way. The young plants should be grown on for a time before planting them in their permanent places. Careful division ensures a good plant or clump the first season. Cuttings rooted now and grown on all the winter should be suitable for planting in April or May.

Hardy Primulas.—Much interest is now shown in all the hardy Primulas, and they may be recommended as among the most delightful plants for the spring and summer months, as by a careful selection of varieties and judicious planting the flowering season may be extended over a long period. The seedlings should not be allowed to become drawn, but should be pricked out so soon as large enough to handle, in a reserve piece of ground; or in the case of rare and scarce kinds, into shallow boxes, until they are fairly re-established, when they will be ready to plant in their permanent positions. Many of the hardier Primulas thrive in boggy or extra damp ground, where many other plants would not survive the winter.

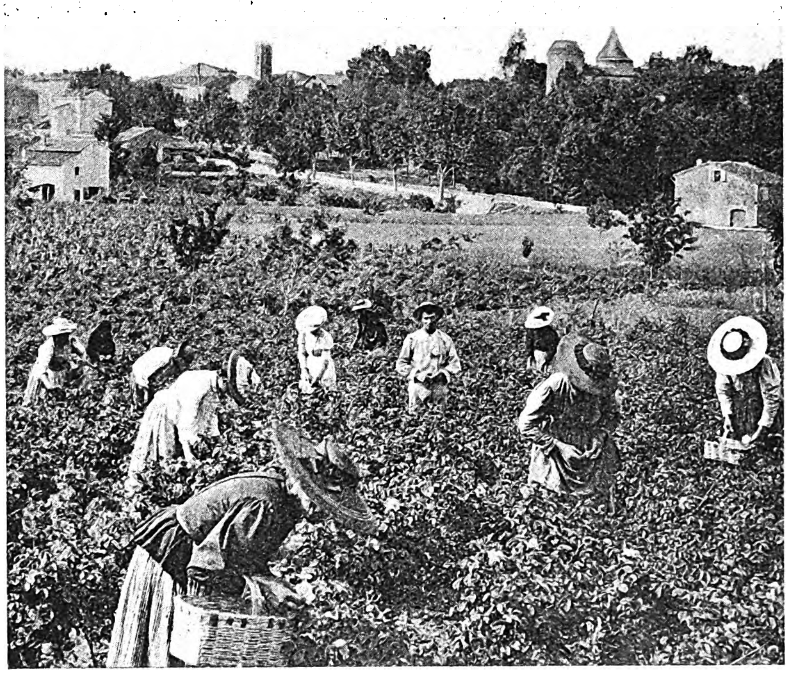


FIG. 103.—THE FLOWERS OF GRASSE: GATHERING ROSES.
(see p. 227).

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener at Jordanhill Training Centre, Glasgow.

Rose Cuttings.—While the greater number of Roses propagated annually by nurserymen are produced by budding, and it is agreed that by this means large numbers do exceedingly well, it is also quite possible to increase the stock of Roses by taking cuttings. These should be made of half-ripened shoots of the current year's growth, and removed from the parent plant with a heel, trimmed with a sharp knife, and shortened to suitable lengths. The cuttings, after being prepared, should be inserted about six inches deep in nursery rows, by taking out a shallow trench with a spade and placing sand in the bottom, making sure that each cutting is inserted firmly and kept erect by repeated treading along both sides. Naturally, strong growing varieties are best suited to this method of propagation, and most of the climbing and rambler sorts do exceedingly well, one great advantage being that there is no danger of suckers of Briars arising from the base, as so frequently happens with budded plants. Cuttings of Roses inserted now should, if all goes well, make good plants for setting out permanently next autumn; they should be allowed to remain in the cutting bed for twelve months, and if the rambling varieties are staked when necessary, they may be kept from becoming entangled with each other.

Propagating.—The time has once more come round when a start may be made with the propagation of many summer-flowering plants, and the frames should be made ready for their reception. Where only small quantities are required, boxes of a suitable size may be used, but where large numbers are necessary, the interior of the frames should be made ready for their reception. Sufficient drainage may be secured by raising the frames on bricks and filling in this space with gravel or ashes, on which rough compost or leaves may be placed before adding the made up compost. This should consist of two parts loam and one part each of leaf-mould and sand, the whole thoroughly mixed and passed through a half-inch sieve, and then placed in the frame to a depth of six inches being thoroughly firmed by treading. A layer of sand should be spread evenly on top, and in such a frame, if attended to as regards airing and watering, a great variety of plants should pass safely through a severe winter. Where brick-built frames are at command they are even more satisfactory, and outlast wooden frames several times, only the soil should be renewed occasionally, at the same time making sure that the drainage is in good working order. The sashes and interiors of all frames should be thoroughly washed with strong soapy water to which a small quantity of paraffin oil has been added, and any loose or broken glass renewed before the frames are actually required for use.

INDOOR PLANTS.

PYCNOSTACHYS DAWEI.

This beautiful, blue-flowered plant, a native of tropical Africa, is very valuable for decorating the greenhouse or conservatory during the dull winter days. The ease with which it may be cultivated, its freedom from attacks of insect pests, and its free-flowering habit, should be sufficient inducement for gardeners to grow it more extensively.

Quite recently I saw it described in a catalogue as a new plant, but I am sure it must have been in cultivation for a great many years, for it is nearly twenty years ago since I first saw specimens of this species of Pycnostachys growing in a greenhouse, in a small garden in Surrey. From cuttings received at that time, I managed to raise a batch of plants, and by annual propagation I have retained it until this day.

This plant, which will attain the height of about five feet in a single season, is clothed with long, narrow, lanceolate leaves, which are of a beautiful translucent texture. During the winter months each shoot is terminated with a dense spike of cobalt-blue flowers, from which characteristic it has derived its generic name: *pycnos* meaning compact, and *stachys*, a spike.

Propagation may be effected by seeds, which may be obtained from any of the well-known seedsmen, or by cuttings which are freely produced during the spring and summer.

Before commencing to raise a batch of plants, it is advisable to decide whether large, medium or small plants are required. From cuttings struck in March, it is possible to obtain large, multi-headed specimens, which should grow to about five feet in height and form large, pyramidal bushes, in eight-inch or ten-inch pots. If, however, propagation is delayed for about two months, smaller plants, about two-and-a-half feet in height, may be obtained; or if small plants in five-inch pots are required, then July is quite soon enough to make a start. Cuttings root with remarkable freedom in any light, open compost, especially if they are given the assistance of a little bottom heat. So soon as the cuttings are rooted they should be potted in the usual way until the final stage is reached. The secret of obtaining bushy plants is to pinch out the tip of each shoot which develops, up to the end of August, after which the plants should be allowed to grow on unchecked. Being gross feeders, they require liberal applications of liquid manure to maintain them in good health.

During the summer, they may be grown in an airy, sunny greenhouse, or, the pots may be plunged in ashes out-of-doors.

To obtain bushy specimens in five-inch pots, it is advisable to insert five cuttings in a three-inch pot and to transfer them intact into one of larger size; then, if the tips of the shoots are removed, a bushy specimen will result.

During the winter, Pycnostachys Dawei requires to be grown in a warm greenhouse, where its flowers may freely develop and impart a gay touch of colour to the structure. *G. F., Gardiner, Botanic Gardens, Bristol.*

BOG AND WATER GARDEN.

LIMNOCHARIS HUMBOLDTII.

This interesting and beautiful water plant thrives either in running or still water, and may be placed near the margins of lakes and streams, where its soft yellow flowers, produced over a long period, may be enjoyed to the best advantage. The plant is, unfortunately, only able to withstand the winter in mild districts, and in the colder counties it should be grown in a conservatory tank or in tubs sunk in the ground outside and afforded winter protection. A rich loamy soil and full exposure to sunshine are necessary to success.

Where, in mild districts, permanent planting is contemplated, the plants should be placed at least eighteen inches below the surface. The heart-shaped leaves are not the least attractive feature of this interesting plant, and are in delightful contrast to the yellow blossoms.—*Ralph E. Arnold.*

BULBS FOR EARLY FORCING.

The season is close at hand for potting and planting bulbs intended for early forcing, or for culture under glass between now and next May, and the subject that first engages the attention of cultivators is the selection of the sorts to be grown and how to procure them. For early forcing—that is, to have flowers from November until March—certain species and varieties only are suitable. Great mistakes are often made by injudicious selection. Among Hyacinths, only the single varieties are fit for early forcing. Double sorts never develop their flowers or spikes so well as the single varieties, and it is waste of time and material to try them. Besides, single Hyacinths are just as attractive as the double, and in the matter of size of flower and spike they are superior.

For the first batch, then, I recommend single kinds, and to ensure an early start they should be secured and potted so soon as possible. This is of far more importance and far better than pushing the plants forward in a high temperature afterwards. Bulbs for forcing should first have roots, and to have a good root system they should be potted early. After potting, the bulbs should be placed out-of-doors and covered with sifted ashes, preferably at the base of a wall or in a sheltered corner; they should be left there until the leaves are about two inches high, by which time the root system should be established. They should then be transferred to a perfectly cold frame, gradually exposed to the light, and after that gently forced as required in a temperature of from 55° to 60°, until they come into flower. The compost for Hyacinths should consist chiefly of loam, with leaf-mould and sand added. It may also be mentioned that many Hyacinths are spoiled by excess of heat, which causes the leaves to grow too long, at the expense of the flower-spikes, which require more time to develop. Whenever the leaves are seen to be growing too fast, the temperature should be reduced. In a properly developed Hyacinth the leaves stand up stiffly and do not reach above the middle of the flower-spike, which should always project well above the foliage.

As in the case of Hyacinths, the single varieties of Tulips are best for early forcing. Tulips require the same soil and treatment as Hyacinths, except that several bulbs may be placed together in one small pot, to form a good group.

Dutch Roman Hyacinths are valuable and are deservedly popular, on account of their earliness, as they may, if potted during September, be had in flower at Christmas; they are useful for decorative purposes if potted or planted thickly in bowls.

Both Snowdrops and Crocuses are useful for forcing, and should be potted thickly in pots or pans, in about four inches of soil; they should be forced very gently so soon as rooted, and given the same treatment as advised for Hyacinths. They make an effective display in a cool house between Christmas and April, during which period they may be had in flower continually by introducing batches from the cool frame every ten days or so.

Polyanthus Narcissi in variety have always been favourites for forcing, but recently the Daffodil family has become popular for this purpose, and these make very handsome pot plants.

The beautiful N. Bulbocodium conspicuus is also very suitable for forcing. It does better in pots than when grown out-of-doors, as a rule, and remains a good while in perfection. There is no neater subject for pot culture, and those who grow it once will grow it always. The small bulbs should be potted early in the autumn, kept cool until rooted, and then forced into flower in gentle heat. Daffodils in general may be forced in this manner. N. Golden Spur is one of the most popular for pot work as it flowers very freely, does not grow too tall, and is one of the very best of its class. N. Victoria is also good, as also is the common double Daffodil; while the little N. nanus makes almost as neat a specimen as N. Bulbocodium. The larger kinds should have pots of from six inches to eight inches in diameter, while the small varieties succeed in five-inch pots, and in any ordinary soil that is light and sandy. All are extremely easy to force, and the bulbs are comparatively cheap.

Gladiolus The Bride is already a popular favourite for forcing. It is a beautiful plant with pure white flowers, which are not too large, and are set off by the dark green, spear-shaped foliage, these characters making it a handsome pot specimen. The bulbs should be potted in clusters of eight or ten in an eight-inch pot, kept cool, and started into growth gently about March, to flower during April and May. *James A. Paice.*

BULB GARDEN.

FRITILLARIA PYRENAICA.

It would appear that a fresh interest is being taken in the Fritillarias by flower-lovers who do not confine their admiration to showy, coloured flowers, but love to study the beautiful form and quiet colouring of the allies of our British Snakeshead Lily, Fritillaria Meleagris. The prevailing admiration for rock gardens has something to do with this revival of interest, as these flowers are generally excellent for planting on rockwork, where they reveal their beauty admirably. Some which have not been in the market for some time are beginning to appear in lists, and among these is F. pyrenaica.

As the name would suggest, this species comes from the Pyrenees, and it is perfectly hardy in the British Isles. It grows about one-and-a-half foot high, and has delightful spreading bells, recurved at the apices of the segments, which are of a curious colour on the exterior, difficult to describe, and said to be green, flushed with purple. Their main beauty is shown in the interior of the flower, which is prettily chequered with purple-brown on a yellowish ground, and glossy, as if varnished.

F. pyrenaica is by no means difficult to grow, but should be planted in a light soil about four inches deep, and in sun or shade. Bulbs should be obtained so soon as possible and planted immediately, as they suffer if allowed to remain out of the ground.

SCILLA BIFOLIA.

Scilla bifolia is one of those early-flowering bulbs which might be considered more by the gardener. It blossoms a little before the favourite S. sibirica and, although its flowers are smaller than those of that species, they are more upright, and a few together look well in the garden. The type comes from central Europe, and has been in cultivation for a long time; but the best form comes from the Taurus Mountains, and is sometimes called S. bifolia taurica. S. bifolia grows to a height of about six inches and has narrow leaves and good blue flowers. The varieties of S. bifolia bloom in February and March.

There have been several varieties in gardens, but these are now rare and difficult to procure. One of these is S. bifolia splendens, with good cobalt-blue flowers, while there is also a very scarce white variety, S. b. alba, and a rose-coloured one named S. b. rubra. The late Mr. James Allen, of Shepton Mallett, raised some delightful varieties, but these are not procurable, although the writer had them in a former garden, but all save one solitary bulb of one variety were lost. An attractive form named S. b. ruberrima had red buds and, when open, had a reddish tinge on the blue ground. Another charming sort, called Rose Queen, had pretty pink flowers, and Pink Beauty was another with lovely pink flowers. Although they are not in commerce at present, they may eventually emerge from private gardens where some of them exist. In any case, this note may induce seedling raisers to experiment in raising good pink forms.

S. bifolia may be planted until November in loamy soil, and three inches deep. Once established, it needs no attention for years. *S. Arnott.*

THE FLOWERS OF GRASSE.

SITUATED over a thousand feet above sea-level on a southern spur of the Maritime Alps, Grasse occupies an unique position for the cultivation of plants requiring a mild climate and abundance of sunshine. North, east and west, the mountains protect it from winds; and on the south, the breezes reaching it from the Mediterranean come shorn of their saltness and warmed by their ten-mile journey overland.

Grasse enjoys an equable climate. According to observations made by M. Roux, the average temperature at 9 a.m. in January, the coldest month, is 41½°, while in August, the hottest month, it is 73°. Rain falls on an average for thirty-seven days in the year only, being more frequent in March and April than in other months. The annual rain-fall is estimated at thirty-seven-and-a-half inches, a figure slightly higher than that for Cannes, the nearest coast town.

The perfumery industry of Grasse dates back to the sixteenth century, and during the last sixty years or so has made rapid strides. This period, curiously enough, roughly corresponds with that of the introduction of synthetic perfumes. Synthetic chemistry has cheapened the production of perfumes enormously, and has thus created a much bigger demand for them, which has reacted favourably on the natural perfume industry, for the reason that satisfactory perfumes cannot be made from synthetic products solely.

At the moment there are over forty perfume factories in Grasse and its environs; and from Grasse to Cannes, the gently sloping land is formed into a series of terraces mainly devoted to the cultivation of odoriferous plants.

Of these, the Orange, Rose and Jasmine are most important. The yield of flowers varies somewhat, of course, from year to year; but the following approximate figures will give a good idea of the quantities consumed annually by the factories of Grasse:—Orange flowers, 2,000 to 2,500 tons; Rose flowers, 1,500 to 2,000 tons; and Jasmine flowers, 1,500 tons.

Among other flowers, the Tuberose must be specially mentioned, as the cultivation in France of this charmingly graceful plant of delicious odour is almost peculiar to this district. The annual consumption is about three hundred tons. Violets, Cassie, Carnations, Mimosa, Mignonette, Jonquils, Narcissi, Pelargoniums, Mints, etc., are amongst other plants cultivated in the district and utilised in the factories of Grasse. In the mountains above Grasse, Lavender grows wild. It is also cultivated in the district, and enormous quantities are distilled to obtain the essential oil. A few notes regarding the cultivation of some of the more important of these plants should be of interest to readers of *The Gardeners' Chronicle.*

The Orange is a peculiarly valuable plant from the perfumer's point of view, as not only the flowers, but also the rinds of the fruits, and the leaves and twigs, yield fragrant essential oils of use in the making of perfumes. The products obtained from the Bitter, or Seville, Orange are of a choicer character than those yielded by the Sweet, or Portugal, Orange. The first plant is sometimes regarded as a variety of the latter (Citrus Aurantium var. amara, L.), sometimes, and perhaps more correctly, it is distinguished as a separate species under the name of Citrus Bigaradia, Duhamel.

C. Bigaradia is of a more robust character than C. Aurantium, and in every respect is a more ornamental tree. It is protected with thorns, has more abundant foliage and larger leaves and flowers. The petioles are more markedly winged, and the fruits, although of the same size as those of the latter species, differ in other characters, the rind being more rugose and of a redder colour, and the pulp, when ripe, being very bitter and acid to the taste. Several varieties of C. Bigaradia have been distinguished differing in the size of their petiole-wings and in that of the flowers.

The trunks of bitter Orange trees are straighter than those of other species of Citrus, and less liable to attack by "collar rot" or *La Gomme*, a malady characterised by the exudation of gummy matter from the trunk and branches. For this reason, C. Bigaradia is usually raised from seeds; and trunks of this species are often employed as stocks on which to graft other members of the genus. Seedlings of C. Bigaradia are transplanted when sufficiently grown, and usually grafted in the year following. The trees are very liable to attack by insect pests, especially Chrysomphalus minor, as well as by a various fungi, against which cultivators wage a continual war.

In the district about Grasse, C. Bigaradia is cultivated mainly for its flowers. These are collected from the middle of April to the end of May, and are distilled to obtain the essential oil, called "oil of neroli." When in full bloom, the odour of the flowers of a grove of Bitter Orange trees is almost intoxicating; and, in the case of persons unused to it, the pollen floating in the air is apt to produce a species of hay-fever. The leaves and twigs are also distilled and produce "oil of petit-grain." Both these oils are employed in the manufacture of Eau de Cologne, neroli being the finer and more expensive of the two.

Many Roses are fragrant and yield a sweetly-odorous oil on distillation. At Grasse the kind most cultivated is known as the Rose de Mai, and has been variously described as Rosa centifolia, L., and as a hybrid of the true R. centifolia with R. Gallica, L. There are two main varieties, one with thorns, the other practically destitute of them, of which the former is suited to drier soils than the latter.

The shrubs produce suckers freely, by means of which they are multiplied. The first crop of flowers is obtained in the second year, a full yield being obtained towards the fourth. This is maintained until the tenth year, after which it declines. The harvest commences in the middle of May and finishes about June 7, the flowers being culled early in the morning while still wet with dew (Fig. 103).

Roses are liable to attack by innumerable insect pests, those cultivated for perfumery purposes, which are left in the open during the winter months, suffering less than more delicate species. Of maladies occasioned by fungi, rust (due to species of Phragmidium) is the commonest.

By distillation of the flowers, oil or otto of Roses is obtained, as well as Rose water. The otto compares very favourably in quality with the Bulgarian otto, distilled from the blossoms of R. Damascena, Miller, which constitutes the main bulk of the world's supply of this very important and valuable perfume material. A large proportion of the Roses at Grasse, however, are treated by other methods, whereby the perfume is extracted by means of a molten fat (maceration) or petroleum ether.

The subtle odour of Jasmine is one of peculiar charm, and a visit to Grasse in August (during which month the present writer had the pleasure of staying for a period in this charming spot), is rendered doubly delightful by the fragrance of Jasmine flowers, with which the whole district is suffused. The plant cultivated is Jasminum grandiflorum, distinguished from other species by its very large and very odorous flowers, which are white in colour tinged with red underneath. The plant may be cultivated in the open only in a very mild climate, such as Grasse enjoys, where there is no danger of frost. The plants are grafted when a year old on to stocks of J. officinale, the operation being a very delicate one, calling for considerable skill. A small yield of flowers is obtained the first year after grafting, the full yield being obtained about the fourth year. The harvest commences in July, and extends into October.

The flowers require special treatment in order to obtain the perfume material from them. Only a very small amount of this is actually present at any moment of time; but they continue to produce more of it after being plucked, probably owing to the decomposition of a glucoside. The extraction is accomplished by leaving them in contact with purified fat, exhausted flowers being replaced by fresh ones until the fat is saturated. This very interesting process is known as *enfleurage*, and is carried out, mainly by women, in the factories of Grasse.

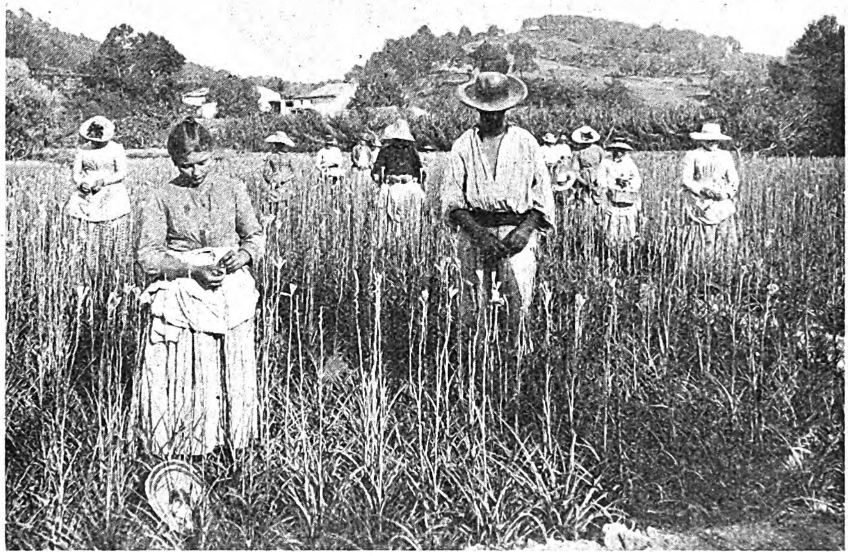


FIG. 104.—THE FLOWERS OF GRASSE: GATHERING TUBEROSES.

The Tuberose (Polianthes tuberosa, L exhibits the same peculiarity. Tuberoses are bulbous-rooted, planted in April and removed from the ground for storing indoors in November. A bulb which has once flowered will not do so again; but around it a number of bulbils are formed, destined to produce flowers in their turn.

The Tuberose flowers in August and September, the flowers being picked about mid-day. A field of Tuberoses is a lovely sight, the tall, graceful stems, bearing their burdens of wax-white blooms of intoxicating fragrance, being equalled in charm by few other plants (Fig. 104).

A visit to Grasse in the summer is incomplete without a journey up one or other of the surrounding mountains where Lavender grows wild. From the point of view of the oil obtained from it by distillation, French Lavender differs very considerably from the variety cultivated in England. The French oil has the stronger odour, but lacks the peculiar fragrance of the English oil, this, no doubt, being largely due to the effect of climatic conditions on the plant. However, the French oil is very much cheaper than the English, and is produced in very much larger quantities. There are at least two different species of Lavender indigenous to the Maritime Alps and other mountainous districts of France and Spain. These are True Lavender (Lavendula vera, D.C., or L. officinalis, Chaix) and Spike Lavender (L. Spica, L., or L. latifolia, Vill.).

The former favours altitudes of about 1,800 to 2,500 feet and is much visited by bees; the latter grows at lower altitudes, being more susceptible to the effects of cold. Varieties of L. vera exist, which Jordan distinguishes as different species under the names L. delphinensis and L. fragrans. L. Spica is a coarser plant than L. vera. It has broader leaves, larger bracts and flowers of a clearer blue. Its odour is stronger, more camphoraceous in quality and less agreeable. The two plants hybridise readily to produce a variety with characters intermediate between those of its two parents.

Flowers of all species and varieties are collected, the harvest taking place during July and August, and are distilled in order to obtain the essential oil, L. vera yielding Lavender oil, much employed in making Lavender water, L. Spica giving Spike oil, and the hybrid plant Lavandin oil. A good deal of the distillation is done by the peasants *in situ*, by means of alembics obtained for the season from Grasse. In addition to the yield of wild Lavender, the plant is also cultivated for the same purpose.

To those who love flowers and enjoy choice odours, Grasse is a place of enduring delight, the natural beauty of the mountain scenery adding to its other charms.

The writer's best thanks are due to Messrs. Bruno Court and Messrs. Roure-Bertrand Fils, of Grasse, for kind permission to reproduce the photographs with which this article is illustrated.
H. S. Redgrove, B.Sc., A.I.C.

BORDER CARNATIONS.

THE saying that "Man never is, but always to be, blest" may be applied, more appropriately, I should imagine, to gardeners than any other human beings, and Carnation growers, in spite of the fact that blooms have been plentiful and lovely, have in many cases had a very disappointing season in view of the fact that after a period in the early summer of cold, rainy weather, followed by a hot spell which brought on the plants very quickly, they were checked again by adverse climatic conditions, and then heat, in which Carnations simply revelled, encouraged them to bloom extremely freely, any attempt at keeping them back for show purposes proving quite useless.

Amateurs and growers alike have had to forego the pleasure of exhibiting, or had to confine their efforts to one, or in the case of big growers, at the most, two shows instead of, as usual, three or four. Even so early as the middle of July, many collections in greenhouses were past their prime, and here a pitfall was dug, and not only for the inexperienced.

At one time August was always considered the "layering month," but as varieties were gradually introduced which flowered earlier, layering was made to correspond, many enthusiasts going to the other extreme and starting at the end of June, although it was generally conceded that operations should begin early in July. It is, of course, necessary to start fairly early with this operation where thousands of plants have to be ready for autumn delivery, but even here circumstances alter cases, for the hot spell qrought the plants to maturity too quickly, and they required at least two or three weeks' more growth and ripening than in a normal season before the shoots were in a condition to form strong roots upon being layered, the majority wilting beyond recovery after a day or two. This is always unfortunate, as naturally the best shoots are the first selected for layering, and market growers usually begin working on them so early as possible, but after this year's failures the wiser of them will remember that "He who goes slowly, goes wisely and far."

The foregoing remarks apply, of course, to pot culture, the heat having deterred most of those who grow Carnations exclusively in the open border from layering too early, thus saving them from loss, or, what is almost as annoying, flowering of the layers when the summer is prolonged, as in the present year.

Another matter which is controlled by weather conditions is the question of manuring. Even on a hot, rather dry soil, such as my own, if the Carnation beds are well made and the plants are by themselves, they require nothing further than copious watering and syringing after a hot day, but growing among Roses, for instance, where a mulch is absolutely necessary, I have found that if the manure is strawy and well decayed, it not only does no harm but is of great benefit to the Carnations. A few of my own seedlings, left from last year in a Rose trench, which had not flowered, did so this season, two of them proving quite good enough to grow on. Where the soil is heavy, probably the treatment would not be beneficial, but I would not hesitate to advise anyone to give a top-dressing of manure where the soil is friable or hot, although I must confess it is, at first, rather unsightly.

Most varieties, this year, have given their best, the blooms in the open border being beyond praise, lasting well in spite of the heat, and some are still producing flowers. The white-ground fancies which have been sent out during the past few years are a host in themselves, and include many of xceptional merit, Mrs. E. Charrington, Ravenswood, St. Clair, Amos, Monica, John Stobart, Mrs. Seymour, Mrs. J. Fairlie, Dorothy Murray and Flora McIvor, and the novelties of last season, Esme Murray and Yenton, both with large flowers, strong and floriferous; Evelyn White and Bookham Beau, all being excellent for any purpose. And there are several equally good, the only drawback being that similarity of colour markings inevitably occurs, it often being an absolute impossibility to tell the difference between blooms. Probably the two last-named varieties, having heavy scarlet markings, will be favourite show flowers, as rose-pinks and mauves, in graduated shades, are greatly in excess of deep crimson and scarlet sorts.

Florence Frisby is welcome as a yellow-ground Carnation, being strongly edged and marked with crimson, and is likely to prove a standard variety, being, indeed, the best novelty in this class. As Idwen, another flower of good form and habit, is of Kelso and Mrs. J. L. Gibson colouring, I cannot say at present if it is really good in the border. Certainly the last two are the best under glass. Flamingo has been shown freely this season and, if well grown, is a most imposing and handsome flower.

There are several novelties being sent out this autumn, but they have still to be proved, and very often a list that looks imposing has many that drop out, even after the first season, and are not heard of again, except to crop up here and there. Catalogues, too, are coming out slowly, but except in the case of raisers who have to supply the market, there is still plenty of time for amateurs to make a choice for autumn planting.

There is a scarlet self, named Regina, sent out last season, which I recommend for the open border. If its form next summer is the same as it has been this, it may well be termed a perfect variety. The layers are strong and stocky, making numerous little side-shoots. There is also a purple, self variety named Majestic, a novelty which may prove a great acquisition, and the white-ground fancy variety, Tudor Rose, both having gained Awards of Merit. I like the last exceedingly, and although it was suggested that it had a slightly weak neck, this is not always a drawback in the open border, in my opinon, and the regular rose markings on broad petals are very fine.

Some delightfully coloured seedlings which were shown at Vincent Square in July by Professor Burstall, but were not put up for competition, which I much deplored, will most probably be seen again in the near future. They were quite distinct from any at present in commerce, and it would be a relief to be able to look at a variety and name it without so much examination. There are a few which are unique, Dr. Connor and Mrs. A. Brotherstone, for instance, and that reminds me that there is a seedling from the latter named Breckenborough Hall, which is being sent out this autumn. It has a salmon and pale pink ground, lightly splashed with red, and is more strongly perfumed than its parent. Another beautiful and distinct fancy border Carnation is F. W. Ransome, deep purple, banded with scarlet. Of very strong constitution, both it and the following are splendid in the open border, *i.e.*, Albert E. Amos, a real pale old rose, and so very occasionally tinged with scarlet that it is sometimes mistaken for a self.

That the border Carnation is being grown to a very much greater extent is evident by the number of firms which have started in recent years, two or three having begun as amateurs, which is all to the good, for only by competition do we get the best out of anything. Monopoly is not desirable, for we have neither choice nor variety, and both are indispensable if a successful extension in the number of amateurs who may grow the border Carnation is to materialise, and that growing for exhibition may be a profitable, so well as a delightful, hobby. One has only to visit the big annual shows to be convinced of this. Amateurs who are members of the National Carnation and Picotee Society will have a very fascinating new class open to them next July, for a Silver Challenge Cup is to be offered, the details of which will appear in the schedule sent out in the spring. It will cover what has been a long-felt want, and is within the scope of any member. *J. B. Wells.*

ANNUALS IN 1928.

TEN-WEEK Stocks have been very fine, for they were well established before the period of drought and have produced fine spikes of flowers in abundance. A selected strain of Princess Alice has proved most valuable for the supply of cut flowers. Asters have, for the second season, failed. The seedlings were so poor that it was considered useless to plant them; our soil is evidently unsuitable as they are a failure in many of the adjoining gardens.

Antirrhinums were very late in flowering. During June they were very stunted, their leaves being curled and giving the impression that they were infested by aphis, although they were found to be free of this pest. Antirrhinums, being generally so adaptable and flourishing under many adverse conditions, their behaviour gave some cause of fear that the disease which has been reported from America had reached this country. It was therefore a pleasant surprise to note that upon the advent of more congenial weather they made free, clean growth, and many varieties have produced exceptionally fine spikes of flowers. Nemesias have been good—a rich, moist soil is essential to secure a prolonged display from these annuals. Dianthus Heddewegii should be grown more extensively, especially on light soils, on account of the freedom with which it produces its flowers, which range in colour from white to rich crimson. These Japanese Pinks are also useful for planting in window boxes, vases and hanging baskets. A bed of the double orange and lemon African Marigolds is also very effective. I have recently seen the orange Marigold used in conjunction with Paul Crampel Pelargonium, and in large beds the effect was very striking. If a single form of the African Marigold is preferred the variety Orange Beauty is recommended. The rays of this Marigold are frilled and evenly arranged, the height of the plant being two feet. This is a most suitable plant for poor soils; on rich soil it is liable to grow rather coarse.

Sweet Peas have produced some excellent flowers, although the rough winds experienced during June were very detrimental to the young plants. After many trials it has been found that Sweet Peas thrive in old garden soil, providing it is worked deeply and contains sufficient humus. The addition of new loam is necessary on exhausted soils. The annual Chrysanthemums are undoubtedly among the most useful subjects for supplying cut flowers. The new mauve forms of the Godetia are also much in request for this purpose. Lavatera Loveliness and the white form of Lupinus Hartwegii have made a pretty border, and few subjects have been found more suitable for filling large vases than the annual Larkspurs. The Tassel Flower, Cacalia coccinea, always draws attention owing to its vivid colour, and the flowers are most serviceable for use on the dinner table. For an exposed bank, the Sand Verbena, Abronia umbellata, is difficult to beat; it is really a perennial, but succeeds as an annual and thrives during periods of drought when many subjects perish. The flowers are brilliant, in spherical, bright-rose heads produced from the nodes of the creeping, red, fleshy stems.

Another annual which has done very well in light soil is Adonis aestivalis, the Pheasant's Eye, with Nigella-like foliage and crimson, black-zoned flowers which are small but very bright. Two dwarf Nemophilas, N. discoidalis, maroon-purple, and N. atomaria, white, with flowers barely half-an-inch in diameter, blossomed when only four inches high. Another dwarf annual suitable for an edging is Leptosiphon hybridus, which grows about three inches high, producing, very freely, flowers which range in colour from orange to mauve.

Considering how popular are the Campanulas, it is surprising that the annual C. Loreyi is not more largely grown. The flowers are larger than those of the better-known C. attica, and are chalky blue, with erect stems; seeds of this Campanula may be sown in the open during March and April. *C. Ruse, Bletchley, Bucks.*

ANTIRRHINUM DISEASE.

The recent reference to the above disease by Mr. William Cuthbertson prompts me to remark that we have a small host of such troubles here. I have given up trying to grow Antirrhinums in New Jersey, for invariably, with the advent of July—August storms and terrible humidity—rust, anthracnose, branch-blight and wilt, plague the plants and soon put an end to them. The bad feature of our climate is that one never knows what to expect next. This year it has rained and rained almost unceasingly; we have not had more than five successive dry days, and more often than not the week-ends have been wholly or partially wet, so that home gardeners have been out of luck.

My garden has been smothered with weeds, the so-called Crab Grass, which is an annual form of your Couch, but more rampant, has been terrible. Hoeing has hardly ever been possible, and if one did manage it, rain always followed and the weeds started to grow again. During the hottest weather the humidity was so great that weeds thrown on the paths simply would not die; African Marigolds produced roots all up the stems, and Tomato trimmings and Dahlia shoots, if left in the shade, rooted where they lay.

Fungous diseases have been very bad because either one never had a chance to spray, or the rain nullified the operation. Many of my rock plants and even coarser-growing border plants have rotted away. Gladiolus disease is terrible, and the Roses at this time (early September) are mostly destitute of leaves owing to black spot. Losses among Violas have been heavy, the only forms growing well being Jersey Gem and V. cornuta. The rest, including my newer Jersey Jewel, have either rotted away or refused to make growth, so that there is little chance of propagation.

The disease Mr. Cuthbertson refers to is doubtless the common rust, Puccinia antirrhini, which is a very serious disease under glass. To prevent it from appearing, growers have to refrain from spraying the foliage. Why it should occur in southern California is mysterious, unless the growers find it necessary to irrigate and thus provide the moisture this disease requires. All the diseases we have seem to thrive when wet weather prevails, and often times I think they are carried on to the plants by the soil splashed up by the storms. Whenever I see dirt splashed over my Pansies, Violas, Primroses, etc., I expect trouble. This season the weather conditions have been so bad that most of my twelve-inch labels are so splashed over with dirt that the names are not visible! *T. A. Weston, New Jersey, U.S.A.*

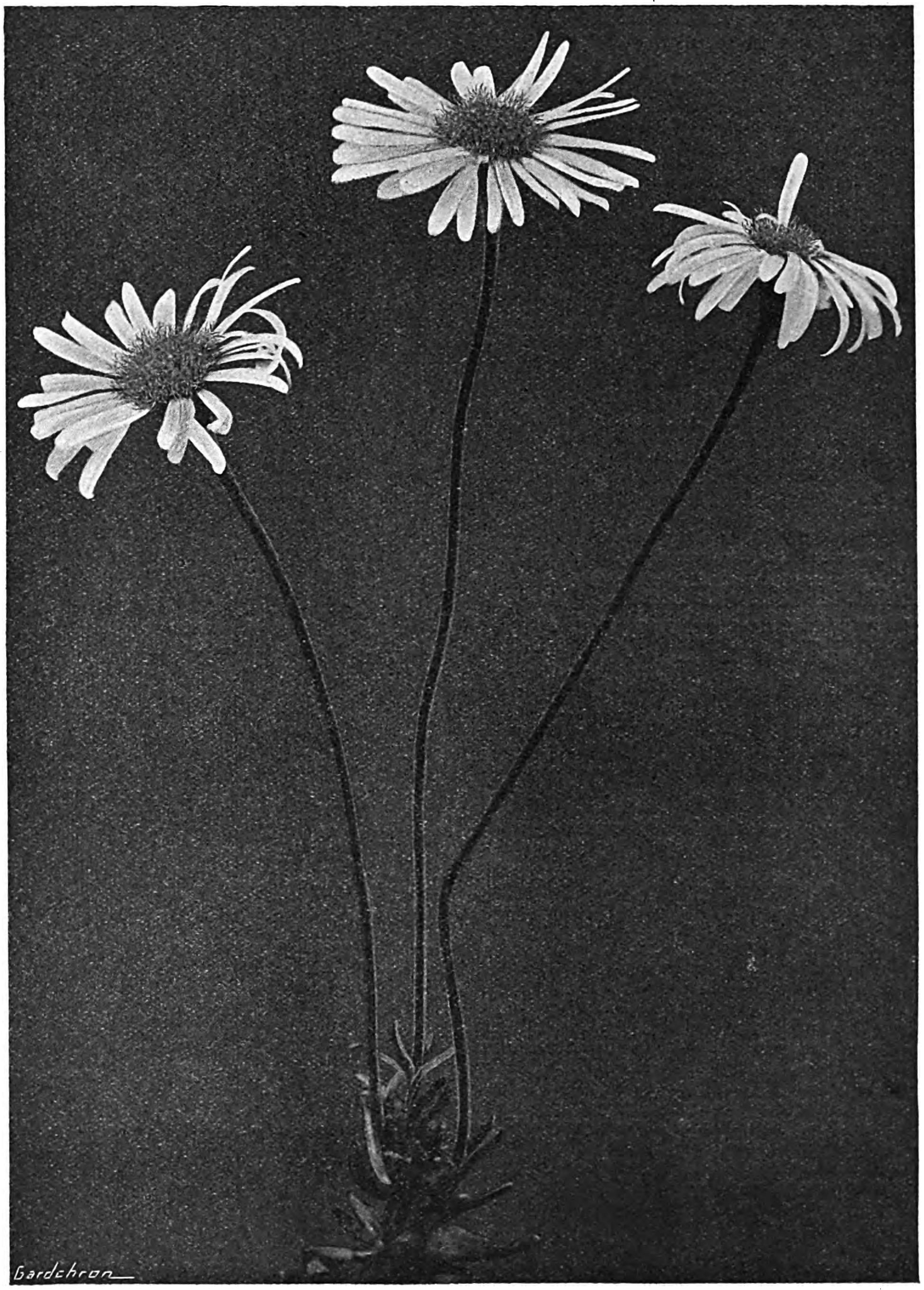


FIG. 105.—ASTER ELONGATUS.

PLANTS NEW OR NOTEWORTHY.

ASTER ELONGATUS, THUNBERG.

The introduction of this beautiful little plant is due to the Hon. Mrs. Ryder, who collected seeds last year from plants growing near Soldanha Bay, South Africa.

In Dorothea Fairbridge's delightful book, *The Gardens of South Africa* (p. 144), the writer describes a visit to the Soldanha Bay district as follows:—"The whole district was ablaze with Gazanias and Arctotis of every description, but loveliest of all was a flower which I, in my ignorance, had called a white Gazania, with a deep crimson ring round the eye, until I took its flattened remains to the South African College and was informed that it was the Aster elongatus of Thunberg. Cultivation, which has made a round, compact bush of our wild Nemesia, ought to make something very glorious of this exquisite flower."

The habit of this Aster (Fig. 105) is quite satisfactory in cultivation and well deserves all that Miss Fairbridge has written in its praise. It may be described as a dwarf perennial, suffruticose at the base; leaves opposite, linear-lanceolate and entire; greyish-green, covered with soft, silvery hairs; flowers white, about two inches in diameter with a lovely zone of rich reddish-purple at the base of the petals; neat and very striking.

It has proved easy to grow in pots, and in Mrs. Ryder's garden is particularly vigorous in the open. It is of its hardiness that there may be doubt. The number of hardy plants from South Africa are few, but there are several species of Kniphofia, Phygelius capensis, and, in sheltered spots, Mesembryanthemums and Gerberas, so that we may hope the lovely Aster elongatus will at least become equally enduring. *T. Hay, Hyde Park.*

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MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

VIII.—A JOURNEY UP THE DIHANG.

WE left Sadiya on February 8, crossed the Lohit, and motored through deep, dark jungle to the Lohit-Dihang junction, which is holy Brahmaputra. Crossing the main river, which even now was rushing along mightily, we reached Kobo, and drove twenty-four miles over a road to Pasighat, our outpost on the sandy Dihang.

So far, we were still on the plains. Much of the country beyond Kobo is *chapri*, a name given to islands which are built up by the river, or to an abandoned channel. These *chapri* are composed entirely of sand and drift wood to begin with, but are soon covered with grass and herbaceous plants, which are gradually replaced by the ever encroaching jungle. The first trees to appear are Bombax malabaricum and Sterculia alata, both at this season leafless and in bloom. Looking at this savanna country, dotted with small Bombax trees, one would hardly credit the huge size this tree reaches in the jungle, where it is, perhaps, the giant of the forest. Apparently it never springs up in the forest of its own accord, but a few specimens become incorporated during the conversion of *chapri* to forest. The few trees which survive the onward march of the jungle, to attain colossal proportions, are not replaced when their time is up. However, there is no chance of the Bombax becoming extinct, as the river is continuously forming new *chapri*, where the tree at once establishes itself. Its great blood-red flowers are an irresistible attraction to birds of many kinds, including crows; and at dusk one may often see a file of evil-looking vultures seated on a branch. These birds knock off the fat flowers, which are quickly strewn all over the place.

A peculiar thing about this Bombax is that so long as it grows in the open, the base of the trunk is covered with prickles; when it becomes one of the aristocrats of the jungle, it loses these prickles and develops plank buttresses to help support its vast superstructure. Also it loses its regular appearance, owing to a tendency in the branches to grow more upright, and to the loss of others.

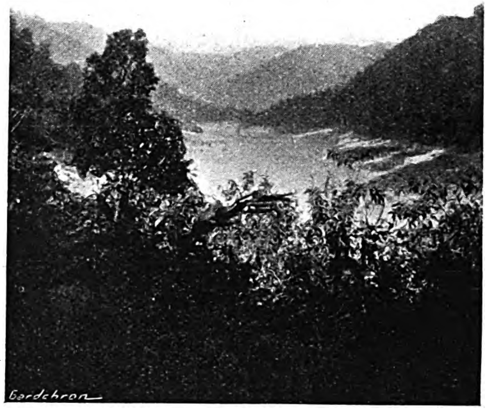

FIG. 106.—THE DIHANG, LOOKING UP-STREAM.

As we approached the hills we left the *chapri* behind and entered permanent jungle. Terminalia myriocarpa was one of the largest and commonest trees seen, and along the edge of the jungle I noticed many small trees of Aesculus in bud—probably A. indica. Another large and conspicuous tree, just coming into flower, was Duabanga sonneratioides, and Cedrela species (C. Toona and C. glandulifera) are seen at Pasighat, together with many large Ficus trees. Pasighat is the gateway of the Dihang valley, the big river here stampeding out of the mountains to water the plain. The Dihang certainly is a great sight, being a real self-contained river, and not, like the Brahmaputra, a confusion of sand banks, channels and *chapri*, or, in the flood season, a spacious sea. The Dihang moves all the time. Immediately behind Pasighat the Abor Hills rise steeply in a succession of jungle-clad spurs. Eastwards across the river and the sloping foothills which bar the way to Tibet, one sees all across the skyline a range of high mountains, white with snow. That view had a peculiar fascination for me; in a few weeks I was going there!

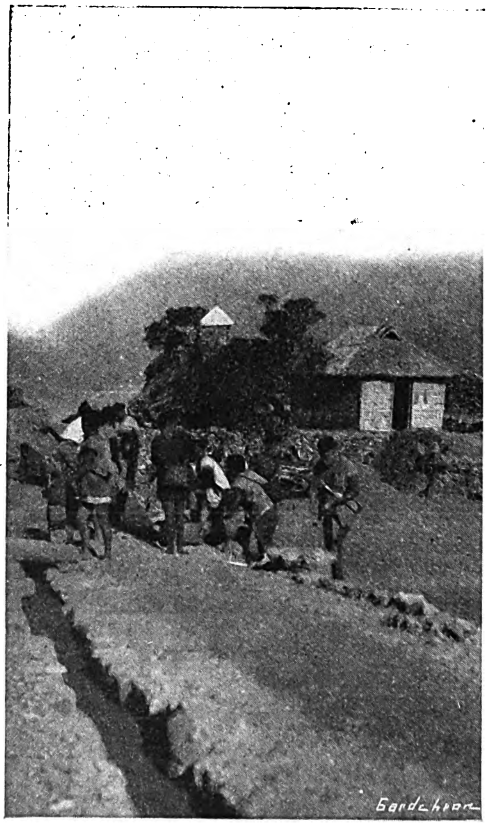

FIG. 107.—THE LAST OUT-POST UP THE DIHANG.

It is, at first thought, astonishing that there should still exist a wide strip of country, nominally a part of Assam, which, under the most favourable conditions, it would take three weeks' journey to cross, but where no white man is allowed to go! Indeed, should any white man, throwing caution to the winds and discretion to limbo, evade authority and penetrate the Abor Hills, it may be doubted whether he would either get through to a better land, or return alive! Seventeen years have passed since the whole Assam Frontier was shocked to hear of the murder of the Political Officer of Sadiya by the savage Abors of the Dihang. Nor was this the first time white men had broken a lance with these untamed ruffians of the jungle, although scarcely does one like to dwell on previous contacts. All had ended on a semicolon, in the discomfiture of the *sircar*; nay, the last attempt to chastise them had come to a full stop with a massacre! Small wonder that the parochial Abors, from their bulging villages, grinned defiance at the white man's villages of Sadiya and Dibrugarh! But the murder of a Political Officer and his companion, while on a friendly journey during the great peace of 1911, raised even the Indian Government. It determined to hit these truculent highlanders a crack, once and for all. Hence the Abor expeditions of 1911-13, which were so fruitful for science, and so abortive for everything else. Had it not been for the Great War, the Roses of the English legions might have been carried to the very foot of the Himalaya; as it was, the Government had perforce to be content with a policy of safety first.

This much explanation is necessary in order to understand why it was that when we left Pasighat on February 10, we had an escort of fifty rifles, and a convoy of ninety coolies. Two marches up the right bank of the Dihang our administration ceases; the next march is through country not administered but under 'political control.' Meanwhile, we look across the river to villages within a day's march of Pasighat where an Englishman would probably be greeted with poisoned arrows, or, if he was expected, by a rock slide. Therefore, beyond the thirty-fifth mile from Pasighat, or across the river, no British subject is allowed to go without an escort. The Indian Government could not lightly provide an escort for a botanist; but as the Political Officer had to go up the Dihang to the scene of the 1911 murders, he kindly invited me to accompany him. Naturally, I jumped at the chance. With us also went the assistant Political Officer of Pasighat, and a British Officer in command of the escort.

At first our march lay close to the river, through dense jungle except where we crossed an open stream; and so into the mountains. Through the trees we had wonderful glimpses of sapphire water rolling proudly between banks of glaring white sand and boulders, backed by green velvet hills. Here and there the river broke into chattering song. But, even where it was still, and terribly deep, it never forgot it was the 'big river,' and would anon give a taste of its quality; a pustule of water would heave itself up from the depths, swell, and burst with a venomous hiss, while a frill of foam crawled like a wounded viper dragging itself from a hole, and disappeared again.

In the jungle itself there was not much in flower, and I had difficulty in recognising even a few trees, such as Chickrassia tabularis, Ficus glomerata, Bauhinia sp. and Albizzia. Leguminous trees and climbers were, in fact, particularly numerous by the river, and I noticed a giant Mucuna, with large, lamellate pods, Caesalpinia, and Derris robusta, the last named in full bloom ten days later; it was then flooded with milk-white flowers before the sherry-hued, silken leaves unfolded, and the air was humulous with bees. Pandanus was common, reaching a great size. The Abors use the leaves for various arts and crafts. In the hills the shady banks of the roadside were covered with Begonias, two white-flowered species being especially common. So far as their leaves are concerned, the Indo-Malayan Begonias may be divided into two groups, those with erect leaves on petioles longer or shorter, and those whose leaves, by a twist of the petiole, tend to press themselves flat against the bank or rock on which they grow. The leaves themselves vary in shape greatly, but are usually an oblique oval, pointed or not, in outline. The apex, however, may be drawn out into a long drip tip, as in one Burmese species, or the margin may be jerked out in a series of sharp points, or it may be entire and the leaf shaped like the lid of a snail, or an elephant's ear. In one Burmese species the leaf is strap-shaped. The flowers are white or pink, more rarely yellow, or even red, occasionally fragrant; most of them are small, but a species collected in the Dihang valley had flowers two-and-a-half inches across. Another species with comparatively small flowers had elephant-ear leaves sixteen inches long by ten inches wide, closely hugging the face of the rock. The leaves are often crimson or purple underneath, and are variegated or not, according to no observed plan.

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* Previous articles on Mr. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII, and July 7, 21; August 4, 25, and September 1, 1928.

On the second day's march we crossed a spur at an altitude of nearly 3,000 feet, and met with a number of trees not seen hitherto. These were indicated by their fruits which strewed the ground; I picked up fruits of two species of Castanopsis, an Oak—the first met with—probably Quercus serrata; Talauma Hodgsoni, a broad-winged climbing Combretum, a Spondias, a Dysoxylum, and little bunches of Kydia calycina. Descending again, we reached a post about a thousand feet above the river, where the village of Rotung is situated. The post is built where Rotung—which was burnt—used to stand, and is held by a detachment of the Assam Rifles. It was the men of Rotung and Kebang, the next village, who murdered the Political Officer and Dr. Gregorson in 1911, although the actual dark deed was committed near Kemsing, which is our present destination.

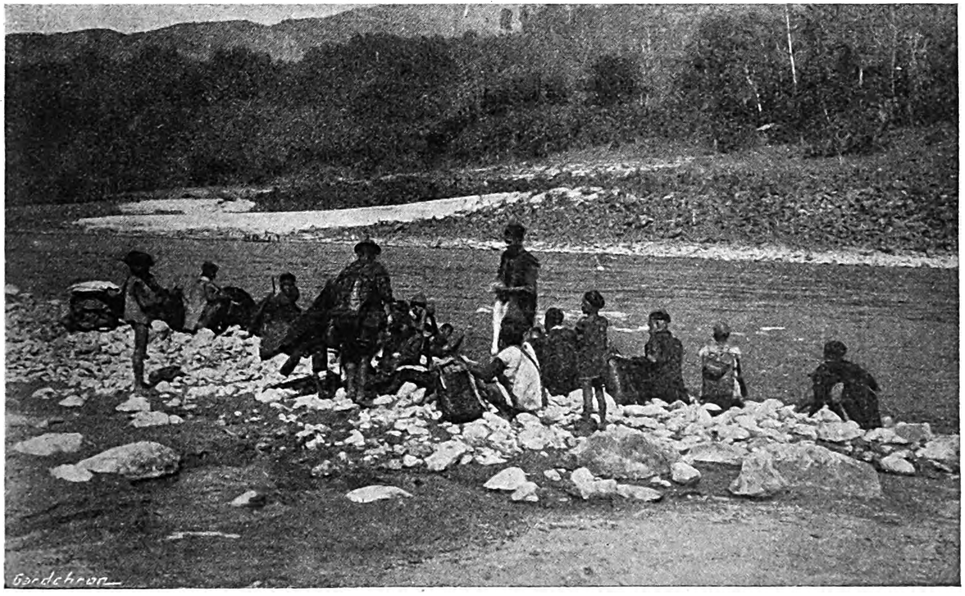

FIG. 109.—AT THE YEMBOUNG FERRY.

Secondary jungle is easily recognised by its composition, and by the comparatively small size of the trees; also it is full of shrubs and bushes, forming an impenetrable scrub, and lacking in lianas. Characteristic trees are Ficus Cunia, Saurauja, Macaranga, Heteropanax fragrans, Artocarpus integrifolia (planted), etc.

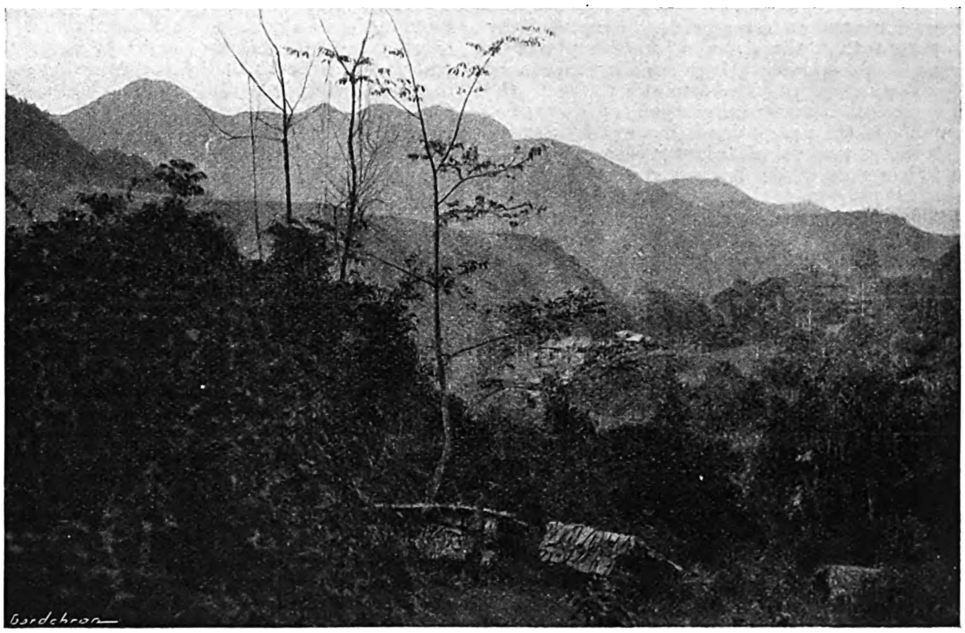

FIG. 108.—THE ABOR HILLS.

Among a great variety of shrubs and bushes are species of Rubus, Osbeckia, Oxyspora, Eugenia, Strobilanthes, etc.

In the neighbourhood of Abor villages one sees many Jack Trees, Pandanus and Borassus, either planted or protected, besides large clumps of Bamboo, each clump the private property of one family, or perhaps clan; all yield useful building material, or household utensils. I saw few Sago Palms, a species which is more commonly met with at 2,000 to 3,000 feet, at least, further south; and it must not be forgotten that we were north of the twenty-eighth parallel, not far removed from the latitude of Cairo, or Shanghai! The only other Palms I noticed in the jungle were Calamus and Zalacca.

There is acute land hunger in the Dihang valley, causing much unrest among the Abor tribes themselves; for in spite of the great areas under cultivation, or which have recently been under cultivation, still greater areas are covered with virgin forest, and are likely to remain so. The mountains are steep, and on a precipitous face; felling the jungle only leads to disastrous land slides. These occur during the rainy season with distressing frequency anyhow, and a distant view of the hills always shows many scars and ragged wounds inflicted in battle with the elements.

Although the bulk of the jungle is composed of Dicotyledonous trees, of which no two in contact are alike, one remarks that all the really grotesque and characteristic vegetables are Monocotyledons. It is these abnormalities alone which from a distance tell you that the forest is Indo-Himalayan, and not temperate. The wry-necked Screw Pines, propped up on flying buttresses, the climbing Palms, the compact clumps of Bamboo, the flag-wagging Bananas, and at closer quarters the epiphytic-flora cascades of shining Aroid leaves, and fountains of Orchids, are conspicuous insanities in an otherwise mad mixture. The only real exceptions to this Monocotyledonous monopoly of freakdom are the Palm-like Araliaceae, whose extravagant bulk of parenchyma, spouting from the top of a telegraph pole, challenge comparison with anything. They are as typical of the hill jungle as they are odd.

I have stated that in the jungle no two trees in contact are like species. Where the conditions of growth are most favourable, the greatest variety is found, and it is not until life becomes more difficult, necessitating long periods of hibernation, that species and genera begin to band themselves together. Here, however, one may be accused of jumping to a wrong conclusion. Is the factor which makes for mass production the necessity for hibernation? Or, rather, since this is an observation and not an explanation, under conditions necessitating hibernation, do social forests always occur? At least, we may say, frequently; for even on the plains, usually regarded as tropical, but, so far as the vegetation is concerned, more correctly termed 'monsoon,' whether actually within or without the tropics, there is a tendency to produce gregarious forests, such as the Sal (Teak) and In (Dipterocarpus) forests of Burma. This tendency, however, is most conspicuous at high altitudes in the latitudes referred to, where the necessity for hibernation is caused not by drought, but by cold. Here are found the Rhododendron and Coniferous forests; and at still higher altitudes, Rhododendrons are almost the only woody plants, and frequently a single species predominates. The difference between summer conditions on the plains and in the alps is entirely one of temperature (soil conditions apart) for both receive an excessive rainfall. The longer the drought period in the alps, the fewer the Rhododendron species, and this is to some extent true of the plains species also; but the degree and quality of drought only governs the species, not the gregariousness or otherwise. Nor must it by forgotten that the drought on the plains is often more apparent than real, by reason of the saturation of the atmosphere and the consequent heavy precipitation of dew each night. In the mountains it is an iron drought.

If this general principle is true of woody plants, it is less true of the herbaceous flora. In the alps, at any rate, the herbaceous flora is rich and varied, and although certain genera predominate, it is at intermediate altitudes, if anywhere, that species become gregarious. Even here it is a type of vegetation—an association, such as meadow—which dominates. Nevertheless, I have seen fields of Primula microdonta, or meadows of Nomocharis pardanthina. *F. Kingdon Ward.*

TABLE DECORATIONS.

I visited, as I invariably do, the Glasgow and West of Scotland Flower Show, now held in the Kelvin Hall—a most admirable setting, well supplied with light and space. On wandering around, I came to the table decorations section, which is always one in which considerable interest is taken, and naturally calls forth the admiration or otherwise of a class of people who are possibly only interested in flowers from a more or less decorative point of view. As to whether the flowers are rare or new, easy or difficult of cultivation, matters but little to them; what they seek for and, alas! ofttimes seek in vain, is some new idea in table floral decoration.

Unfortunately, I have not seen the rules relative to this section, but have no hesitation in stating that they ought to be of the most generous nature, and leave every facility open for the display of originality in everything relative to table decoration, which invariably they do not do, as in this case. For example, the tables were one and all precisely the same size and shape, nine feet by four feet (more appropriate had they been six feet by two feet) for a more mournful and woebegone conception of table covering it would be hard indeed to conceive. This block was covered by a dead black pall which came right down to the ground, and over it was spread a somewhat dirty and very indifferent tablecloth overhanging it by some eighteen inches on all sides. Whoever conceived this arrangement would doubtless prove a great success in the funeral undertaking business, for all that was wanted to complete the scheme was a wreath and a few bars on the organ from the "Dead March in Saul." What a pity a "round plug sometimes gets into a square hole." On the other hand, the general conception of the dining table is something cheerful, even of a hilarious nature.

I noticed one of the exhibitors, Mr. J. Currie, who was awarded third prize, had evidently wisely rebelled against this table covering, and had adopted a light brown cloth on which to place his exhibit, which blended admirably with his colour scheme.

Having disposed of the first stumbling block to the exhibition, I heartily congratulate the judges in placing Mr. Alex. Davidson first with his simple decoration of Eschscholzias, which award, however, would doubtless meet with a good deal of disapproval from a gardener's point of view, in so far as the flowers were common and easily grown; but on the other hand, surely that was all in its favour and brought it within the reach of everyone. Then, evidently as a peace offering and kind of compensation, the second prize was awarded to a table richly decorated with Roses by Mrs. Russell, and certainly very good, while the third prize was awarded to Mr. J. Currie for Montbretias, to whose table I have already referred. Well, there was but little that the table decorator could learn from these exhibits, which were just the same as we have been accustomed to for the last twenty or thirty years.

Now let us consider if a little more originality could not be instilled into this well-worn section. Why not take table decoration as a whole—flowers, linen, glass, silver and china. The decoration of the breakfast, lunch and dinner tables all call for a different scheme. One must have noticed on occasion that the flowers from the banquet table of the previous evening little befit the breakfast table of the following morning, with its simple boiled egg and coffee. They are but silent remembrances of past transgressions. Therefore, why not let the exhibitor state whether his floral scheme is for breakfast, lunch or dinner? Judges would do well to bear in mind, when competition is very keen, to take into account that some flowers, although charming by day, make but a sorry show under artificial light, whilst in other cases the effect is just the reverse. Men, as a rule, like blue, hence a good colour for a bachelor luncheon party. Ladies, I fancy, prefer something light, and yellow is always cheerful on the breakfast table. Climatic conditions ought to be taken into consideration by the table decorator, as well as by the cook; red Roses and Pelargoniums, on a broiling hot day, are no more appropriate to look on at lunch than hot broth and roast meat are to eat on such an occasion. Therefore, the exhibitor might state what he considered his decoration suitable for, and if the judges could state what they considered the faults in the various exhibits it would be decidedly interesting, although, I think, for their safety and comfort, it would be well that their names be kept a profound secret.

But to return more closely to the subject; why not let the exhibitor select his own table, if he chooses, instead of the "sarcophagus" arranged and provided by the Glasgow and West of Scotland Horticultural Society? Then as to decoration, his own linen, china, glass, silver, cutlery, and all that pertains to the table; I fancy these in turn would be readily supplied to the exhibitor by the different trades-people, provided their names appeared on a list on the table. The antique dealer would sell many a table, while the other trades-people would also dispose of or advertise their wares and, above all, the exhibit would create no small interest to the general public. If the owner under these changed rules could be induced to co-operate more with the gardener in arranging the exhibit a great step forward would be made, and the question of expense and trouble would melt like snow flakes, for once women get enthusiastic in a competition what or who can stop them? Granted, certain rules would have to be adopted, such as that the table must not be more than a certain size, and that the exhibitor must be responsible for any breakage or theft. But for heaven's sake do let the table decorator have a chance and see if something new cannot be evolved.

Possibly, even the Glasgow Corporation could give us a treat; for instance, instead of the usual clump of Palms, let the Parks Department display a full-blown and decorated Corporation banquet table, and the public could see for themselves that there was no drink on it, and they in turn show us how a table mav be made tasty and teetotal at the same time. *Formakin.*

NOTES FROM WISLEY.

The appearance of the old vegetable quarters on the hill at Wisley would cause pleasurable astonishment to anyone revisiting these gardens after an absence of two or three years; unless, of course, he happened to be an ardent vegetable lover, since a very large proportion of this ground is now devoted entirely to flower trials, and each year produces an improved display. The brightest patch now is that of the Salvia trial, which is a blaze of scarlet and blue, the latter being the blooms of Salvia farinosa combined with S. patens. The majority of mauve and violet-flowered varieties are insignificant, but Bouquet Rose, with flowers of old rose, is not unattractive The annual Phloxes on trial also provide a bright sheet of colour, but will soon be over.

The Dahlias are now at their best, but only a small proportion of those on trial have been transferred to the new quarters. Among those that have been moved are varieties of the Mignon type, of which there is a good collection. Among these, Kabouter, with single blooms of an indefinite shade which may, perhaps, be termed crushed-strawberry, has attracted considerable attention, while Turner's Gem, with orange-scarlet flowers, is also conspicuous on account of its deep green foliage. A pretty yellow-flowered Mignon is Kingcup. In the dwarf Decorative class, Garden Love, with cerise and yellow flowers, and Preston, with blooms of vermilion, would appear to be useful bedding plants. Among the taller-growing Dahlias which are to be seen in the trial ground below the bothy, Maimie is a good single mauve-pink, which has a broad zone of deep red around the yellow disc. Included among the single Dahlias are two striking, dark-foliaged varieties named Zulu and Nigra. The former has large, semi-double flowers of orange, and the latter rather smaller blooms of bright rose-crimson. In the large-flowered Decorative class, Bianca is one of the best of the whites, and an excellent red-flowered Dahlia in this class is Reginald Godfrey. Another striking variety is Negro, with large blooms of darkest crimson. Many Star Dahlias are flowering well, as, for example, White Star and Reading Star, with flame-coloured flowers. The same, however, cannot be written of the Dahlia species, for while a few flowers are to be seen on Dahlia Merckii, none appear likely to materialise on plants of D. Maxoni. Both of these plants, however, are grown chiefly on account of their foliage, which, in the case of the latter, is voluminous and not unlike that of Elder.

The Asters on trial, which are now coming into bloom, have made very satisfactory growth in view of their recent transplanting, and in the Amellus section the blue A. cassubicus is covered with blooms. A. Friharti, a vigorous grower with similarly coloured flowers is also blooming well. Of the pinkish-flowered varieties in this section, Wienholtzii and Ideal, which are very similar, have done well, as also has the smaller-flowered Perle Rose. A very pale pink Aster of this type is found in Friquet. Aster acris is, as usual, overloaded with blooms, as are many of the ericoides varieties, of which the first to flower has been Progress, while among the taller varieties Anita Ballard, Royal Blue, Lil Fardell and Barr's Pink are already making a good show.

The herbaceous borders which occupy the centre of the new flower-trial grounds, attract large numbers of clouded-yellow butterflies, which seem unusually plentiful this year. Plants in these borders, which are conspicuous at the present time, include the tall yellow Helenium Riverton Beauty and Artemisia lactiflora with white flowers. Artemisia Palmeri is also in flower, but this plant is chiefly valuable for its silvery foliage. Many of the Delphiniums on trial are throwing up further spikes, but the majority are badly mildewed, with the exception of certain varieties belonging to the Belladonna section, such as Mrs. Brunton, Sky Blue and Persimmon. Spikes of D. Belladonna semi-plena, however, are covered in mildew, and it would appear likely that those varieties with glabrous foliage are the more resistant to the fungus, as is the case with Roses.

Pears have done very well this season at Wisley, and among other varieties which have borne good crops are Williams' Bon Chrêtien, Clapp's Favourite and Souvenir du Congrès. Apples, on the other hand, have been extremely poor, with a few exceptions, such as Blenheim Pippin, Arthur Turner and Lewis's Incomparable, which has borne a splendid crop. Autumn-fruiting Raspberries, such as Soleil d'Octobre, are very fruitful, and the berries possess an excellent flavour, while good crops of cultivated Blackberries and of Laxtonberries have been picked.

In the rock garden a splendid show of Gentiana Lagodechiana was prematurely spoiled by the heavy rain, but the annual or biennial

G. detonsa, of which there is a remarkably fine bed, is just coming into flower, as also are G. sino-ornata and G. Farreri. The number of blooms which are to be seen on the latter is surprising, in view of the apparently weak state of the plants, and exceeds that of previous years, obtained from more robust-looking specimens. In addition to Gentians, many Violas continue to provide colour in the rock garden—assisted by the secondary flowering of Helianthemums, such as Ben Nevis, with yellow and brown flowers.

Affected, no doubt, by the hot weather, several dwarf Rhododendrons, such as R. fastigiatum, have broken into flower. The hot summer has, perhaps, been responsible also for the large numbers of blooms on the white-flowered Hibiscus syriacus var. totus-albus.

Among the grey-foliaged trees in the rock garden is Salix regalis, the leaves of which are very silvery at the present time. Another tree, noticeable for the same reason, is Juniperus pachyphlaea elegans, which is just breaking into new growth.

Many of the Willows around the field garden pond have now extended to such a degree that it will be necessary to cut them back. One of the most orderly is Salix rosmarinifolia, with long and narrow leaves. Another handsome species on the pond banks is S. laurifolia, with shining green foliage, near to which is growing a plant of the very fragrant-leaved Myrica carolinensis. In the pond itself, the pretty powder-blue flowers of the Pickerel Weed (Pontederia cordata), which obviously likes a warm summer, are very ornamental, as are its heart-shaped leaves. *J. E. Grant White.*

NOTES FROM KEW.

The warm, sunny days of August and early September have been very favourable for autumn-flowering shrubs and hardy climbing plants.

A number of the species of Clematis which are producing quantities of blossoms provide a pleasing foil and contrast to the larger flowers of the named hybrids. With their rich yellow blossoms and quantities of feathery seed-vessels, C. orientalis and C. tangutica are attractive on rustic poles, and useful for covering wooden fences. The deliciously fragrant bicolor blossoms—reddish-violet and white—of C. flammula var. rubro-marginata, make it one of the most pleasing of autumn-flowering climbing plants. Several forms, or varieties, of Clematis Viticella are flowering freely on rustic pillars. the most attractive at the time of writing are var. alba, white; var. kermesina, reddish-crimson; and the type, which has rich purple blossoms. There is also much of interest and charm in the two Chinese species, C. Rehderiana and C. Veitchiana; both are vigorous and free in growth and produce quantities of primrose-yellow blossoms. Borne in large panicles, the nodding flowers are not large, but have a very distinct and pleasing Cowslip-like fragrance. Among the several botanical characters by which the two are distinguished, the doubly-pinnate leaves of C. Veitchiana are the most obvious. C. Fargesii is a distinct addition from western China, with white blossoms; it is vigorous in growth, and the flowers are borne at the ends of the shoots, two or three together in the axils of the leaves.

The varieties of Hibiscus syriacus, or Tree Mallows, are flowering with great freedom on a sunny slope in the Berberis Dell. Here is evidence of the recent warm and sunny days which have favoured the development of this oriental shrub. Both double- and single-flowered varieties are represented. Four attractive single-flowered varieties are H. s. Coeleste, blue; H. s. Rubis, ruby-red; H. s. totus-albus, pure white; and H. s. Hamabo, white, with maroon centres. Attractive double-flowered sorts are H. s. Lady Stanley, white, maroon centres; H. s. coeruleus plenus, vinous purple; H. s. Duc de Brabant, red; and H. s. albo-pleno, white.

The hardy Fuchsias are a much neglected family of flowering shrubs for sunny positions during late summer and autumn. Planted in the bays around the Temperate House the following sorts are the most attractive at the present time:—F. Riccartonii, vigorous in growth, with a profusion of dark red and purple flowers, and the best hardy Fuchsia; and F. macrostemma, a vigorous species with large leaves, vigorous stems and long, scarlet flowers with purple corollas, of which three varieties deserving of note are var. gracilis, a free-flowering bush of slender graceful habit; var. conica, with long, thin flowers, and elegant in growth; and var. Burning Bush, a vigorous form of free growth with rich dark red and purple flowers. Other Fuchsias of distinct merit are F. exoniensis (syn. F. corallina), with attractive purple corollas, and vigorous in growth; and F. globosa, which, as the name suggests, has distinct, small, globular flowers. Hardy Fuchsias are worthy of more attention, for they are suitable for planting along the fronts of sunny shrub borders, and although the growths may be cut back in winter, they break freely from the base in the spring.

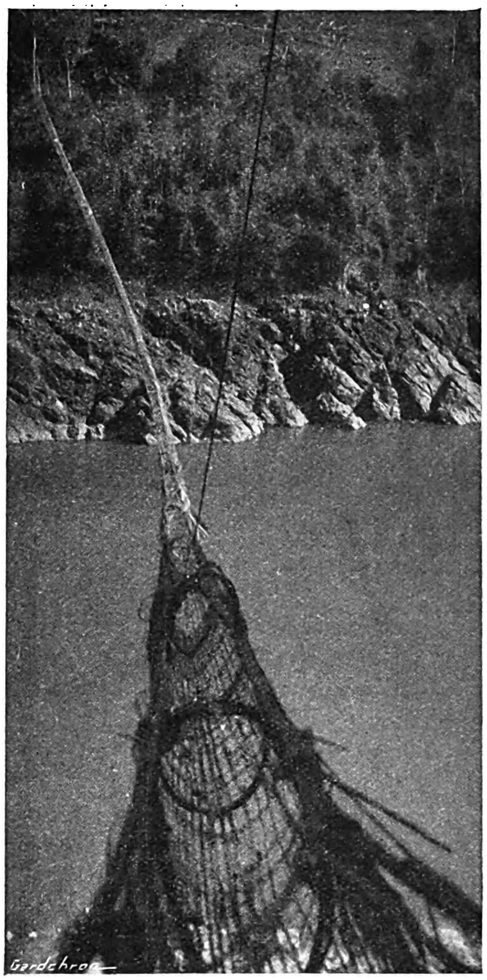

FIG. 110.—TUBULAR CANE BRIDGE ACROSS THE DIHANG.

(see p. 230).

Three hardy Clerodendrons are distinct and useful autumn shrubs, or, as in the case of one, and perhaps two species, with age they may attain, in mild localities, the dimensions of small trees. All three are natives of China. C. trichotomum forms a bush or small tree ten feet to twelve feet or more in height, and has white flowers, and red calyces, freely borne from July to September, and followed by attractive blue-black fruits; C. Fargesii is similar in habit and flowers to the preceding species, but has distinctly showy, turquoise-blue fruits; while C. foetidum (see Fig. 94, p. 207) is a woody shrub only in warm localities; at Kew, the stems are cut back by frosts each winter, but vigorous shoots push up annually in spring, terminating at this season of the year in large heads of rose-pink blossoms.

A large bed of Hydrangea paniculata on the sloping ground in front of the Japanese Gateway may be seen for a long distance because of the massive snowy-white inflorescences. Hardy, and vigorous in growth, it is suitable for northern gardens where H. hortensis fails. The species is later in flowering than the variety grandiflora, and it is without doubt one of the most useful autumn-flowering shrubs.

THE GENUS PRIMULA.

(*Continued from p.* 213).

DRYMOPHILA (Craib.). Oak-leaved P.
(Petiolaris-Sonchifolia.)

A tufted, perennial species, with a scaly rootstock and oblong-elliptic leaves about two inches long, rounded at the tip, tapering to a stalk about one-and-a-half inch long, narrowly winged with membrane; slightly dilated and clasping at the base; margins cut into rather large, subequal lobes, which are again sharply toothed; green on both surfaces, with but little sign of meal. Flower stems four to eight inches tall, downy. Flowers about five, on stalks one-and-a-half-inch to two-and-a-half inches long; violet. Corolla about one inch across, divided into five elliptic ovate lobes with undulate, toothed or entire tips; tube about three-eighths-of-an-inch long, downy inside, ringed at the mouth, with ten tiny lobes.

Found in shady woodlands on the mountains at Tachien-lu in western Szechuan, western China, at 9,000 to 11,000 feet above sea-level.

Culture: Conditions under which the common Primrose flourishes would probably prove suitable for this species.

DUBERNARDIANA (Forrest). Dubernard's P.
(Bullatae.)

An evergreen, perennial species, with a thick, woody stem clothed with the remains of previous seasons' foliage. Leaves narrowly spathulate, about two inches long and three-eighths-of-an-inch wide, with entire margins, and furnished with a distinct stalk sheathing at the base; upper surface glandular-hairy, lower sparsely mealy. Flower stem about one inch tall, slightly downy, bearing an umbel of three to five pale rose-coloured flowers with a yellow eye. Corolla about three-quarters-of-an-inch across, divided into five heart-shaped, notched lobes; tube narrowly funnel-shaped, about three-eighths-of-an-inch long, yellow or orange in colour. Flowers in June and July. This very pretty plant is allied to P. Forrestii, and forms dense cushions of foliage, on dry, shady ledges of limestone cliffs on the mountains of the Mekong Salwin divide, in Yunnan, at 8,000 to 9,000 feet above sea-level. It is also found in south-eastern Tibet.

Culture: Fibrous loam and limestone chippings, and a well-drained, half-shady spot, with protection from wet in winter, are indicated.

DUCLOUXII (Petitm.). Ducloux's P.
(Malacoides.)

This plant is considered by most botanists to be a sub-species of P. Forbesii. It forms a tuft of thin, somewhat hairy, oval leaves about one inch long, heart-shaped at the base; margins divided into many toothed lobes. Flower stem one inch to two inches tall, smooth, bearing an umbel of five to eight white or rose-coloured blossoms. Corolla salver-shaped, about three-eighths-of-an-inch across, with five broadly-heart-shaped, cleft lobes; tube cylindrical, longer than the calyx. Flowers in November.

It grows in clefts in rocks on the mountains of Sy-chan, near Yunnan-sen, in Yunnan, western China.

Culture: Peat, loam and limestone chippings, in a damp, half-shady spot, are suggested; probably tender and of annual duration only.

DUMICOLA (W. W. Sm.). Copse P.
(Obconica.)

A pretty, perennial species allied to P. obconica, with oval or ovate-oblong leaf-blades, shortly heart-shaped at the base, about two inches long, covered on both surfaces with white hairs; margins divided into eleven toothed lobes, stalks round, hairy, about two inches long. Flower stems numerous, four to twelve inches tall, slender, covered with white down. Flowers in an umbel of six to ten on slender, hairy stalks about half-an-inch long, fragrant, rose-coloured, with a yellowish-white eye. Corolla divided into five broadly wedge-shaped, notched lobes; tube cylindrical, quarter-of-an-inch long, ringed at the mouth.

Flowers in May. Found among short herbage, in bushy places by streams near Hsi-ku, in south-eastern Tibet, at about 11,000 feet above sea-level. It is also found in western Yunnan.

Culture: Leaf-soil and loam in a damp, shady spot, and protection from wet in winter, are the conditions indicated.

DUTHIEANA (Balf. f.). Duthie's P.
(Nivales.)

A handsome, perennial, Himalayan species, with a short rootstock clothed with pale yellowish-white scales. Leaves six to eight inches long, lanceolate, or oblong-lanceolate, pointed, tapering into slightly winged stalks; margins furnished with coarse teeth; both surfaces more or less covered with yellow meal. Flower stem about nine inches tall, bearing so many as twenty yellow blossoms in a crowded umbel, on stalks about three-quarters-of-an-inch long. Corolla nearly three-quarters-of-an-inch across, with five oblong or elliptic, entire lobes; tube cylindrical below, funnel-shaped upwards, about three-quarters-of-an-inch long.

Flowers from June to August. This desirable plant is found in somewhat open spots among short herbage, at Hazara, in the north-western Himalayas.

Culture: As for P. Cunninghamii. *A. W. Darnell.*

(*To be continued*).

COLOUR VARIATION IN HYBRID CACTI AND IN SOME GARDEN PLANTS.

GARDEN Cacti being the product of crossing two alleged genera, Cereus and Phyllocactus, it is claimed that one of these two genera should be expunged. Until this is done we are unable to give any concise generic name to this race, and can only class it as "Garden Cacti."

K. Schumann, in his *Monograph of Cactaceae*, states: "The greater part of the genera of Cactaceae, are not very good . . . but I do not know how to avoid this difficulty unless we combine all the species into a single genus—Cactus." Personally, I regard this as an extreme view. So long ago as 1906, before the Third International Conference on Genetics,* I gave a list of nineteen fairly well authenticated hybrids that had been raised among Cacti, of which five were hybrids between Cereus and Phyllocactus. Since then one or two more should be added—hybrids with C. Amecaensis.†

The hybrid Cooperi gives off an almost overpowering scent like Lemons for some hours after expansion, and possesses much of the strong fragrance of its parent C. grandiflorus, notwithstanding that half of its blood is that of P. crenatus. When crossed again with the non-fragrant P. Ackermanni, the progeny called C. Coopermanni is still fragrant, but in a much less degree, as it now only possesses one-quarter of the blood of Cereus in it. C. Coopermanni crossed again with a non-fragrant garden Phyllocactus, produces progeny possessing no discernible fragrance, as it now contains but one-eighth of the blood of the fragrant Cereus.

This result strengthens the theory that hybrids between species (and probably also outside specific limits) take up a position equipoised between the extremes of diversity of their parents.

Since the publication of *Variation as limited by the Association of Characters*, in 1911*, and of the works of many hybridists, various theories have been propounded to account for this fact. If it is true that the number of chromosomes in the ripe reproductive male cell of any plant is only half of the number of chromosomes in the cells of all the other parts of the same plant, and that the same ratio exists in the ripe cells of the ovary of the female, *i.e.*, one-half of the number existing in the cells of all the other parts of the plant about to be impregnated, it would seem that the *prima facie* result of hybridization would be to establish an exactly intermediate or exactly equipoised hybrid progeny. But it is known that this precise result does not always follow from hybridization. However, some characteristic chromosomes might be lacking in the reduced number present in the ripe male cell and also in the reduced number present in the female cell about to be impregnated. Hence the hybrid might exhibit the lack of certain characters common to one or both of its parents and (or) the duplication or extra development of other characters. All conceivable intermediate characters would therefore be possible in the hybrid, and my observations on inter-specific and inter-generic hybrids is in agreement with this forecast.

Although it may be said that this theory has been built up for the purpose of accounting mathematically for observed facts, it does account for most of the facts which I have had under my observation. In particular it accounts for the appearance of orange from the crossing of a white flower with a red flower, and of purple or bluish-purple from the same class of colour-cross; in the former case by the absence of the chromosomes producing pure red colouring,† and in the latter from the absence of those producing the yellow colouring and from the shortage of those producing the red colouring, leaving over those producing the blue.‡ On this assumption, the issues have been brought down to those of the artists' palette. If he were to start with primary colours, and make up the particular red of a certain flower by mixing so much primary red with some yellow and a little blue, he knows that, if he eliminates or reduces any one or more of these from the mixture, his range of colours includes the red, yellow and blue which he started with, and every shade of colour which he can produce by mixing them, or some of them, together. This range of colours is the potential colour variation which may result from crossing a species bearing that particular red flower with a true albino.

It is, or course, those garden races which have been longest in cultivation which have produced the greatest range of colours—such as the Rose. By the same process of colour elimination we now have both an orange-red and also a yellowish Sweet Pea, both the latter colours having arisen by crossing in the life-time of many persons now living. Although this theory of colour variation has not been demonstrated beyond all doubt, it has at least enabled us to understand something of the character of colour variation in hybrids and to appraise its potential range.

But there are other factors in determining colour variation and range. It appears that redness or blueness in flowers is dependent upon the acidity or alkalinity of what we may, for this purpose, call "the sap." Were it possible to alter the constitution of the sap from one condition to the other, the colouration of the flowers would at once be changed. But if the plant prefers to die first, nothing can be done.

It is worthy of note that many red flowers change or oxidise, before fading entirely, into a purple or bluish shade. This has been accounted for, but no explanation has yet been given of why the reverse change should occur in some plants. For instance, in the flowers of Fuchsias generally, the parts which are, on expansion, bluish-purple or ultra-marine-blue, fade out to a reddish-purple or dull red. This is specially noticeable in F. (hort.) Phenomenal. It has also been noticed that in garden races of plants in the flowers of which blue is a dominant colour, yellow varieties are seldom produced, and that those races in which yellow predominates never produce a blue variety.*

Garden Roses and the garden race of Nemesia furnish exceptions, and the Nemesias give both real blue and yellow forms, whereas the blue in the Rose is not pronounced. From the funereal purples of the modern garden Dianthus a blue form may result. But a yellow Gloxinia or garden Cineraria has not yet been seen. We have some yellow-flowered species of Cineraria indigenous to Britain, but no one has yet succeeded in crossing any of them with the garden Cineraria. However, we have the terra-cotta-coloured form called Mikado, so that the production of a yellow variety does not seem impossible. *A. Worsley, Isleworth.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante. pp. 112-118.)

(*Continued from p.* 214).

ENGLAND, S.

BERKSHIRE.—Early spring gave promise of an abundance of all fruits, but late frosts, hail and cold weather, and now drought, have seriously affected the crops. Many of the first blossoms of Strawberries were cut by frosts, but the crop was quite satisfactory. Raspberries, Gooseberries, Currants and Loganberries have been excellent, especially Raspberry Merveille Rouge and Red Currant Littlecroft Beauty. Apples set well, except Blenheim Pippin, but many of the varieties cast all their fruits during the last ten days. There are good crops of Peasgood's Nonesuch, Bismarck, Adam's Pearmain, Irish Peach, Rev. W. Wilks and Yorkshire Beauty; Beauty of Bath failed completely. Pears are withstanding the drought very well. The soil here is a sandy loam, very shallow, overlying sand of a hard nature and gravel. *Stanley R. Gammon, Farley Court Gardens, Farley Hill, Reading.*

DORSETSHIRE.—The soil here may be described as a good garden loam, a recently added portion of the garden being a good medium loam, overlying chalk. The older part of the garden is situated at the base of a watershed and is not unduly affected by drought. Apples are an average crop and clean; Pears promised well but the crop, although of good quality, is not heavy; Plums again promised well, but the gales of early June stripped most of the half-standard trees of their crops when the fruits were of Cobnut size Cherries are infested with aphis, largely, I am afraid, as the result of failure to spray the trees. Peaches are a rather short crop, but the quality is excellent. The Apricots are practically a failure. Strawberries were of good quality and Loganberries and Raspberries very good, as also were Red Currants and Gooseberries. Cobnuts are a light crop, but the bushes are very healthy. I did not, owing to heavy pressure of work in other directions, spray all my trees last winter with a tar-distillate wash. I have since regretted this, as I am convinced that some of my crops, although good, (Black Currants, are a case in point) would have been better had I attended more carefully to the spraying of the trees and bushes. *Henry F. Maidment, N.D.H., Crichel Estate Gardens, Wimborne.*

——The Apple crop in this district will, I fear, be of poor quality. The blooms set very freely, but we had a very cold spell of winds and frosts and the fruits ceased growth, while the foliage on exposed trees appeared to be burnt; now fruits have fallen badly, and although generally there is enough left, it is not developing cleanly and freely. Strawberries have not been good, the later fruits failing to develop. Small fruits generally have been good. We need rain badly, for July has so far (July 26) been practically rainless, and as the subsoil is chalky it dries out quickly. *W. E. Axford, St. Giles Gardens, Salisbury.*

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* *R.H.S. Report on Genetics*, p. 405.

† c.f. *Journal R.H.S.*, Aug., 1913, p. 92 and 95,

* *Journal R. H. S.*, May, 1911, p. 596.

† Leaving only the yellow factor always present in reds.

‡ Some blue is present in reds. The colours of flowers are not primary colours. These latter result from the polarisation of light,

* Except by hybridization with a yellow- or blue-flowered specimen,

Hampshire.—The spring weather in this locality was most trying for Plums, Cherries and Pears during the flowering period, for rain, cold winds and frosts were experienced. Among Plums, Belle de Louvain, Rivers' Early Prolific and Merryweather Damson are the most prolific. Apples Worcester Pearmain, Warner's King, Cox's Orange Pippin, and Lane's Prince Albert, are carrying the heaviest crops. An attack of aphis, the worst for many years, is very prevalent throughout the district. At the time of writing, rain would be most welcome to counteract, in part, this visitation. The soil here consists of heavy clayey-loam, made porous by flints. *George Ellwood, Swanmore Park Gardens, Swanmore.*

——Our fruit crops generally are good. Most of the Apple trees are carrying average crops, but the fruits are not going to be very large. During the first two weeks of June very cold east winds were experienced and trees became infested with aphis, which had the effect of checking the development of the crops. The best Apples are Blenheim Pippin, Bramley's Seedling, Ribston Pippin, King of the Pippins, Allington Pippin and Lord Grosvenor. Bush Pears are carrying a fair crop and the growths and fruits are very clean. Plums are a bad crop; the trees flowered and set well, but the very cold winds which prevailed during the early part of May caused the fruits to turn yellow and drop. The Strawberry crop was the best produced for years; the crop was very heavy and the fruits of good quality. We have had heavy crops of Black Currants, Raspberries and Loganberries, but Red Currants were not quite so good as usual. The soil here is a medium loam on limestone, and the gardens are exposed. *George Summersell, Buriton House Gardens, Petersfield.*

——Considering the coldness and sunlessness of the spring, the fruit crops in this district are very favourable. Apples set freely and required a lot of thinning; practically all the sorts are carrying good crops. Pears and Plums are carrying good average crops, but Plum trees are badly infested with aphis. Peaches and Nectarines are practically a failure; Strawberries looked strong and well and showed signs of a good yield, but the late frosts spoilt three parts of the crop. All small fruits were splendid and of good quality, Black Currants being the best crop for several years. *A. J. Legge, Dogmersfield Park Gardens, Winchfield, Basingstoke.*

(*To be continued.*)

HOME CORRESPONDENCE.

Mignon Dahlias.—During the past few years I have tried many varieties of this delightful dwarf type of Dahlia. So far, I find nothing to beat the old original Coltness Gem, which, as is well-known, is fifteen inches in height, a splendid grower and marvellously free-flowering, and a splendid red colour, which is more pronounced if the plants are grown on a partially shaded border. For a pink, nothing I have seen is equal to Lady Eileen; although taller than the above, it is very free and has smaller foliage. Last spring that great florist and lover of all flowers, the late Mr. H. J. Jones, wrote to me and suggested that I should try, for a yellow, the one named after himself. Knowing his accurate judgment, I purchased four plants and need hardly say I am not disappointed. H. J. Jones is slightly taller than Coltness Gem, but is a good grower, very free, and with large, yellow flowers. I hope it will last many years in the front rank of dwarf Dahlias, and so help to perpetuate the name and memory of one of England's greatest and best florists. *A. Jefferies, Hertford.*

Fraughans or Bilberries.—Especial interest has been taken in Ireland this season in the Vaccinium Myrtillus fruits, known in the Irish Free State as Fraughan (pronounced Frock-en). The Empire Marketing Board advertises them among the imports from the Irish Free State, yet, actually, in Ireland they are seldom used or appear on the Dublin market. Fine fruits may be collected on the red Bog of Allen and all over the open marshlands in Co. Wicklow, where thousands of pounds of these fruit annually go to waste. Attention is now being drawn to the fact that even cottagers in the district, often without fruits and jam, neglect this provision of nature. It is anticipated that next season parties of children from the city slum areas will be organised for Fraughan-picking expeditions, making a pleasant, invigorating and remunerative occupation. In Ulster and Scotland the fruits are known as Blaeberries, and much appreciated for jelly or jam-making. In England we usually find them called Blueberries or Whortleberries. Bilberry appears to be the Welsh name. *B. P. M.*

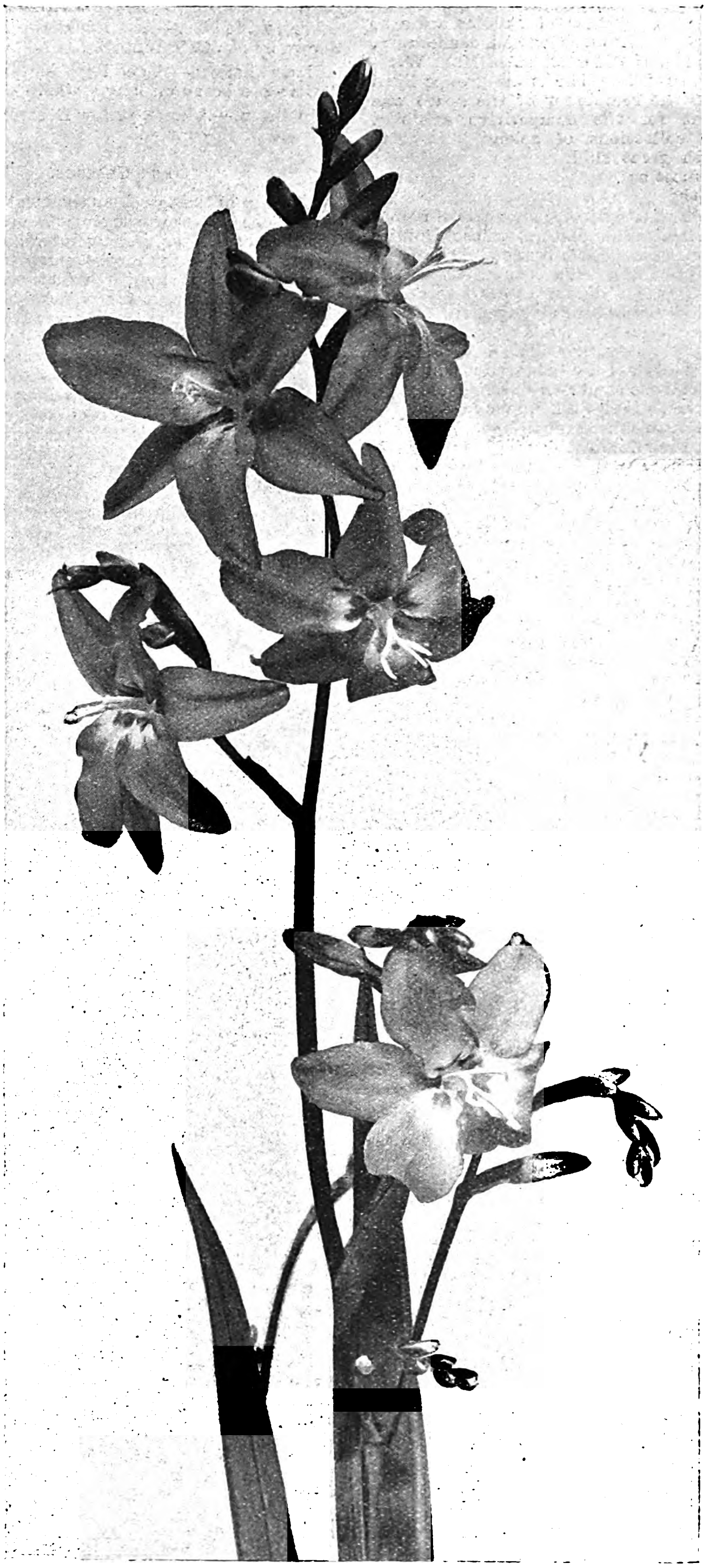

FIG. 111.—MONTBRETIA HON. MRS. EDWIN MONTAGU.

R.H.S. Award of Merit, September 11. Flowers orange and yellow. Shown by the Hon. Mrs. Montagu, Attleborough. (see p. 219).

SOCIETIES.

NATIONAL DAHLIA.

September 12.—Applications for space at this very successful show of Dahlias were so many that a policy of restriction had, of necessity, to be adopted at the Horticultural Hall, Westminster, on this date. The trade groups lined the hall, and the remainder of the space was just sufficient for the competitive exhibits. These trade collections of splendid Dahlias, arranged with great skill, were an admirable feature of a most successful show. Only a few members of the trade competed in the open classes, but we were pleased to note fresh names among the amateur exhibitors, whose Dahlias were of very commendable quality. The chief honours of the competitive classes fell to the lady members, whose dinner table decorations were exceedingly delightful arrangements. The three classes required a double row of tables placed very closely together along the whole of the available length of the hall, and it is not too much to say that each and every table decoration deserved a prize. Perhaps from lack of space—although part of an annexe might have been used—the new seedling Dahlias selected by the Joint Dahlia Committee were treated very badly. They were jostled together at one end of staging so wide that very few of the visitors could read even the printed matter on the exhibitors' cards. All the names of varieties and exhibitors were written worse than usual; several were, to others as well as ourselves, illegible, and we give some names with reserve, but hope they are approximately correct.

What might have been a valuable and most instructive exhibit was sent from the John Innes Horticultural Institution, but it was wedged between the already overcrowded novelties and one of the trade collections. In these circumstances very few of the visitors noticed the vases of Dahlia Merckii, D. coronata and D. coccinea, three of the parents of our garden Dahlias, or the informative, type-written history which was sent from Merton Park with the flowers.

When the Rt. Hon. Lord Lambourne formally opened the show with one of his delightful speeches there was a goodly attendance, and soon after the hall was comfortably filled.

New Dahlias.

The Joint Dahlia Committee met in the morning and selected an unduly large number of seedlings for trial at Wisley next year. As we have already stated, these novelties were very unfortunately treated, and we can only hope that the following list is reasonably correct.

R. Findlay.—A good, yellow, large Decorative variety.

Menin.—A large, white Decorative variety.

Premier.—An immense Decorative variety of golden-amber colouring. The above varieties were shown by Messrs. J. Stredwick and Son.

Jersey Beacon.—A good, large Decorative variety of rose-scarlet colouring. Shown by Mr. J. G. Ballego.

Sonia.—A shapely, rosy-mauve miniature Paeony-flowered variety.

Earldom.—A salmon-pink miniature Paeony-flowered variety which has a cerise zone.

Rae.—A deep pink miniature Paeony-flowered variety, heavily flushed with ruby-crimson in the centre.

Lulu.—A scarlet-crimson miniature Paeony-flowered variety.

Queenie Hart.—A soft salmon-coloured miniature Paeony-flowered variety.

Cicely.—A yellow miniature Paeony-flowered variety, heavily flushed with rosy-salmon.

Dorret.—A vivid rose-pink miniature Paeony-flowered variety.

Lyric.—A scarlet miniature Paeony-flowered variety.

Victor.—A small Decorative variety of yellow colour, heavily stippled with rose-pink.

Hebe.—A deep crimson miniature Paeony-flowered variety, suffused with maroon.

Omah.—A small Decorative variety of golden-fawn colour. The eleven above-named varieties were shown by Messrs. Burrell and Co.

Cokkie Carlée.—A long-stalked, deep primrose-coloured Decorative variety. This and the following variety were shown by Mr. H. Carlée.

Marchenchön—A large Decorative variety flushed with deep rose-pink on an orange base.

White Wonder.—A garden Cactus variety. Shown by Mr. C. S. Weyers.

Early Yellow.—A good garden variety; the flowers are borne on long stalks.

Sunbeam.—A large, yellow Decorative variety, stippled with orange.

Open Classes.

To many of the members the most interesting of the open classes was the new Monro Challenge Cup class, which requires twelve vases of distinct varieties suitable for market purposes. A table space of six feet by three feet was provided for each exhibitor, and any number of blooms was permitted. The special points of a Dahlia for market purposes are a fairly long stalk, as slender as will carry the bloom erect, and relatively short florets. As with most other flowers, it is found that flowers with long petals soon flag and lose value. From every point of view the first-class collection of Mr. J. Emberson met the requirements of the class, and his outstanding varieties were Mr. H. C. Drusselhuys, blush; President Wilson, scarlet; The Prince, crimson; Jersey Beauty, salmon-pink; Ullswater, orange-rose; J. van Tets, white, and Me a Vote, pink. The second prize was won by Messrs. Wm. Treseder, Ltd., and Messrs. Jarman and Co. were third.

In the other open classes, the exhibitors were few, although the quality generally was very good indeed. Messrs. Wm. Treseder, Ltd., were alone in the class for twenty-four Show and Fancy varieties, and were awarded the first prize for an exceptionally good collection, which included William Powell, Nansen, Standard, Esmonde and Mr. Chamberlain. The twelve blooms of the same type were not nearly so good, although Messrs. J. Cheal and Sons were awarded the first prize and Mr. H. Lagden, Shenfield, was placed second. The chief varieties were George Hobbs, Doreen, Goldsmith and Gracchus.

Mr. H. Woolman was first with twenty-four excellent Cactus varieties, shown on boards. He had perfect blooms of Sydney Jones, Grasmere, Abbotsfield, Southport, Thomas Want, Hannah Potts and Yellow Bird. Messrs. Wm. Treseder, Ltd., were a good second, and their very best varieties were Edward Jackson, E. J. Robbins, A. R. Parry and Champion. The best six blooms of any one Cactus variety were of Grasmere, shown by Mr. H. Woolman. In the classes for garden Cactus, Pompon, Star, Single, large Paeony-flowered, small Decorative and Collerette types, Messrs. J. Cheal and Sons were awarded the first prizes. Their principal varieties were Mrs. C. Foster, Mary Purrier, Edgar Jackson and Mrs. E. Lowes, garden Cactus; Glow, Norah, Murren, Mavis and Henrietta, Pompons; Rowley Star, Burford Star, Leigh Star and Milton Star; Leon, Duchess, Frank Galsworthy and Albatros, Singles; Major, Mark and Liberty, large Paeony-flowered; Topaz, Cheal's Pink and Oamaru, small Decorative; Mrs. F. C. Stern, Mrs. V. Christie, Lady le Bas and Lady Chance, Collerettes.

Messrs. Wm. Treseder, Ltd., showing fine blooms of Trentonian, Mabel Lawrence and Jersey Beauty, won in the class for large Decorative varieties, and Mr. H. Woolman was a good second in this and in the class for small Decoratives; while he excelled with six distinct Collerettes and with small Paeony-flowered varieties, of which he showed Our Annie, Dazzle and Mrs. M. H. Hay; Messrs. J. Cheal and Sons were second.

Amateurs' Classes.

There were most exhibitors in this section, and often the competition was very keen. Mr. A. T. Barnes, Bedford, was first with a very neat exhibit of twelve Show and Fancy varieties; his best blooms were Mrs. Lawrence, Peacock, William Rawlings and John Walker; Mr. N. Willett was awarded the first prize for six varieties, and his best were Tom Jones, Perfection and John Walker. Mr. W. G. Cramp, Streatham, was the most successful exhibitor of Cactus Dahlias. His first prize nine varieties, three blooms of each, included Grasmere, Abbotsford, Yellow Bird and Harry Strutt, of excellent quality. He was an easy first with twelve distinct varieties, shown on boards, and with Yellow Bird, Sydney Jones, Essex and F. W. Fellowes was decidedly first in the class for four varieties, three blooms of each. Mr. A. T. Barnes, Bedford, won first prizes with good trios of six Cactus varieties, where he included Edgar Jackson, Mrs. A. T. Barnes and Torchlight, of high quality; and was also first in the class for six Star Dahlias. Mr. J. T. Ingold, Frampton, was first with six varieties.

Pompon Dahlias are much more popular with amateurs than with the trade, and there were many excellent exhibits of these dainty flowers. Mr. C. Luckin, East Grinstead, was first with twelve varieties, six blooms of each, and he included perfect little flowers of Daisy, Little Marvel, Glow, Johnnie and George Ireland. Earl Beatty, Reigate, was a good second. In the classes for amateurs who had not previously won a first prize at a show of the Society, the chief winners were Mr. C. G. Clark, Bishops Stortford, and Mrs. G. T. Wright, Windsor.

Decorative Classes.

The value of Dahlias for decorating the home was well illustrated at the show where eleven classes were provided for competition. As we have already suggested, the many dinner table decorations arranged by the lady members, in the open classes, reached a high standard of merit. In the class for Star Dahlias, Mrs. M. J. Willie, South Nutfield, was first, and Miss G. Breden, Crawley, second, both with attractive tables. Mrs. A. M. Swann, Hayward's Heath, had the best table of Mignon Dahlias, and Miss. Bredon was again a very good second. The competition was largest in the dinner table class, where the two types mentioned above may not be used. Mrs. Courtney Page, Hayward's Heath, was first, with a delightful table of the miniature Paeony-flowered varieties Lilian C. Page and Wanda; Miss M. Woolven, East Grinstead, was second, with a charming arrangement.

Mr. J. Emberson was the most successful exhibitor in the other open classes; he won first prizes with very artistically arranged vases of mixed Dahlias and of Paeony-flowered varieties only. Mr. D. B. Crane was placed first in the class for three bowls or vases of Dahlias suitable for sideboard decoration. In the three classes restricted to ladies, Mrs. Courtney Page won first prizes for a beautiful basket of Dahlias and for a bowl of Our Annie and Ella, two charming miniature Paeony-flowered varieties. Miss M. Woolven had the best vase of Dahlias.

Non-competitive Exhibits.

As might be expected at a show devoted to this popular flower, the trade groups were a prominent feature, all the wall space of the hall being occupied by magnificent banks of blooms. The general quality of the flowers was excellent, although at times many blooms seemed to err on the side of being too large, and the number of varieties displayed was indeed legion.

There was no exhibit in the hall better than the spectacular display set up by Messrs. Dobbie and Co.—a magnificent and tastefully arranged bank of Dahlias in perfect condition. As a background, there were enormous sheaves of such large-flowered Decorative sorts as the popular Jersey Beauty; Reginald Godfrey, vivid crimson-scarlet, and probably the finest of its colour in this section; Prestige, of a deep orange shade with a darker central zone; Emma Groot, another very popular variety both for exhibition and garden purposes; Mr. H. C. Drusselhuys, a beautiful pink; and Olympiade, deep velvety crimson. Collerette Dahlias were represented by fine flowers of Lock Nagar, deep velvety crimson and white; Glen Devon, crimson with a white collar; the magnificent Scarlet Queen; Rona, Tusca, Gloriosa and Arran. Other good Dahlias which we noticed in this collection, where all were meritorious, were Ullswater, a Decorative sort, yellow at the base, suffused with rose and pink; Andreas Hofer and Giant Kriemhilda, two distinct large-flowered Decorative sorts, the former rosy-pink and cream, and the latter pinkish-mauve; Our Annie, Dazzle, Lilian C. Page, Midas and Seafield, all of which are first-class Paeony-flowered varieties. Among the several Mignon sorts displayed, mention may be made of Midget and Dinky, two good yellow varieties; Peter Pan, very striking, and Lady Aileen. (Large Gold Medal).

Next to this display was a collection of choice giant-flowered Decorative Dahlias, sent over by the Dutch Dahlia Society. Cokkie Carlée, with attractively-curled and reflexed primrose-yellow petals, Early Yellow, and Edegem, of a medium shade of yellow, were a notable trio; while Roem van Brummen, rich velvety-crimson suffused with purple; Madame Curie, a good purple; Sunbeam, yellow, shaded with orange; and Marchenschön, rich orange-pink with yellow at the base of the central petals, were all choice novelties. (Silver Medal.)

Messrs. J. B. Riding staged a representative collection of Dahlias, among which the large-flowered Decorative sorts were the dominant feature, such varieties as Mabel Lawrence, rich scarlet; Sheila Ward, primrose, tipped with white; Berengaria, old gold; J. W. Davis, Jersey Mammoth, El Granada, W. D. Cartwright and Thos. Hay, V.M.H., being exceptionally good; while there were also very fine examples of Sanhican Gem, a large-flowered Decorative Dahlia of American origin; Schlageter, a vivid red Cactus sort; Persis, La Mexicana, Andreas Hofer, Beautiful Fairy and Mrs. Scrimgeour. (Silver-gilt Medal.)

Another extensive collection was that set up by Messrs. Carter Page and Co., Ltd., whose tastefully arranged group had, as a central feature, huge sheaves of Jersey Beauty, W. Goethe, Emma Groot, Yellow Perfection and Radium, the last-named being a brilliant, rich scarlet miniature Paeony-flowered Dahlia. There were good baskets of Border King, a rich scarlet Cactus variety of medium size; Purple King, a distinct Decorative sort; Aglaia, a beautiful small-flowered Decorative variety; and Mrs. van Waart; while other sorts which attracted attention were Rapallo, a miniature Paeony-flowered Dahlia with petals of firm texture, deep crimson, edged and tipped with gold; and among the Pompon varieties, Chamois Red, Pride of Berlin and Jonkheer van Tets. (Silver Medal.)

Messrs. Hewitts set up a heavy bank of Dahlias, consisting chiefly of large-flowered Decorative sorts, among which the best were W. D. Cartwright, Donald, Canopus, Josephine Adair, a good yellow variety; Primrose, aptly named; Hyde Park Beauty and Noble, the latter being red, tipped with white. (Silver Medal.)

Several Pompon varieties were noticed in Mr. H. Hemsley's group, although the staging of them was far from creditable. Among those which we noted were Nerissa, rich rosy-pink; Evelyn, crimson; Jessica, yellow flushed with apricot; Bacchus, scarlet; Glow, apricot; Rosalie, yellow, edged with red; and Pride of Berlin. Other choice Dahlias in this group were Star of Lannenburg, Gardener's Joy, Colour Queen and Futurity.

In fine contrast to this group was the magnificent array set up by Messrs. J. H. Jones, the arrangement of it being very tasteful. In the background there were masses of enormous blooms of such large-flowered Decorative sorts as Jersey Beauty, Robert Treat, glowing red; Hera, lilac-rose; Mabel Lawrence, brilliant scarlet; Rayonnante, a good yellow, and W. D. Cartwright, together with Mrs. de van Waarner, a good rose-purple; Glory of Aalsmeer, white and of perfect shape; Emma Groot; Canberra, scarlet; Thos. Hay, V.M.H.; Sarah Lorraine, red and white, and Carter's Red Emperor. At the front of the exhibit were attractive baskets of Dawn, a miniature Paeony-flowered variety, bronze, flushed with red at the base; Dazzle, rich scarlet, and Tangerine, both good varieties of the same section; and J. van Citters and Golden Hencke, the best of the small Pompon varieties. (Gold Medal.)

Cactus and large-flowered Decorative varieties were the chief features of Messrs. Jarman and Co.'s fine exhibit. Of the former type there were notable blooms of Mary Purrier, a good scarlet; A. E. Amos; J. Emberson, apricot-pink with a yellow centre; Edgar S. Jackson and Mary Murray, terra-cotta and very attractive; while among the large-flowered Decorative Dahlias we noticed Purple King, Viscount French, Emma Groot, Trentonian, exceptionally good; Amon Ra and Rapallo, the blooms of which were unusually large. (Silver-gilt Medal.)

Another well arranged group was that set up by Messrs. J. Cheal and Sons, Ltd. The foreground of this display consisted of baskets of such Mignon varieties as the orange-coloured Mincio; Josephine, Ada and Canary Bird, all of shades of yellow; Grace, a striking terra-cotta shade; Julius and Lustre, both with scarlet blooms; the deep crimson Zulu; Coltness Gem, Mita and Lady Aileen. Of Cactus varieties there were good examples of Edith L. Jones, Edith Carter, Mrs. F. Paton, vivid scarlet; Cygnet and Mary Purrier, while of large-flowered Decorative sorts there were fine blooms of Roy Hay, the deep velvety-crimson King Harold, Purple Robe, Jersey Beauty and Fireman. Primrose Star, Crimson Star, Maroon Star, Hyde Star and Petworth Star were all shown well, while Union Jack, striped red and white, was a striking single variety. (Silver-gilt Medal.)

Another fine group in which large-flowered varieties figured prominently was that set up by Messrs. H. Woolman. The arrangement of this exhibit was very good, and the blooms were of high quality. Among the Cactus varieties we noticed Thomas Want, with incurved petals, yellow, suffused with soft rosy-pink; Ballet Girl, very fine; Alabaster, white; Mary Segar, of fairly recent introduction and a good yellow sort; Doris Tisdale, yellow, flushed with dark bronze, and the distinct Mammoth, with long, incurving petals, purplish-crimson in colour. The most striking large-flowered Decorative sorts were Trentonian, Titan, H. B. May, Grace Curling, W. D. Cartwright, Jersey Beauty, and the giant Berengaria. There were also several noticeable Pompon varieties in this exhibit, together with Collerette and Paeony-flowered sorts. (Silver-gilt Medal.)

Messrs. John Waterer, Sons and Crisp, Ltd., staged quite an attractive group, with good representatives of the various types of Dahlia. Of Cactus varieties there were such good sorts as Edith Carter, Mrs. Lonsdale, J. Robbins, Pennant and Border King; among the large-flowered Decorative varieties we noticed Extase, Emma Groot, Artis, Maria Hautman, Orange Boven and Menny Carlée, and there were several fine Star, Single, Mignon and Paeony-flowered varieties. (Silver-gilt Medal.)

Messrs. Reginald Winder, Ltd., showed large-flowered Decorative varieties chiefly, their best blooms being of Tendresse Anversoise, white, flushed with pink; Nagel's Exquisite, Madame Barbanson, Ida Mansfield, rich yellow; Quinten Matsys, Nagels' Ideal, a good purple variety, and Mr. F. Vandervinnen; while Mr. Charles Turner included good blooms of Trentonian, Mrs. Ballego, Mrs. Waarner, Gardener's Joy and Edgar Jackson, a good scarlet Cactus variety, in their group.

Joyce Goddard, a vivid orange-scarlet Cactus variety, yellow at the base, was the dominant feature of a tastefully arranged group set up by Messrs. J. Emberson, other good sorts being Mabel Lawrence, Jack Hobbs, Paul Michael and Sheila Ward, all first-class, large-flowered Decorative sorts; while the blooms of Ballet Girl, Border King, Edgar Jackson and Edith Page were but a few of the best of a very good collection. (Silver Medal.)

Messrs. James Stredwick and Son, as usual, upheld their name as being expert growers of Cactus and large-flowered Decorative Dahlias, for they showed perfect blooms of Stedfast, Firefly, Menin, Mrs. A. Harvey and Doreen Woolman, all magnificent Cactus varieties; while among the Decorative sorts, we noticed grand blooms of R. Findlay, rich yellow; Mabel Lawrence, Lord Lambourne, Titan, Premier, Sheila Ward, Britannia, Leviathan, and the magnificent Berengaria. (Silver-gilt Medal.)

A daintily arranged and extensive collection was set up by Mr. J. T. West. It included numerous Cactus and large-flowered Decorative sorts, but his Dahlias which attracted most attention were Princess Elizabeth, Ullswater, Darkie, Phoenix and Smiter; and Pompon varieties, such as Cherry Ripe, Little Beeswing, Montagu Wooten, Adela and Mariette.

ROYAL HORTICULTURAL OF ABERDEEN.

In the sylvan surroundings of Hazlehead, Aberdeen's finest public park, the annual show of this Society was held recently. The high standard set in these annual displays was worthily upheld this year, and the quality of the exhibits in the competitive classes was acknowledged by all to be wonderfully good, notwithstanding the damage caused to flowers, fruits and vegetables by the recent heavy rains and high winds, and all the classes were well filled.

Some very fine exhibits were staged in the section for pot plants. The chief contest was for the best group of pot plants arranged for effect on the ground covering a space of twelve feet by nine feet, and the exhibitors rose finely to the occasion and produced one of the best displays ever seen at Aberdeen. Every exhibit was laid out tastefully. The first prize was awarded to Annie Viscountess Cowdray (gr. Mr. William Smith), Dunecht House, Aberdeenshire; James Cook, Esq. (gr. Mr. Robert Murray), Enfield, Aberdeen, was second; and Captain E. F. Lumsden (gr. Mr. William Morrison), Balmedie, Aberdeen, third. For the four best specimen plants, two flowering and two foliage, Colonel Gill (gr. Mr. Alex. Brebner), Dalhebity, Aberdeen, and Mr. Benzie (gr. Mr. W. Henderson), Morkeu, Aberdeen, took the lead in the order given. Ferns were well shown, the best coming from Mrs. A. Scott Elliot, Belhelvie Lodge (gr. Mr. F. Middleton), and the Dalhebity Gardens. Zonale Pelargoniums formed a good class, Mr. Benzie being placed first; while the best Fuchsias were shown by Mr. A. Gordon, Murtle.

Begonias also were finely represented, and Gloxinias formed an exquisite display, the honours being shared by Colonel Gill of Dalhebity, and Mr. James Cook, of Enfield.

Sweet Peas invariably prove the great attraction to the ordinary show visitor, and so it was this year, the exhibits being remarkably clean and fresh and of excellent quality and colour. Mr. John A. Grigor, Banff, had to take third place in the leading competition for twelve vases of Sweet Peas, distinct, in commerce, the first prize going to Annie Viscountess Cowdray, Dunecht, whose exhibit included fine specimens of Wembley, Grenadier, Sybil Henshaw, Elegance and Pinkie, and deservedly earned the leading award. But although eclipsed here, Mr. Grigor was successful in the other competitions. He was first for nine vases, for three vases, and for one vase of Sweet Peas, blended, one vase of lavender-coloured, one vase of pink, and one vase of crimson flowered. The three last exhibits were of finely grown specimens of Powerscourt, Pinkie and Sybil Henshaw respectively. Mr. A. S. Dow, Darnaway Castle Gardens, was first for the best three vases of 1928 novelties, with particularly well-grown specimens of Huntsman, and he also led for Constance Hinton, the best white; the best purple, with Olympia; and the best cream-coloured Sweet Pea, exhibiting What Joy.

There was a healthy rivalry in the cut flower section, and some wonderfully good exhibits were staged in the class for twelve vases of hardy herbaceous flowers. Lord Sempill, Fintray House, Aberdeenshire (gr. Mr. W. D. Anderson), was first; Mrs. A. Scott Elliot, Belhelvie Lodge (gr. Mr. F. Middleton), second; and Captain Lumsden (gr. Mr. W. Morrison), Balmedie, third.

Chrysanthemums were not greatly in evidence, but those shown by Lord Sempill were worthy of the first prize awarded. The three vases of Gladioli from Mr. John G. Paton, Grandhome House, near Aberdeen (gr. Mr. Cyril Cox), were the best; he also led for Collerette Dahlias, Single Dahlias, and twelve distinct varieties of cut flowers.

Roses and Carnations were well shown, although the latter were not numerous.

For the best eighteen Rose blooms, named and distinct, the first prize was a Silver Challenge Cup, and this was won by Annie Viscountess Cowdray, Dunecht House. Mrs. A. Scott Elliot, Belhelvie Lodge (gr. Mr. W. F. Middleton), was first for twelve Rose blooms.

In the section for nurserymen and florists, the best exhibit in the class for thirty-six Rose blooms was staged by Messrs. Adam and Craigmile, Aberdeen, the outstanding specimens being of Caroline Testout, Hadley, Mrs. Elisha Hicks, Lady Inchiquin, Florence Forrester and Mrs. George Marriott. The Silver Challenge Cup was deservedly awarded to this entry. Messrs. J. and R. Burns, Aberdeen, showed the best wreaths, hand bouquets, floral designs and baskets of Roses.

Fruits and vegetables, in all the classes, were extremely well shown, and competition was keen; while in the section for amateurs there were many outstanding exhibits, the most prominent prize winner being Mr. James Mackintosh, Rosehill Cottage, Aberdeen.

The promoters of the annual show of the Royal Horticultural Society of Aberdeen owe a deep debt of gratitude to the florists and nurserymen, who each year stage the magnificent displays that form not the least of the leading features of the show. It would be invidious, where all were so good, to select any special display for praise, but among the numerous firms represented were Messrs. Allwood Bros., Messrs. Adam and Craigmile, Messrs. Ben Reid and Co., Messrs. J. and R. Burns, and Messrs. W. Smith and Son, Ltd. Mention may also be made of an exceptionally fine display of Begonias sent from the Cruickshank Botanic Gardens, which are supervised and controlled by the Botanical Department of Aberdeen University.

ROYAL CALEDONIAN HORTICULTURAL.

The annual show of the premier Horticultural Society in Scotland, which was held in the Waverley Market, Edinburgh, on September 12 and 13, was characterised by a measure of success that exceeded the most sanguine expectations. Notwithstanding the backward season and the heavy rainfall over the week-end, the number of entries exceeded the total of 1927 by nearly five hundred, while the quality of the exhibits reflected a high standard of culture, and the public patronage was such that the large hall was uncomfortably crowded on the opening day. The trade, too, was more largely represented than in former years, and the variety and excellence of the displays testified to the enterprise of the firms and contributed in no small degree to the success of the show.

The one-hundred-and-sixteen classes in the section for pot plants and flowers were well filled. Pot plants made a fine display, and the competition among gardeners and amateurs suggested an increasing interest in the cultivation of the more popular subjects. Among cut flowers, Roses were the outstanding feature by reason of their numbers and the quality of the individual blooms. Competition in the nurserymen's classes was unusually keen, especially for six baskets of decorative varieties. Here Messrs. D. and W. Croll, Dundee, excelled with examples of Shot Silk, Betty Uprichard, Madame Butterfly, Los Angeles, Lady Inchiquin and Norman Lambert, which were young and fresh and clean of colour. Messrs. James Fairley and Co., Cairneyhill, and Messrs. William Ferguson, Dunfermline, were second and third respectively. The Dundee firm was also successful with twelve blooms of new Roses, and their twelve blooms of Dame Edith Helen were best in the pink class.

The leading honours in the big class for thirty-six Roses of not less than twenty-four varieties, were credited to Messrs. Adam and Craigmile, Aberdeen, whose exhibit was noted for the uniform size and grand colouring of the flowers. Prominent in the collection were excellent examples of Constance Casson, Dr. Edward Deacon, George Dickson, Captain Kilbee Stewart, J. G. Glassford and H. V. Machin, from which it will be noted that the exhibit was strong in red varieties. Mr. James Paterson, Lamington, scored a double success in the classes for twenty-four and twelve Rose blooms, and Messrs. W. Ferguson, Dunfermline, had a similar experience in the classes for red and white varieties, where they staged well-grown specimens of George Dickson and Frau Karl Druschki. The first prize for twelve yellow Roses was won by Messrs. James Fairley and Co. with Mabel Morse; they also provided the best six vases of cluster Roses, and were first in the class for a decorative bowl. The latter was furnished with young, half-opened blooms of Shot Silk, and it is noteworthy that the firm has won the contest for three years in succession.

Dahlias were shown in profusion, and the honours in this section were shared by Mr. Robert Grant, Boness; Mr. James Nisbet, Busby; and Mr. J. R. Paterson, Alloa.

Sweet Peas were of commendable quality, considering the advanced season, and the entries were more numerous than in former years. In the big class for twelve bunches, the competition resulted in the following awards:—First prize, Mr. J. Loan, Coldstream; second, Mr. J. Darling, Kelso; and third, Mr. A. White, Melrose.

For the first time in the history of the Society, the Scottish Challenge Cup for the best display of single and double Chrysanthemums was won by an English competitor in the person of Mr. J. W. Forsyth, Luton, but the defeat of the Scottish exhibitor, Mr. T. Nelson, Rutherglen, was modified by the fact that the winner is an Edinburgh man who was previously employed at Taymouth Castle. His was a meritorious effort. Mr. Nelson was latterly compensated by his success with three vases and one vase of yellow, early-flowering Chrysanthemums. The quality of the blooms shown in the various classes was above the average, particularly in the disbudded vases. Prominent names in the prize list were Messrs. D. Duncan, of Dean, who were first with eight vases; Mr. T. Nelson, Mr. J. Nisbet, Messrs. Torrance and Hopkins, Busby, and Mr. T. Cochrane, Galashiels.

Mr. A. Frater, Kirkliston, created a praiseworthy record in the Pansy and Viola section, winning all the five classes in which he had entered. Messrs. George Mair and Son, Prestwick, secured the prize for twenty-four spikes of Gladioli without opposition, while Mr. D. Whitland, Laurencekirk, excelled in the other two classes for twelve and six spikes.

The display of fruits is always on a scale that has won for the Society a high reputation, and the competition for the Thomson Challenge Trophy, awarded for the best six bunches of Grapes, is regarded as the blue ribbon of the show, if it may be so called. On this occasion the contest lay between two noted cultivators, *i.e.*, Mr. A. McBean, gardener to the Marchioness of Tweeddale, Yester House, Gifford, and Mr. Donald McInnes, gardener to the Earl of Strathmore, Glamis Castle. The maximum points allowed are as follows:—Muscat of Alexandria, 10; other Muscats and Black Hamburgh, 9; all other varieties, 8. Mr. McBean's bunch of Gros Colmar won the full number of points, quite an uncommon occurrence, but so equal in quality were the respective exhibits that he only proved victorious by half-a-point, the totals being 46 and 45½, respectively. He got no opposition to his table of nine dishes of fruits, and to his winning list he added the first prize awards in the classes for one bunch of Muscat of Alexandria, one bunch of Gros Colmar, and one bunch of Black Alicante. Mr. McInnes excelled with two bunches of Muscat of Alexandria, two bunches of Alicante, and one bunch for bloom.

Next in importance to the trophy competition was the class for four bunches of Grapes of at least two distinct varieties. It introduced two other competitors, Mr. W. J. Buchanan, gardener to the Earl of Mar, Alloa; and Mr. P. McOnie, Meggerne Castle Gardens, Glenlyon, the merits of whose exhibits were placed in the order named. The latter, however, succeeded in three other classes:—for two bunches and one bunch of Madresfield Court Grapes, and for two bunches of any other variety.

So numerous were the exhibits of Apples that three large tables were required for their accommodation. The collection of twelve dishes, staged by Mr. C. Webster, Gordon Castle Gardens, was outstanding for the colour and size of the fruits, of which Bachelor's Glory, Charles Ross, Guelph, Cox's Orange Pippin, Rival and King of the Pippins were conspicuous in respect of these qualities. Of the remaining three collections, Dr. Jackson, Carnforth, succeeded in two and the other prize was won by Mr. R. Auldjo, Kelso. The latter was the most successful exhibitor in the named classes, being placed first for Peasgood's Nonesuch, Golden Spire, Lane's Prince Albert, Lord Derby and Stirling Castle. He also provided the best yellow Plums.

The quality of Pears in the two best collections was a revelation to the public. Mr. A. McBean was responsible for the one and Mr. G. M. McGlashan for the other prize-winning exhibit. The latter grower scored heavily in this section, having five other first awards to his credit.

Mr. C. Webster and Mr. W. Smith, Dunecht, respectively, carried off the honours for two collections of Plums, and the former also scored with twelve Gages and twelve Apricots.

Judging by the excellence of the exhibits of vegetables, the season has been favourable to the production of high-class vegetables, Onions, Leeks, Beetroot, Celery and Parsnips commanding particular admiration.

Interest largely centred in the competitive class for twelve dishes of vegetables, which carried with it a piece of plate presented by Messrs. William Thomson and Co. It had already been won two years in succession by Mr. John Gray, Uddingston, and success this year meant permanent possession of the prize. His chief opponent was Mr. J. H. Bell, Bothwell Castle, a well-known market grower, and so closely were they matched that the present holder only succeeded by 1½ points, their respective totals being 60 and 58½.

Large Gold Medals were awarded to Messrs. Dobbie and Co., Ltd., Edinburgh, for Dahlias; Edinburgh Corporation Parks Department, for a group of Liliums and Palms; Messrs. R. Lawrie, Carnwath, for Begonias; Messrs. John Peed and Son, for a miscellaneous group of plants; and to Messrs. Sutton and Sons, for a collection of vegetables.

Gold Medals were won by Messrs. Allwood Brothers, for Carnations; Messrs. Austin and McAslan, for Gladioli and vegetables; Messrs. Bannatyne and Jackson, for Dahlias and herbaceous flowers; Messrs. Dickson and Co., for Roses; Messrs. John Downie, for fruits and herbaceous flowers; Messrs. C. Engelmann, Ltd., for Carnations; Messrs. L. F. Fairbairn and Sons, for Phloxes and Dahlias; Messrs. J. Forbes (Hawick), Ltd., for herbaceous flowers; Messrs. Isaac House and Son, for Scabious; Messrs. Thomas Jeffrey, for Conifers; the Kippen Vinery Company, for Grapes; Messrs. Laird and Dickson, for alpines; Messrs. Samuel McGredy and Son, for Roses; Messrs. Storrie and Storrie, for pot fruits; and Messrs. Thyne and Son, for herbaceous flowers.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The September meeting of this Society was held in the R.H.S. Hall, on the 10th inst., Mr. T. R. Butler presiding. Four new members were elected. Four members withdrew the sum of £19 6s. 4d. from their deposit accounts and two members withdrew the sum of £87 8s. 1d. from their lapsed accounts. The sum of £197 18s. 3d. was passed for payment to the nominees of three deceased members. The sick-pay for the month on the Ordinary side was £93 10s. 4d., and on the State Section, £83 12s. 8d.; maternity claims totalled £4 10s. The sum of £65 5s. 8d. was made in grants to sixteen members towards the cost of dental and surgical treatment; twelve other cases were considered.

The Committee decided to hold a dinner at the Prince Alfred Hotel, 29, Tufton Street, Great Smith Street, Westminster, on Monday, October 8; members and friends who desire to be present should communicate with the Secretary as early as possible.

LANCASTER SHOW.

The horticultural show in connection with the Agricultural Society's show was held in fine weather on September 5, in the Giant Acre Field, and there was a fine display of five hundred exhibits, all of good quality, while non-competitive exhibits were staged by Mr. Gerald Garnett, Dolphinholme (the doyen of local horticulturists); the Parks Committee; Messrs. Webb and Co., Kendal; Mrs. Musgrave Hoyle, Mr. W. Garnett, Mr. H. C. W. Foster, and Mr. G. Paine. Messrs. Harkness and Son secured the premier award for competitive displays. Mr. S. T. Downham, Galgate, was very prominent in the herbaceous flower classes and also did well with vegetables and fruits. Mr. W. Robinson, as usual, scored heavily for Onions and for collections of vegetables, and took many prizes for fruits.

Table decorations were shown best by Mrs. Emmott, with Mrs. Musgrave Hoyle and Mrs. Coleman (Ellel Vicarage) running close. Mrs. Musgrave Hoyle led for an epergne of Sweet Peas. Other leading prize-winners were Messrs. Kellett, T. N. Cross, T. Cole, W. Molloy, A. Carney, J. Jackson, F. Milligan, T. A. Clayden, and W. J. Cook. Mrs. Musgrave Hoyle's stand of Dahlias was very fine, some massive blooms being shown.

SANDY HORTICULTURAL.

The fifty-fifth exhibition of the above Society was held, as usual, in the Park of Sandye Place, by kind permission of Mrs. Greaves. The exhibition was favoured with glorious weather, and, judging by the number of visitors present, there must have been a record attendance. The exhibits were of a very high standard, especially those of Roses, Dahlias, vegetables and hardy fruits. Ripe dessert fruits were not quite up to the usual standard.

The first prize was awarded to Mr. J. W. Forsyth, for a group of hardy herbaceous flowers, a very fine display. Messrs. Harkness and Co. were placed first for a collection of Roses arranged for effect on tabling fifteen feet by four feet, the most prominent varieties being Madame Butterfly, Gwyneth Jones, Cecil, Lamia and Betty Uprichard. Messrs. F. A. Wheeler were second.

Messrs. Harkness and Co. were also successful for forty-eight Rose blooms in no fewer than thirty distinct varieties, and also for a collection of Tea Roses. Dahlias were shown well, and here Mr. H. Woolman was the principal prize-winner. Messrs. J. Cheal and Son, Crawley, secured the first prize for twelve vases of Pompon Dahlias.

For a collection of ten varieties of hardy fruits, open to all, the Earl of Sandwich (gr. Mr. Prowting), was placed first with a meritorious exhibit. Lady Juliet Duff, Kingston Hill (gr. Mr. H. Weaver), was second. For a collection of ripe dessert fruits, Lady Juliet Duff was first, and the Earl of Sandwich second, the Earl of Sandwich winning first prizes for Figs, Melons and Plums. The most successful exhibitor in the single-dish classes was Mrs. Carl Holmes (gr. Mr. Penton), who secured prizes for black and white Grapes, indoor and outdoor Peaches and Nectarines, Gooseberries and Pears.

Vegetables are always of a high standard of quality at this show. For a collection of nine distinct sorts, Mr. Olney, an amateur, was the first prize winner with splendid examples; Dr. C. J. Welch (gr. Mr. W. R. Pettifer) was second; and Mrs. Carl Holmes, third. The three last-named exhibitors, together with the Earl of Sandwich, were the chief prize-winners for single dishes of vegetables.

Division E, for market gardeners, is always interesting and educational, the produce being of a very high standard. The principal prize-winners were Messrs. C. H. Ashwell and Sons, Langford, and Messrs. G. Truin, Sandy, while the produce in the Cottagers' class was of exceptional merit, the chief prize-winners being Mr. Robinson, Great Marford, and Mr. E. J. Bott, Long Buckley.

Table decorations were a popular feature at this show, a large tent accommodating them. For a table of Roses, Mrs. T. Higgins, Sharnbrook, was first, while for Sweet Peas, Mr. A. E. Gell, Kysoe, showed the best arranged table. For a table decoration featuring Carnations, Mrs. G. Myers, Bedford, was placed first, while Mrs. H. A. King, Kempston, showed the most attractive decoration of Dahlias, and Mrs. T. Higgins was again first for a table of any other flower.

Gold Medals were awarded to Messrs. Laxton Brothers, Bedford, for Roses and herbaceous flowers; Mr. W. J. Unwin, for a large display of Gladioli; Messrs. Daniels Bros., Norwich, for miscellaneous flowers, and Messrs. W. J. Brown and Son, for a miscellaneous collection.

Obituary.

W. H. Page.—One of the most charming of men engaged in the flower-growing industry has passed away and left the world the poorer. Mr. W. H. Page, Tangley Nurseries, Oak Avenue, Hampton, who died on September 9, after a long illness, cheerfully borne, was the eldest of several brothers who followed the same kind of business, and together made the names of Page and Hampton famous in Covent Garden. Mr. W. H. Page did not confine his attention to one particular subject, but during his long years of business life—he was in his seventy-first year—he cultivated various crops, often dropping one and taking up another as inclination and the state of the market dictated. Thus he was at one time a successful grower of Roses and fruits, but for many years past Lilies, Carnations and Tomatos were his principal crops. He took an active interest in the flower-growing industry, and was one of the founders of the British Florists' Federation, of which he was always a member of the Council, and its President in 1923. He was also a member of the special committee that dealt with the licensing of the imports of Lily bulbs from Japan during the war and immediate post-war periods. Naturally, he was a prominent member of the British Carnation Society, and was Chairman of its Floral Committee, a position for which he was peculiarly well fitted by reason of his long experience and good taste. His experience and breadth of view were also greatly appreciated by his fellow members of the Royal Horticultural Society's Floral Committee, of which body he was a member for many years. Of gracious presence, kindly, generous, a good speaker, humourous and cheery, Mr. Page made a host of friends, all of whom will join with us in deepest sympathy with Mrs. Page and her sons and daughters in their sad bereavement, for it was in his home that Mr. Page's many fine qualities shone brightest.

THE LATE W. H. PAGE.

Benjamin Parker.—By the death of Mr. Benjamin Parker, of Scotforth, horticulture in Lancashire, Westmoreland and the West Riding of Yorkshire has lost a competent judge and exhibitor. Until a few years ago he exhibited regularly at Birmingham and Shrewsbury, and was a stalwart supporter and exhibitor at north country shows. He was also one of the appointed judges for Bare Show, but owing to his illness could not act. His chief successes were with Potatos and Onions, and all varieties of Dahlias. He was a good all-round grower, a crack shot, and could throw a good "wood" at bowls and a good quoit. He was in his eightieth year.

ANSWERS TO CORRESPONDENTS.

Bloom on Fruits of Bramble.—*P. M. T.* Examination of the Bramble fruits revealed no trace of mildew. The slight "bloom" on the fruits appears, therefore, to be due to a waxy covering which is characteristic of some of the innumerable forms of Rubus fructicosus. The "bloom" is similar to that of Plums, Grapes, etc.

Cordyline australis.—*G. B.* The leaf is that of Cordyline australis, and not of a Palm. We cannot say why it has discoloured unless it was affected by frost, as you suggest, together with the fact that it had been repotted recently and had not become properly re-established. It should, however, withstand a good deal of frost, as it remains out-of-doors all the year in the west of England. If the centre dies, growths may be produced from the stem and form several branches; in the meantime, keep it fairly dry at the roots.

Damson Leaves Discoloured.—*E. H. W.* The colour of the foliage suggests that silver-leaf may be the cause of the trouble, but we think drought, thrips and red spider (the two last were present) are at least equally to blame.

Dwarf Border Daisies, etc.—*T. R. P.* 1, We cannot tell what you mean by a dwarf border Daisy, unless you mean the so-called Barberton Daisy, Dimorphotheca aurantiaca, a hardy annual; 2, Achillea Eupatorium, A. Ptarmica The Pearl, Anemone japonica vars., Anthemis tinctoria, Aquilegias, Aster Thomsoni, Campanula persicifolia, C. carpatica, Catananche coerulea, Centranthus ruber, Coreopsis grandiflora, Erigeron Quakeress, Geum Mrs. Bradshaw, Gypsophila paniculata and its var. flore plena, Helenium pumilum magnificum, H. Crimson Beauty, Heucheras, Lychnis Viscaria, Monarda didyma, Morina longifolia, Nepeta Mussini, Oenothera Youngii, Potentilla nepalensis, Rudbeckia speciosa and Salvia nemorosa; of course, none of the hardy perennials continue in flower all the season; 3, No.; 4, Specimen too scrappy to identify.

Gladioli Failing.—*P. G. C.* Failure of the Gladioli is due to the presence of a fungus, known as Sclerotium gladioli; this causes a dry rot of the corms, frequently associated with a rot at the base of the stems and a yellowing of the foliage and developing flower-spike, followed by drying and death. The incidence of the disease may be due either to planting infected corms or to a previous infection of the soil. Unfortunately, no certain means of disinfecting either the soil or the corms has yet been devised, and the only way of checking the spread of the disease is to plant sound corms in sterile soil. The fungus is able to survive in soil once infected for a period of at least five years. This means, that in gardens where the disease has been observed, a fresh site should be chosen, for fear of infecting clean stocks. With regard to the planting of sound corms, it is by no means easy to insure that this is being done, except by careful examination prior to planting. At this time, infection is indicated by the presence on the corm of small, discoloured areas. These are usually slightly depressed, nearly black in colour, of a more or less corky consistency and bounded by a slightly elevated margin. It is necessary to remove the outer husks in order to observe these symptoms, as the husks themselves may not be discoloured. No corms exhibiting the symptoms described should be planted. At harvesting time, the corms should be dried well and cleaned, so far as possible, of soil and the remains of dead leaves and roots.

GRAPES SHANKING.—*S. G.* There seems nothing wrong with your cultural treatment. Muscats, Madresfield Court, and in many cases Royal Muscadine, are far more subject to shanking than many other varieties, unless especially well cultivated, and shanking is far more prevalent among late Grapes than among early forced ones. Shanking is not the result of any one cause, but a variety of causes, such as over-cropping, red spider, chills, roots getting into a cold sub-soil, excessive dryness at the roots, over-crowding and other checks which prevent the foliage from performing its proper functions. If the roots are at fault and the varieties named are so placed that the vines may be taken up carefully and the border renewed, introducing a greater proportion of porous materials than before, so as to secure good drainage, then, after planting carefully, shanking should not occur if other cultural items receive proper attention.

NAMES OF PLANTS.—*S. O.* 1, Cunninghamia sinensis, fairly common and hardy in the west; 2, Podocarpus sp.; 3, Clethra alnifolia. *F. N.* 1, Rivina humilis laevis; 2, Cuphea ignea (sometimes named C. platycentra in gardens); 3, the juvenile or young state of Cupressus pisifera var. squarrosa (often wrongly named Juniperus bermudiana in gardens); 4, Euonymus japonicus medio-pictus aureus; 5, Jacobinia pauciflora (better known in gardens as Libonia floribunda).—*W. H. S.* 1, Rhus Cotinus; 2, Koelreuteria paniculata; 3, Campanula pusilla, similar to C. macrorrhiza but a smaller plant, with erect calyx lobes, one-fourth the length of the corolla, and a slender creeping root-stock; 4, Tunica Saxifraga, a little more highly-coloured than the average plant.—*C. M. W.* Hoya carnosa.

TOMATOS FAILING TO RIPEN.—*C. S.* Your Tomatos are suffering from lack of potash in the soil and are not diseased. This may be corrected by applying a light dressing of nitrate of potash which may be watered in.

Communications Received.—A. J.—A. T. J.—H. M. —A. G.—C. H. L.—N. C. C.—T. P.—J. G. W.— A. F.—H. C.—R. H. S.—T. L. G.—St. L.—T. S.— F. K.—J. B.—E. V. S.—H. K.

SCHEDULE RECEIVED.

FAVERSHAM AND DISTRICT CHRYSANTHEMUM ASSOCIATION.—Exhibition, to be held at the Faversham Institute, on November 13 and 14, 1928.—Secretary, Captain R. A. Darney, 1, Alethea Villas, London Road, Faversham.

GARDENING APPOINTMENTS.

Mr. H. C. Wilks, for the past thirteen years gardener to H. C. MOFFATT, Esq., Hamptworth Lodge, Salisbury, Wiltshire, as gardener to Lt.-Col. CLIFTON, C.M.G., D.S.O., Clifton Hall, Nottingham. [Thanks for 2s. for R.G.O.F. Box.—EDS.]

Mr. Alfred Lloyd, for the past fifteen years gardener to R. S. WOODWARD, Esq., Hopton Court, Cleobury Mortimer, Salop, as gardener to M. G. ABRAHAMS, Esq., Tregada, Arthur Road, Wimbledon. [Thanks for 2/- for the R.G.O.F. Box.—EDS.]

ENQUIRY.

AN American correspondent desires parts VII and XIX of *The Genus Rosa*, by Miss E. Willmott. He is willing to purchase these parts or could offer any of the following in exchange, *i.e.*, Parts I, II, III, V, VII, VIII, X, XI and XVIII. Please address replies to the Editor, *The Gardeners' Chronicle.*

MARKETS.

COVENT GARDEN, Tuesday, September 18, 1928.

WE cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in the day.—EDS.

Plants in Pot, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz. ...	10 0-12 0
—elegans	10 0-12 0
Aralia Sieboldii	8 0- 9 0
Araucarias, per doz. ...	30 0-40 0
Asparagus plumosus ...	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistras, green ...	16 0-60 0
Aspleniums, doz.	12 0-18 0
—32's ...	24 0-30 0
—nidus ...	12 0-15 0
Asters, white and coloured ...	9 0-12 0
Cacti, per tray, 12's, 15's ...	5 0—7 0

	s. d. s. d.
Chrysanthemums per doz. ...	12 0-18 0
—white, per doz.	15 0-18 0
—yellow, per doz.	12 0-18 0
—pink, per doz.	18 0-21 0
—bronze, per doz.	12 0-18 0
Crotons, per doz.	30 0-45 0
Cyrtomiums ...	10 0-12 0
Kochia, per doz.	15 0-18 0
—60's	9 0-12 0
Lilium longiflorum, 48/32's ...	15 0-21 0
Nephrolepis in variety ...	12 0-18 0
—32's ...	24 0-36 0
Palms, Kentia	30 0-48 0
—60's ...	15 0-18 0
Pteris in variety	10 0-15 0
—large, 60's ...	5 0—6 0
—small ...	4 0—5 0
—72's, per tray of 15 ...	2 6—3 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	8 0-10 0
—cuneatum, per doz. bun. ...	5 0—8 0
Asparagus, plumosus, per bun., long trails ...	2 6—3 0
—med. sprays	2 0—2 6
short ,,	— 1 0
—Sprengeri, bun. long sprays	2 0—2 6
med. ,, ...	1 0—1 6
short ,, ...	0 6—1 9
Asters, white, per doz. bun. ...	3 0—6 0
—pink, per doz. bun. ...	3 0—5 0
—single var., per doz. bun. ...	2 6—3 6
—mauve, per doz. bun. ...	4 0—8 0
Carnations, per doz. blooms	1 6—3 6
Chrysanthemums—	
—white, per doz. blooms ...	2 0—4 0
—yellow, per doz. blooms ...	2 6—5 0
—bronze, per doz. bunches ...	5 0—9 0
—bronze, per doz. blooms ...	2 0—2 6
—pink, per doz. bunches ...	8 0—9 0
—pink, per doz. blooms ...	3 0—4 0
Coreopsis, per doz. bun. ...	1 0—1 6
Cornflowers, blue, per doz. bun.	2 0—2 6
Croton leaves, per doz. ...	1 9—2 6
Daisies, large white, per doz. bun. ...	2 0—2 6
Fern, French, per doz. bun.	10 0-12 0
Forget-me-nots, per doz. bun.	8 0—9 0
Gaillardia, per doz. bun. ...	2 6—3 6
Gladiolus, giant varieties, coloured, per doz. spikes ...	2 0—4 0
—primulinus, 6's, per doz. bun.	5 0—6 0
Gypsophila paniculata, double, per doz. bun. ...	21 0-24 0

	s. d. s. d.
Heather, white, per doz. bun.	9 0-10 0
Lily-of-the-Valley, per doz. bun.	18 0-30 0
Lilium longiflorum, long, per bun.	2 6—3 0
— — short, per doz. blooms	2 6—3 0
—speciosum, long, per bun. ...	3 6—4 0
— — — short, per doz. blooms	2 6—3 6
— speciosum rubrum, long, per doz. ...	3 0—3 6
— — — short, per doz. ...	1 6—2 6
Marigolds, per doz. bun. ...	2 0—3 0
Myrtle, green per doz. bun.	1 6—2 6
Orchids, per doz.	
—Cattleyas ...	36 0-60 0
—Cypripediums	10 0-15 0
Physalis, per doz. bun. ...	12 0-30 0
Roses, per doz. blooms—	
—Mme. Butterfly	1 6—3 0
—Columbia ...	2 6—3 6
—Golden Ophelia	1 6—2 6
—Richmond ...	2 0—3 0
—Aaron Ward	1 0—1 6
—Roselandia	1 6—3 0
—Hoosier Beauty	3 0—4 0
—Molly Crawford	1 6—4 0
Scabiosa caucasica, per doz. bun.	4 0—5 0
Smilax, per doz. rails ...	4 6—5 0
Statice sinuata, blue, per doz. bun. ...	5 0—8 0
— — white, per doz. bun. ...	5 0—8 0
— — pink, per doz. bun. ...	5 0—8 0
— — yellow, per doz. bun. ...	5 0—8 0
Stephanotis, 72 pips ...	2 6—3 0
Stocks, white, per doz. bun. ...	4 0-10 0
— — mauve, per doz. bun.	6 0—8 0
Sweet Sultan, white, per doz. bun. ...	3 6—4 6
— — mauve, per doz. bun. ...	3 6—4 6

REMARKS.—During the last week conditions have not improved in the cut flower market. Large quantities of Chrysanthemums, both disbudded and sprays, are available, poor quality blooms being difficult to dispose of; in fact, even choice blooms do not sell freely owing to the overstocking of the market. Roses are plentiful, and large quantities of Physalis and herbaceous flowers are arriving daily.

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans—	
—French, ½-bush.	3 0—3 6
—Scarlet Runner, half bag ...	4 0—5 0
Beet, per bag...	5 0—6 0
Cabbage, per box	3 0—4 0
Cucumbers, doz. 36's, 42's, 48's	7 0—9 0
Lettuce, Cabbage, English, doz.	2 0—3 0
—Cos	1 0—3 0
Marrows, outdoor, per tally ...	5 0—7 6
Mint, per doz bun. ...	1 0—1 6

	s. d. s. d.
Mushrooms—	
—Cups ...	3 0—4 0
—Broilers ...	2 0—2 6
Peas, English—	
—flats, special	6 0—8 0
Potatos—	
—English, cwt.	6 0—8 0
Tomatos, English, pink ...	2 0—4 0
— — pink and white ...	2 0—4 0
— — white ...	1 6—2 6
— — blue ...	1 6—2 6
—Dutch, 28 lb. box	2 0—2 6
—Guernsey ...	1 3—2 0
—Jersey ...	1 3—1 6

REMARKS.—There has been some movement in certain sections of the market during the past week, and trade on the whole, has been fairly good. The weakest department, so far as demand and prices are concerned, is undoubtedly that for Tomatos, prices having reached levels that, for the period they have persisted, must be the lowest for many years. Jersey has a record Tomato crop, a factor which will probably prevent much improvement in prices for mainland produce during the next two or three weeks. Hothouse fruits, such as Grapes, Peaches, Nectarines, Melons and Figs, are selling moderately well, although quotations are easier. English Apples have shown some improvement in demand, well-coloured, first-grade Worcester Pearmain in cases and halves selling readily, while large cooking Apples are inquired for. Some American Jonathan Apples are already available, which is a point home producers of Worcester Pearmains will not welcome. Plums are a firm market; all supplies of Monarch, Bush, Pond's Seedling and Damsons are readily taken up by buyers. Cucumbers have hardened in price after a period of low values. The vegetable market shows a little more keenness in inquiry, and correspondingly better figures being realised. Salads are selling better with smaller supplies available. Mushrooms, both cultivated and field, continue scarce and prices are comparatively high. The Potato market has a better tendency, with a leaning towards slightly higher prices for good sorts.

GLASGOW.

Supplies of cut flowers are plentiful owing to the improved weather conditions, and prices remain steady. Last week disbudded Chrysanthemums were worth from 10d. to 1s. 6d. for 6's; and sprays ranged from 4d. to 10d., according to the size of the bunch. Gladioli made 2½d. to 5d. for 3's; and special blooms sold at 6d. to 8d.; Richardias made 2s. 6d.; Dahlias, 6d.; Calendulas, 2½d. to 3½d.; Sweet Peas, 3d.; Asters, 2d. to 3d.; Heather, 6d.; Gypsophila paniculata, 4d. to 6d.; and Ferns, 1s. to 1s. 8d. Carnations continued cheap at 1s. 3d. to 1s. 9d. per dozen; while Roses fluctuated between 2s. and 3s. per dozen.

Benefiting by a week's good weather, the Plum crop in Scotland has ripened quickly and the large daily supplies dominated the fruit market. Victoria, first grade, realised from 7d. to 10d. per lb.; second grade, 2½d. to 4d.; and Monarch, 4½d. to 6d. Damsons sold at 10s. per sieve. A consignment of late Strawberries which reached the market on Friday, was disposed of at 6d. per lb. Cooking Apples varied from 20s. to 26s. per cwt.; seconds, 14s. to 16s.; Conference Pears made 7s. to 9s. per half-bushel; Fertility, 7s. to 8s.; Hessle, 4s. to 5s.; Beurre Hardy, 10s. per half-case; and Eureka, 11s. 6d.; while bronze Melons sold at 9s. to 12s. for 24's. South African Oranges, 24s. to 26s. per case, and Californian Oranges, 34s. to 36s. American Apples are coming in more freely; York Imperials were worth 18s. to 25s. per barrel; Magnum Bonum, 18s. 6d. to 24s.; Jonathan, 25s. to 30s.; and Gravenstein, 13s. per case.

The feature of the vegetable market was the slump in Cauliflowers. Supplies exceed the demand, and medium-sized heads were obtainable at 1s. to 2s. per dozen. Lettuces made 1s. 6d. to 1s. 9d. per dozen; Cucumbers, 3s. 6d. to 4s.; French Beans, 4d. and 5d. per lb.; and Mushrooms, 3s.

CATALOGUES RECEIVED.

CLEMENT DALLEY & CO., LTD., Kidderminster.—Bulbs and Fruit Trees.

E. P. DIXON AND SONS, LTD., Hull.—Bulbs.

ALEX. DICKSON AND SONS, LTD., Hawlmark, Co. Down.—Roses.

GEORGE BUNYARD AND CO., LTD., The Royal Nurseries, Maidstone.—Fruit.

SAMUEL MCGREDY AND SON, Portadown, Northern Ireland.—Roses, etc.

JAMES CARTER AND CO., Raynes Park, S.W.20.—Sweet Peas.

ANDREW IRELAND AND HITCHCOCK, Marks Tey, Essex.—Sweet Peas, Bulbs and Roses.

DAVID SWAIN AND CO., 101, Sussex Road, N.7.—Garden Frames.

THE Gardeners' Chronicle

No. 2179—*SATURDAY, SEPTEMBER* 29, 1928

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 51·6°.

ACTUAL TEMPERATURE—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, September 26, 10 a.m. Bar. 32·. Temp. 50°. Weather, Fine.

Silver-leaf.

SILVER-LEAF, a disease of Plums and other plants, is due to infection by the fungus Stereum purpureum. It is an ubiquitous disease, occurring to a greater or lesser extent in all parts of the world where Plums (or Apples) are grown. The symptoms of the disease are so striking that no gardener can fail to notice them. The leaves present a silvery appearance, branches die back, the tree becomes unfruitful and may ultimately die. Until recently, it was generally assumed that Silver-leaf was a disease mortal to Plums, and, moreover, incurable. Hence, the only advice that seemed effective which could be given to growers whose trees were affected with Silver-leaf, was to cut down, uproot and burn them. Where, however, the silvering and dying back was only partial, the cutting out of the affected branch might, if done betimes, arrest the progress of the disease. Thanks to the investigations of Mr. F. T. Brooks and his colleagues, and of Mr. F. R. Petherbridge,* the cure of the Plum tree stricken with Silver-leaf would now seem to be more hopeful, for, in the first place, it is now known that if the disease is tackled in its initial stage the affected trees have a good chance of recovery. The methods to be adopted are two-fold: The branches showing symptoms of Silver-leaf should be removed during that period of the year, namely, early summer, when the chance of re-infection through the wounded surface is remote, and, the general health of the tree must be improved. The spores of the Silver-leaf fungus are scarce or absent in June, July and August, and hence these are the months in which branches showing symptoms of Silver-leaf should be removed. Moreover, inasmuch as Mr. Brooks and his colleagues have shown that infection does not take place on the surface of a cut branch after the cut is a month old, if the operation be done early in summer the wounds have time to become resistant to infection before the spores of the fungus begin to abound. For further security, the surfaces of cut branches may be covered with soft grafting-wax, which apparently excludes the spores better than does Stockholm tar. Interesting evidence is given, both by Mr. Brooks and by Mr. Petherbridge, that, notwithstanding general opinion, Plums attacked by Silver-leaf may recover. The latter author gives a most interesting account of the experience of Mr. W. T. Afford, of Bluntisham, near St. Ives, who has combated the disease with a striking measure of success. The methods which Mr. Afford has employed are three-fold. He removes diseased branches early, ameliorates the condition of the trees, and uses a stock which confers greater resistance to susceptible Plum varieties—in his case Victoria Plum—than does the Myrobolan stock on which commercial Plums are commonly grafted (or budded). An ingenious system of cutting out diseased branches is specially noteworthy. The affected branch is not cut back to the main stem, provided the surface of the cut does not show the dark stain symptomatic of the fungus—but so as to leave a spur. The reason for this type of cutting back is the sound one that the spur may form adventitious shoots which will help the more quickly to the reformation of the tree. In the second place, Mr. Afford attends to the general welfare of his trees, both by securing good drainage of his heavy soil and by the addition of fertilisers. After a heavy crop of Plums the land is dressed liberally with farmyard manure, after it has been cultivated, and in early spring dissolved bones are applied at the rate of seven hundredweights per acre. Then, after the next heavy crop is well set, a late spring dressing of artificial manures, consisting of sulphate of ammonia and superphosphate, is given at the rate of two hundredweights per acre. Thirdly, when a Plum tree fails to recover from the disease, it is removed and the gap filled by another Plum (Monarch instead of the dead Victoria) grafted on wild Plum stock. Mr. Afford grafts his plants four feet from the ground instead of budding them near the ground level, as is the usual practice when Myrobolan stocks are used. Finally, it would appear safe, in the light of these observations, to predict that Silver-leaf disease may be caused to cease from being a serious malady if reasonable precaution be taken in the way of timely removal of affected branches; if the soil be properly cultivated, and need it be written, adequately drained, and if the right kind of fertilisers are used in order to maintain and restore the vigour of the trees, which otherwise must become exhausted by heavy bearing.

Royal Horticultural Society's Autumn Show.—The Autumn Show, held on September 27 and 28, was of especial interest in that it was the first occasion on which the Society's new hall was put to use, and Fellows and visitors had ample opportunities of judging the merits, and defects, of the imposing structure. The obvious improvement upon the old hall, apart from the increase in space, was in the lighting, which was extremely fine; but the great height of the hall seemed to have a decided dwarfing effect upon the exhibits, which in many instances were of large dimensions and spectacular arrangement. The grey walls, contrary to general anticipation, showed the displays of flowers to great advantage, and the general view of the hall from the dais was extremely fine. The dais held a magnificent group of Gloxinias, the wall being lined with wonderful Begonias and Gladioli, while in the body of the hall were giant banks of Dahlias, Asters, Phloxes, indoor plants, etc. The general arrangement of these groups could certainly have been improved upon, for we thought that too little could be seen of the groups lining the walls, owing to the height of the exhibits in the central portion of the hall. As if in protest at being superseded by the new hall, the old hall presented a very brilliant display, the Roses, which lined the walls in spectacular banks, being chiefly responsible for this effect. In this hall the general arrangement of the groups was beyond reproach, and the whole effect was very pleasing. The Royal Horticultural Society entertained the Press to luncheon on the Wednesday preceding the show, and it is of interest to record that Lord Lambourne, the President of the Society, was able to preside.

New Bailiff of the Royal Parks.—It is announced officially that Mr. F. E. Carter, who has been private secretary to several First Commissioners of Works, has been appointed Bailiff of the Royal Parks.

Apple McIntosh.—The Massachusetts Fruit Growers' Association is undertaking a research into the early history of the McIntosh Apple, and is trying especially to solve the following problems: where is the oldest McIntosh tree in New England; where is the oldest commercial McIntosh orchard in New England; who was the first to set a McIntosh scion in New England; and who was the first to plant a McIntosh nursery tree in any of the New England states? The McIntosh Apple is not mentioned in Hogg's *Fruit Manual*; but it may be a synonym for Mackintosh Red, which is described in Bunyard's *Handbook of Hardy Fruits* (*Apples and Pears*). The latter Apple is described as culinary or dessert, medium size, colour pale yellow with rich crimson stripes and flush. Its origin is given as being a chance seedling of Ontario, named after Allan Mackintosh, the owner of the estate on which it was found; another account states that it is at least one-hundred-and-fifteen years old.

Roadside Planting.—We learn that at the request of the Middlesex County Council, a Committee of the Roads Beautifying Association has inspected the new Watford and Barnet By-passes with a view to formulating schemes for roadside planting. A tree and shrub planting ceremony will be held during November on the Barnet By-pass road, by the Roads of Remembrance Association; two hundred trees and shrubs have been offered to the Association by a resident of Middlesex.

Cuban Horticulturist Visits United States.—On behalf of the Cuban Government, Dr. Ernesto Pujals y de Queseda, has for more than two months been touring the United States of America, with a view to studying horticultural and agricultural methods in that country. Dr. Pujals is the leading horticultural research worker in Cuba, and he has done much to develop Rose culture in that country; in his own garden he has more than sixty-thousand Rose bushes and over four hundred and fifty varieties.

South African Flowering Plants.—The recently issued Part 30, Vol. VIII, of *The Flowering Plants of South Africa*, contains coloured plates and descriptions of Gasteria carinata (t. 291), Euphorbia tuberculata (t. 292), Eulophia robusta (t. 293), Plectranthus Galpinii (t. 294), Disa extinctoria (t. 295), Watsonia flavida (t. 296), Polystachya transvaalensis (t. 297),

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* The *Journal of Pomology and Horticultural Science*, Vol. V, No. 2. March, 1926. Published by Headley Bros., 18, Devonshire Street, London, E.C. 2. Post free 5/-.

Habenaria Dregeana (t. 298), Aloe longibracteata; (t. 299) and Eulophia parvilabris (t. 300). Euphorbia tuberculata, although interesting and quaint in its structure, may hardly be termed an attractive garden subject. It was grown in European gardens over one-hundred-and-thirty years ago. Eulophia robusta is a not unattractive Orchid. This species was formerly included in E. Dregeana, Lindl., but was separated as a distinct species on account of the cresting of the lip of the flower. The colour of the lip and petals varies from yellow to white or pink, or to mauve-pink. It ranks among the larger-flowered species, and belongs to the group in which the leaves are fully developed at the time of flowering. Plectranthus Galpinii is a rather attractive Labiate, first found by Mr. E. E. Galpin, F.L.S., in wooded ravines in Barberton in the year 1890. It has handsome foliage, and the mauve, double-lipped flowers are produced on branched, terminal panicles. Disa extinctoria, another member of the Order Orchidaceae, is remarkable for the brilliant orange-scarlet and purple colouring of its small flowers, which are packed closely in erect spikes, while the beautiful Watsonia flavida, from the Transvaal, is worth growing for its graceful spikes of cream-coloured blooms. Polystachya transvaalensis is an Orchid of no floral value, while Habenaria Dregeana, of the same Natural Order, is also of little value from a decorative view-point. On the other hand, Aloe longibracteata, which is fairly common on the grass veld around Lydenberg and Pietersburg, at an altitude of 5,000 feet to 6,000 feet, is a showy subject with racemes of yellowish-red flowers, while Eulophia parvilabris is also worthy of inclusion in the Orchid collection, having attractive purple and cream-coloured blooms.

Rosa x highdownensis.—The hybrid Rose which received an Award of Merit as a hardy ornamental-fruited shrub when shown by Major F. Stern at the Royal Horticultural Society's meeting on September 11, has now been named Rosa × highdownensis. It was raised from a seed of R. Moyesii, and it is thought that the other parent was probably the Hybrid Tea Rose, K. of K., as that was the only variety near the seed parent.

French Chrysanthemum Congress. — The twenty-eighth Annual Congress of the French Chrysanthemum Society is to be held at Biarritz from November 7 to 11. At the same time, there will be an important exhibition organised by two local societies. Judging will commence at 10 o'clock on the morning of November 7, and at 12.30 the judges will meet at a banquet, the exhibition being officially opened at 2.30, at the Bellevue Casino. The Congress itself will be opened at the same place at 3.30, and at 6 o'clock there will be a reception by the Biarritz Municipality. The remainder of the time will be usefully and pleasantly occupied, in the intervals between the sessions of the Congress, by visits to places of horticultural interest and natural beauty. The Exhibition and Congress will conclude on the Sunday evening with a concert and dance.

Importation of Plants, Seeds, etc., into Dutch East Indies.—In the future, all consignments of living plants, or living parts of plants; seeds, or fruits, except certain plants, fruits and seeds specified, imported into the Dutch East Indies, must be accompanied by a certificate of the country of origin, which must contain a declaration, by the Government expert of that country, of freedom from diseases and pests. In the case of parcels by post, the certificate must be attached to the Custom's declaration form, while in the case of letters or samples, it must be put into the same envelope or sample. The certificate should be sent to the importer or his proxy, in the harbour where the inspection is to be effected, in the case of freight consignments. The contents of letters, samples, etc., should be indicated clearly on the covering of the packet.

Another London Garden to Go.—Those who are watching with sorrow the disappearance, one by one, of so many of the smaller, privately-owned open spaces of London, will have noted with distress that Hereford Gardens, a row of old-fashioned dwelling-houses close to Marble Arch, with a belt of large and beautiful old trees in front, is to make way for a mammoth store. At present this little garden makes a pleasant oasis in the midst of one of the busiest parts of Oxford Street, but being privately owned, it enjoys no protection from public funds, and its approaching fate is the inevitable result of the rising value of land in London. It is to be hoped that the London County Council may be moved to take action to protect the remaining squares and gardens of London before it is too late; already Mornington Crescent, Endsleigh Gardens, and others, have been irretrievably lost.

Mr. J. Richardson.—The Superintendent of the Parks and Open Spaces of the City of Salford, Mr. J. Richardson, received his early training in private gardens in Cumberland, at Cardew Lodge, near Carlisle, and at Calthwaite Hall Gardens. Mr. Harris, the owner of Calthwaite Hall, was at that time building a large, new mansion and laying-out a new park and gardens on his adjoining estate at Brackenburgh Tower, and Mr. Richardson became general foreman at the latter place, where he gained much valuable experience in constructional gardening. This experience in landscape gardening proved so agreeable that he decided to devote his energies to public park work. With the object of obtaining a wider knowledge of plants and of qualifying for a public parks appointment, he became a student gardener at the Royal Botanic Gardens, Kew, in October, 1906. During his stay at Kew he worked in the Decorative and Temperate House Departments, attended lectures in the gardens and took courses in land surveying and levelling, and in botany and horticulture, at Richmond and Paddington. On leaving Kew he obtained an appointment under Mr. D. Bliss in the Parks Department at Swansea, taking charge of the rock and botanical garden at Cwmdonkin Park. Several months later he was placed in charge of Cwmdonkin Park and Nursery. For four years of the war period Mr. Richardson served in the Royal Field Artillery, and on being demobilised, in January, 1919, was appointed Assistant Superintendent of the Parks Department at Swansea. The growth of the Parks Department in that town during the previous ten years had been somewhat phenomenal, and during that period four cemeteries, over two thousand acres of foreshore, and about five thousand allotments had come under the control of the Parks Superintendent. Owing to the extension of the borough in 1918, and the increased demand for recreation in the years after the war, there were considerable developments of new parks and recreation grounds, and much constructional work had to be carried out. In September, 1924, Mr. Richardson was appointed Parks Superintendent at Wigan, and on leaving Swansea he was presented by the Town Council with an illuminated resolution in recognition of his services. After two years at Wigan, Mr. Richardson applied for and obtained his present position as Parks Superintendent at Salford, and commenced his duties in September, 1926. Salford has seven parks and twenty-six recreation grounds, with a total area of 412 acres. The Parks Committee has adopted a very progressive policy and added about twenty-five per cent. to the area of open spaces during the past four years. Light Oaks Park was opened to the public in 1925. The Hart Hill Estate, adjoining Buile Hill Park, was purchased in 1926 at a cost of about £12,500, and last year the Corporation purchased eighty-seven acres of level land at Littleton Road, at a cost of £28,000, for use as playing fields. The lay-out of the recreation ground at Ordsall Park as a children's playground, for which Mr. Richardson prepared plans, has been carried out recently at a cost of £3,000. This park is situated in one of the most congested districts of Salford. The Annual Peel Park Flower Show, of which Mr. Richardson is Secretary, is promoted by the Parks Committee.

MR. J. RICHARDSON.

French International Botanic Institute.—The establishment of an International Botanic Institute at the Jardin des Plantes has been made possible by a gift of £4,000 from the Rockefeller Foundation. The gift was made only on condition that a similar amount should be contributed by the French Government, and we learn that the ministers have decided in favour of acceptance. A modern building will be constructed, and in this will be housed the already existing botanical collections, at present scattered throughout the several Paris museums. The institute will be open to students of all countries, and it is estimated that its construction and equipment will occupy between two and three years.

The Paeony in America.—From reports contained in the recently received *Bulletin* of the American Peony Society (Vol. XX, No. 35), it would appear that the popularity of the Paeony continues to increase in the United States, and each year more shows, devoted solely to this flower, are held. The publication contains reports of some of the more important shows, such as those held at Minneapolis, Seattle, Duluth, Sioux Falls, and Denver; together with a full description of the annual exhibition of the American Peony Society, held this year at Boston, on June 22, 23 and 24, and which was, apparently, a great success. It is interesting to note that in connection with this show, one of the exhibitors—Mr. T. W. Goodner, of Seattle, Washington—sent his exhibit by air-mail, many of the blooms travelling 3,000 miles, and the majority of them arrived in excellent condition. The *Bulletin* also contains a report of the Paeony Exhibition of the Society of Dutch Paeony Growers and Dealers, held at Sassenheim, Holland, on June 20 and 21; while there is also a very interesting article dealing with single and Japanese Paeonies, illustrated with four coloured plates of various single sorts. A portion of the *Bulletin* is naturally devoted to the activities and business of the Society, and another portion is devoted to questions and answers.

Plant Research Station in New Zealand.—A Plant Research Institute has recently been established at Palmerston North, North Island, New Zealand, by the Government of New Zealand; it is independent of the Massy Agricultural College, another recently established institute near the same town. The Plant Research Institute, which is the old Biological Laboratory of the Department of Agriculture, enlarged and transformed, contains laboratories suitable for scientific investigation purposes, and there is a large area of land for experimental work and other purposes. One of the aims of the Institute is to bring together a large collection of the numerous natural hybrids of trees and shrubs, which form an important feature of the New Zealand vegetation, and it is also hoped to establish a Herbarium of specimens to represent the history of the subjects under investigation. Mr. Alfred Cockayne is the Director of the Institute (he is also Director of the Field Division of the Department of Agriculture), while the Mycologists are Messrs. G. H. Cunningham and J. C. Neill. Dr. H. H. Allan is the Systematic Botanist; Mr. E. B. Levy, the Pasture Ecologist; Mr. W. B. Reid, the Bacteriologist; and Mr. N. R. Foy has charge of the seed-testing investigations. It is hoped that a Plant Breeder and a Chemist will be appointed shortly.

Legacies to Gardeners.—The late Arthur Radford, Esq., of Bradfield Hall, Bradfield, near Reading, left £200 to his gardener, Mr. Arthur Poulter, if still in his service at the time of his death.—The late Sir John Isaac Thornycroft, LL.D., F.R.S., of Steyne, Bembridge, Isle of Wight, left £150 to his gardener, Mr. Thomas Collister.—The late Miss Diana Gordon Walker, of Wolverton Park, near Basingstoke, left £200 to her gardener, Mr. Frank Owen.

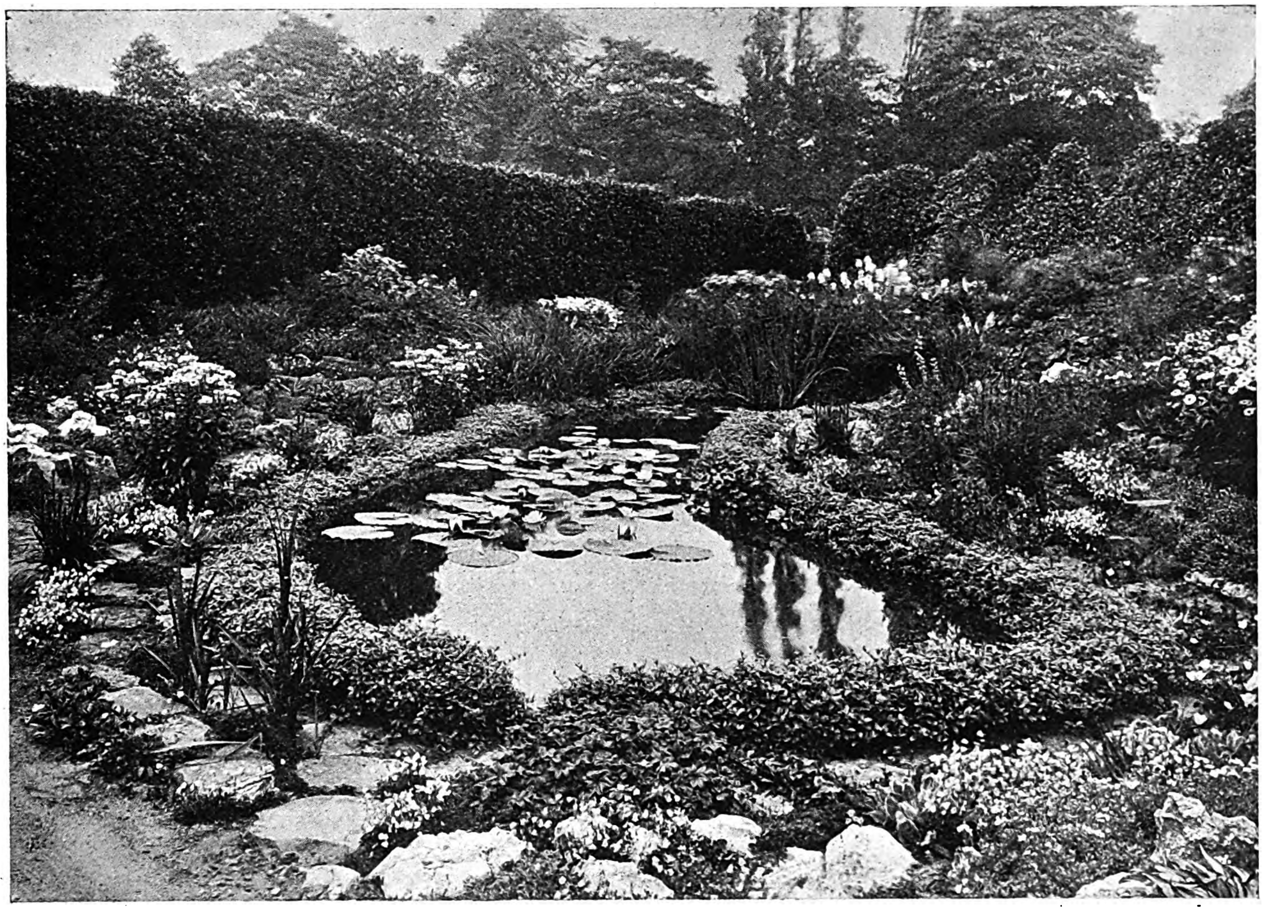

FIG. 112.—LILY POOL AT THE RAFT, SALE.
(see p. 248).

Roman Coins Unearthed in a Garden.—While digging in a garden at Muswell Hill, a nine-year-old schoolboy discovered about six hundred silver coins, which authorities of the British Museum state to be genuine Roman coins. The Hornsey Coroner recommended that a jury should decide as to whether they are treasure trove, and this course was adopted.

Rose Lady Canada Patented.—The Rose named Lady Canada, which won premier honours at the International Flower Show in New York, has been given the protection of a registered trade mark issued by the Commissioner of Patents at Ottawa. This trade mark, which is the first issued in connection with plant varieties, grants to the Dale Estate, Brampton, Ontario, the exclusive use of the term "Lady Canada" in the sale of Rose plants, cuttings and Roses of this variety. The granting of trade marks for plant varieties has been brought about at the request of the Canadian Horticultural Council, which has received the Certificate for the Lady Canada trade mark and passed it on to the President of the Canadian Florists' and Gardeners' Association, to be presented at a banquet of this organisation to the Manager of the Dale Estate.

Addition to the Glasgow Parks.—At the annual inspection of the Glasgow Parks, on Thursday of last week, an additional area of 18½ acres, which includes the historic Cathcart Castle and its beautiful surroundings, was formally handed over to the Parks Committee. In accepting the custody of the new area, Councillor Drummond submitted some interesting figures indicative of the progress made in Glasgow in the direction of parks and open spaces. Twenty-five years ago, the area was 1,100 acres, comprising fifteen parks and forty-five open spaces, with a staff of 250. The annual cost to the rates was then £77,000. This year the expenditure amounted to £246,000, while the park area had increased to 2,700 acres, consisting of thirty-two parks and one-hundred-and-five open spaces, with a permanent staff of 648. To-day, there are sixty-seven bowling greens, one-hundred-and-twenty-four tennis courts, four eighteen-hole and three nine-hole golf courses, and twenty-four putting greens, with players exceeding 1,300,000 per annum. For football, ninety-nine pitches are provided by the Corporation; for hockey, thirteen pitches; and for cricket, six pitches.

Appointments for the Ensuing Week.—Monday, October 1: Romsey Gardeners' Association meets; British Mycological Society's Autumn Foray and Annual Meeting at Littlehampton (six days); National Chrysanthemum Society, Executive Committee meeting. Tuesday, October 2: Royal Caledonian Horticultural Society meets. Wednesday, October 3: Nottingham and Notts. Chrysanthemum Society meets. Thursday, October 4: Foot's Cray and North Cray Horticultural Society's show. Friday, October 5: Dundee Horticultural Society's lecture; Bridport Chrysanthemum Society meets; Carluke Chrysanthemum Show. Saturday, October 6: Blackburn Horticultural Society's meeting and lecture; Wallington Horticultural Society's exhibition.

"Gardeners' Chronicle" Seventy-five Years Ago.—*The Stanwick Nectarine.*—I wrote last autumn a few particulars respecting the above Nectarine; that it had not ripened its fruit in an orchard house, without fire-heat, and that its fruit had cracked and dropped off towards the end of October, without becoming in the least soft or approaching to ripeness. I now feel much pleasure in telling you that I have succeeded this season in ripening its fruit in great perfection with very little trouble. About the 1st of this month, my Elruge and Violette Hative Nectarines in pots were ripening very nicely, but some very fine fruit on a tree of the Stanwick, also in a pot, standing alongside of them, were green and hard. I therefore removed the tree to a house in which a gentle heat is kept up, with abundance of air night and day; I much feared the fruit would drop off, but to my great satisfaction I have to-day gathered some large fruit perfectly ripe and of the most delicious flavour. I think I may add that its flavour is peculiar and unique, a sugary sweetness with a slight agreeable astringency, not at all partaking of the usual Peach-leaf taste, but piquant and refreshing; in shape it is nearly oval, very large, and its stone remarkably large. The tree is a most abundant bearer in pots, and it will be seen by the above that its culture is very simple, for when the fruit is full-grown, towards the end of August, the trees may be removed to a house with fire-heat and the fruit ripened well, in a Peach house. When the trees are trained on trellises in the usual way and forced it will be superb; and on flued walls I should think it will succeed admirably, but on common brick walls, unless in very hot summers, I apprehend it will not ripen. *Thomas Rivers, Sawbridgeworth, September 21. Gard. Chron., September 24, 1853.*

The Week's Work.

THE ORCHID HOUSES.

By W. GILDEN, Orchid Grower to Dr. F. CRAVEN MOORE, Manchester.

Oncidiums.—Where a quantity of these charming Orchids is grown, members of the genus may be had in flower practically the whole year round. The warm house species, such as O. Lanceanum, O. luridum and O. carthaginense, which have just passed out of flower, should be kept near the roof-glass, where they may receive plenty of light. Necessary potting should be done now so that the plants may become established before the short days arrive. O. haematochilum flowers during the autumn months, and should be repotted during the spring. These bulbless Oncidiums require ample supplies of water at the roots during the growing season, also frequent syringings overhead. They are sometimes difficult to keep in good health through the winter; only sufficient moisture is required to keep the leaves in good condition until fresh growth commences early in the year. Well-drained receptacles should be used, and the usual A.1. fibre and Sphagnum-moss compost, made firm among the roots is suitable, keeping the base of the plant above the pot-rim, and inserting pieces of charcoal to keep the compost open and porous. Another warm house species in flower at the present time is O. Papilio, also O. Kramerianum, which are generally known as the Butterfly Orchids. These produce flowers in succession on single stems for a considerable time, but if allowed to do so the plants become impoverished and quickly decline. It is therefore advisable to restrict the number of flowers to four at the most. The distinct and beautiful O. Jonesianum, which thrives on a Teak-wood raft or block (owing to the leaves growing in a downward direction) in a sunny position in the warm house, is now developing flower spikes and should make an attractive show during the autumn; care is necessary when applying water not to damage the scapes. The useful and free-flowering O. varicosum and its variety Rogersii, are now showing flower spikes, which should be protected by bands of cotton-wool at the bases to prevent damage by slugs; the wool should be changed occasionally to ensure a rough surface. Only robust plants should be allowed to flower, as flowering tends to impoverish these Orchids, which are best grown in a light and well-ventilated position in the intermediate house, along with O. Forbesii, O. Gardnerii and other members of the crispum group. Plenty of moisture is required during their season of growth, both at the roots and in the atmosphere; after flowering, and when growth is complete, only sufficient moisture is needed to keep the bulbs in a plump condition. The dwarf-growing O. cheirophorum is developing flower spikes in the cool house, where the sweetly-scented and brightly-flowered spikes should keep in perfection over a long period. The cool house O. macranthum, O. superbiens and O. lamelligerum should have had their flower scapes removed, but they require a plentiful supply of water until growth is completed, when less is required, but they should not be kept dry at the roots over a long period. The hay-scented O. ornithorhynchum and its several varieties, which have been growing in the cool house, should develop their flowers better if removed to the cool end of the intermediate house, where also the fragrant O. tigrinum may now be placed.

THE KITCHEN GARDEN.

By ALLAN FALCONER, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Maincrop Carrots.—After the recent spell of dry weather, Carrots may split badly if allowed to remain in the ground and heavy rains occur, especially in heavy soil, where it is most difficult to produce really good roots. No time should be lost in lifting them, before the usual October rains occur. Place them in small heaps after trimming off the tops, which may be used for covering them, on the site where they have been growing, until it is more convenient to store them in their winter quarters. If the quantity is only moderate, they may be stored in a dry shed or cellar, on a foundation of dry earth or sand; the roots should be placed in regular layers, with sand or earth between each layer, to a depth of about three feet. If large quantities have to be dealt with, the roots may be stored in clamps; the site chosen should be dry, and the roots should be handled carefully and arranged so that the tops are placed to the outsides. The covering usually applied to Potato clamps answers admirably for this crop, and ventilating shafts should always be provided along the ridge.

Beet.—While this crop does not spoil to the same extent as Carrots, many growers leave the roots in the ground too long, so that they are frozen by early frosts, just to get a little extra weight; this is very noticeable in some of the market garden areas, and also applies to Swedes. Beets are best stored in a frost-proof shed, and in my opinion there is nothing like dry ashes to store them in and keep them in good condition until well into the spring, when they become really valuable. The tops of Beet should always be screwed off, leaving an inch or so at the base of the leaf-stalks; cutting the leaves off tends to make them bleed.

Radishes.—Black Spanish and China Rose Radishes, so soon as ready, may also be lifted and stored in sand, in a cool, dry place, and should be found a useful addition to the salad bowl during the winter.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to Sir CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Peaches.—By this date, Peaches growing under glass have had their crops gathered, and much will depend upon the treatment meted out to the trees from now until the end of October, as to the success of next season's crops. Some growers contend that dryness at the roots tends to ripen the wood, but my experience is that no good results are forthcoming by this treatment. Peaches and Nectarines, if growing in well-drained borders, may scarcely be over-watered during their growing season. The borders here are overlying gravel and naturally dry out very quickly, hence the necessity for frequent applications of water at the roots, and once the trees have started into growth the borders are well supplied with water each week until such time as the leaves have fallen, and then it may be found that the soil is not too wet to swell and plump up next season's buds. Therefore, it is wise to make sure that the borders are sufficiently moist, as a good set of fruits cannot be expected if the borders are allowed to become dry; they should be sufficiently moist to keep the roots active throughout the winter, and those who wish to prevent bud-dropping in the spring should examine their Peach borders thoroughly, as no time should be lost in making sure that the borders are sufficiently moist.

Peaches and Nectarines.—For those contemplating planting in newly-erected houses, a list of suitable varieties may not be out of place. First and foremost, the selection of varieties should be governed by the number of houses which are to be furnished. If the number of houses is limited, it may be unwise to plant many of the early varieties, but a selection of early, medium or late varieties may be planted to ensure a supply of fruits over a longer period. The following Peaches and Nectarines should be found suitable for furnishing a succession of fruits:—Peaches Duke of York, Hale's Early, Peregrine, Dymond and Bellegarde; and Nectarines John Rivers, Early Rivers, Lord Napier, Violette Hative, Rivers' Orange, Pine Apple and Humboldt. For a late house, the following Peaches and Nectarines should provide a succession to the varieties mentioned above: Peaches Princess of Wales, Barrington, Prince of Wales, Late Devonian, and Nectarine Peach; Nectarines Victoria, and Milton. There are several other good varieties which I have not mentioned, such as Crimson Galande, which is a good mid-season Peach, while Cardinal Nectarine is a very fine early fruit when grown in pots.

PLANTS UNDER GLASS.

By J. COUTTS, Assistant Curator, Royal Gardens, Kew.

Schizostylis coccinea or Crimson Flag.—Where stocks of this subject have been grown specially for pot culture, the clumps should now be lifted and placed in six-inch pots. This beautiful plant is very useful for furnishing the cool greenhouse during autumn and early winter, and for providing a supply of cut flowers. The fine pink variety, Mrs. Hegarty, is equally useful and may be treated in the same manner.

Ixias.—These, in many beautiful varieties, are very useful for furnishing the cool greenhouse and for providing cut flowers. They are so beautiful that it is surprising they are not more generally grown. They are best grown in five-inch pots, placing five or six corms in a pot, and like all South African bulbs, they require perfectly cool treatment. After potting, they should be stood in a cold frame, and shaded until growth commences to assist the conservation of root moisture and so save labour in watering.

Watsonia Meriana var. alba.—Generally known as W. Ardernei, this beautiful variety has proved ideal for growing in pots, and dry corms may generally be purchased during the winter. To obtain the best results, fairly large pots are necessary, and five corms may be placed in a seven- or eight-inch pot; after potting, they only require the shelter of a frost-proof frame until growth is so far advanced that more head room is necessary, when they should be removed to a cool greenhouse. When well-grown, they should attain a height of four to five feet, and when in flower are very handsome for grouping in the conservatory. They grow freely in any good potting compost, but care should be taken in affording water at the roots, until they have made a quantity of roots and are growing freely. There are other fine species of Watsonia, which, if they could be secured in quantity, should prove equally useful for pot culture. In the south, they are all more or less hardy at the foot of warm walls, in well-drained soil.

Propagation.—During this month the propagation of many soft-wooded stove and greenhouse plants that are to be used for decorative work next summer should be undertaken, as young plants usually winter better; another important consideration is that of space, as a few pots of young plants take up less room than a quantity of old ones. In many cases it may be sufficient to put a number of cuttings into pots of suitable size, and keep them intact over the winter; from these cuttings may be secured in the spring and a stock obtained quickly.

HARDY FRUIT GARDEN.

By T. E. TOMALIN, Gardener to the EARL OF BESSBOROUGH, Stansted Park, Emsworth, Sussex.

Peaches and Nectarines on Walls.—Young trees which have made extra strong growth during the summer, may now be lifted and root-pruned. If this operation is performed carefully before the leaves fall, and the foliage is sprayed daily afterwards, the trees should suffer little check. New roots should form before the winter, and the prospect for a crop the following season may be improved rather than impaired. In gardens where these fruits are grown well, young trees are usually lifted and root-pruned every second year at least, until they reach the stage when regular crops serve to balance and keep in check the tendency to make gross and unfruitful growths. The tree should first be disengaged from the wall by severing all ties, then take out a semi-circular trench about three feet from the stem all round, to a depth of one foot. By working inwards, towards the stem, with a small border fork; the mass of soil is then gradually reduced to manageable dimensions for lifting.

All fibrous roots should be preserved as the work proceeds, but roots of the thickness of a lead-pencil or over may be cut to within eighteen inches of the stem, using a sharp knife for this purpose to ensure a clean surface which should callus and emit fresh roots quickly. The fork should then be used to undermine the tree and to disclose downward-growing roots, which should also be severed. The tree may then be lifted to one side, and the site levelled for replanting. It is advisable to have a small quantity of fresh, fine soil at hand to work in among the fine roots when replanting. This may consist of good loam, to which a small proportion of mortar-rubble and wood-ash, and a sprinkling of bone-meal has been added. The roots should be laid out horizontally at their different levels as the soil is filled in, and the whole should be trodden firmly and finished off with a light mulch. Finally, the branches should be tied loosely into position again, and sprayed regularly with clear water for a few days, unless showery weather renders this work unnecessary.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to the Duke of Devonshire, Chatsworth, Bakewell, Derbyshire.

Anemone japonica.—The many forms of this favourite autumn-flowering plant are now making a good show, and well-grown beds or clumps are an acquisition to the garden at this season. When associated with the free-flowering hardy Fuchsias, they are seen to great advantage, but they are best kept away from the ordinary summer-flowering plants. Practically all the varieties of A. japonica are ideal plants for damp and partially shaded places—clumps by the side of water and in damp places in the woodlands, as well as in the garden proper, are most effective at this season, and they thrive well in such positions, the blooms lasting longer than when exposed to the full glare of the sun. Louise Uhink, Lady Ardilaun, Kreimhilde, Mont Rosa, Prince Henri, Silver Cup, rosea elegantissima, and Queen Charlotte form a selection of good varieties worthy of inclusion in a collection where Anemones are appreciated. These Japanese Anemones are usually slow to establish themselves after being transplanted, so that, so far as possible, permanent positions should be selected and the plants left undisturbed for some years. When working around them in the winter, a little manure and plenty of leaf-soil may be applied as a mulching and will be of great assistance in the event of a drought the following season.

Heliotropes, Fuchsias and Bedding Salvias.—These are propagated under rather different conditions than the hardier bedding plants. Use sandy soil, and fill a number of five-inch pots, making the soil firm in the pots. Dibble seven or ten cuttings into each pot, according to the strength and size of the cuttings, but avoid overcrowding. Place them in a warm propagating frame with a little bottom-heat, where they should root quickly. When this has taken place, they may be taken from the frame and gradually inured to the light and air, a shelf in a light house being a capital place on which to winter them. If bedding Coleuses, Iresines and Alternantheras are grown, these require warm conditions under which to winter them successfully and keep them healthy, and to enable the grower to make an early start with propagation in the New Year. The Heliotropes, Salvias and similar plants require similar conditions, but with less warmth, as too high a temperature during the winter months may cause the growths to become drawn and spindly. If kept sturdy, they should quickly respond to a slight increase of heat in the early spring, and provide plenty of good cuttings.

Early-flowering Chrysanthemums.—The dry conditions experienced during most of the summer have kept these very firm in growth and exactly suited for the production of good blooms, which are most acceptable at the end of the season, either for cutting or for providing a little extra colour in the borders. Where necessary, staking and tying should be done, and the borders should be kept clean by the regular use of the hoe.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener at Jordanhill Training Centre, Glasgow.

Sweet Peas.—It is generally agreed among good growers of Sweet Peas that the best results are obtained from autumn-sown plants; if properly wintered and kept under cool conditions, these seedlings should be ready to plant out so soon as weather conditions permit next spring. The pots or boxes should be well-drained and filled with a light, sandy compost, and when the seedlings have made some little growth they should be potted singly into three-inch pots and stood on a shelf near the roof ventilators, where they may receive the maximum of light and air. In districts where the soil is of a light or sandy nature, Sweet Peas may be sown out-of-doors about the end of October, and if protected from their enemies, such as slugs, mice, etc., they should pass unharmed through a fairly severe winter and provide useful flowers much earlier than spring-sown plants do. In wet districts, or where the soil is heavy, little good is obtained from these out-of-door sowings, and recourse should be had to sowing seeds under glass, but the fact should never be lost sight of that the Sweet Pea is a hardy plant, and is more easily weakened by being kept close and warm than by exposing it to moderately cool conditions.

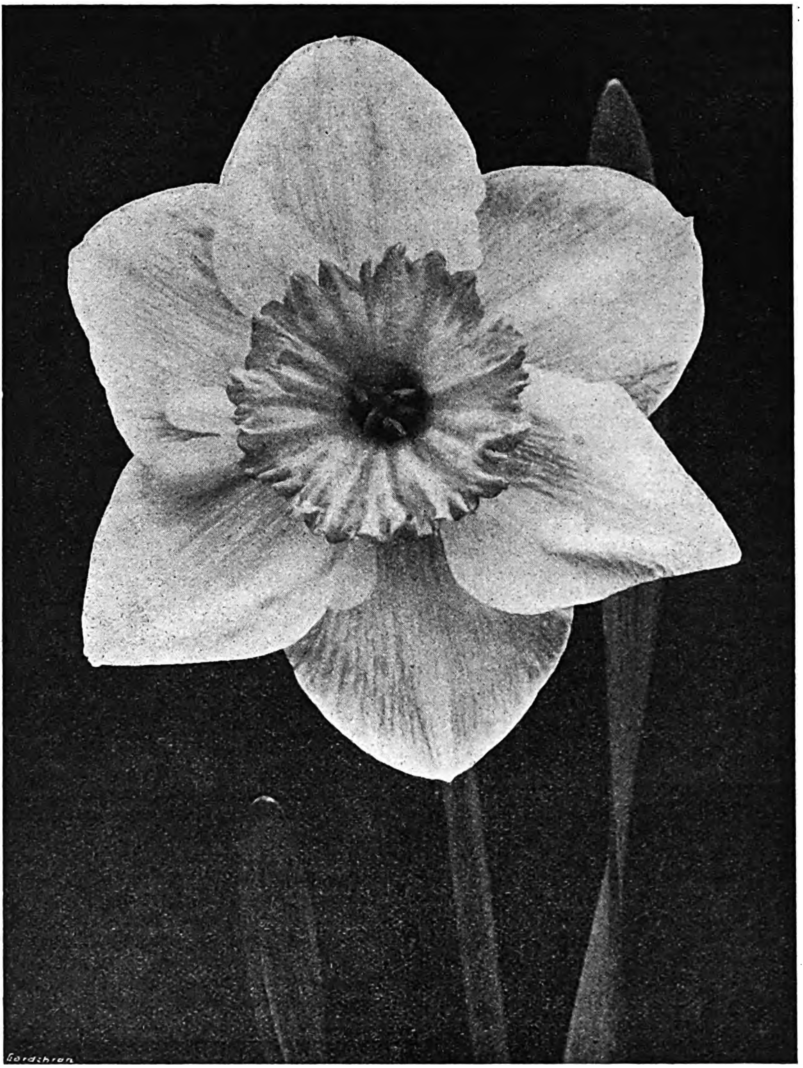

FIG. 113.—NARCISSUS SILVER PLANE.
(see p. 248).

Violets in Frames.—If sufficient numbers of Violet plants are ready, the frames for their reception should be prepared by taking out most of the old spent soil and replacing it with good compost, consisting of old turf and leaf-soil in the proportion of two parts of the former to one of the latter, with a fair amount of sand or mortar-rubble added. The frames should be filled with this compost so that the plants, when inserted, are not more than ten inches from the glass. Lift them with plenty of soil, water them and shade the frame for a few days.

Trimming Hedges.—Where evergreen hedges were trimmed by clipping them with shears some time ago, it may be necessary to go over them again to keep them in order, but this secondary operation is not so important, and consists merely of snipping off any secondary growths that may have been made in the interval. Privet hedges, and those of other deciduous plants, should also be trimmed once more, before the leaves fall. Boundary hedges of Beech or Hawthorn should be kept closely trimmed, and where any blanks occur, arrangements should be made to put the soil at these points into good order, by deep digging and manuring if necessary, so that when the young plants are set out, they may have at least a reasonable chance of getting a root-hold. Means should also be taken to ensure that these young plants are protected from grazing animals, and also from damage by human beings, for the first few years, when, if all goes well, they should be quite able to hold their own. Hedges composed of Olearias, Escallonias, Fuchsias, etc., while common enough in our mild western districts, are not recommended for inland gardens generally, but where they prove themselves, as isolated specimens, to be hardy enough, they may be tried with every prospect of success. Olearia Haastii has proved itself much hardier than many people believe, and it is a most accommodating and easily propagated plant, suited equally for town and country planting.

ALPINE GARDEN.

TROPAEOLUM POLYPHYLLUM.

THOSE who see a fine example of Tropaeolum polyphyllum for the first time are invariably arrested by its glowing beauty, but, alas! it is too rarely cultivated, and still more rarely seen in fine condition. A native of Chile, whence it was introduced about a hundred years ago, it is obviously a lover of warmth and sunshine, consequently a hot, sunny spot in the rock garden suits it, although its roots must be so placed that they find sufficient moisture to ensure the production of the "long, fleshy trails, clothed in lovely folded fat foliage of glaucous blue, with a profusion of little Nasturtiums of the richest golden-yellow in admirable contrast"—thus the late Mr. Reginald Farrer.

An unusually good example of this trailing Indian Cress (Fig. 115, p. 249) has flowered this year in the rockery wall at Cober Hill, Cloughton, near Scarborough, where Miss Helen Andrews takes a keen interest in the gardens of this Yorkshire Guest House. The illustration scarcely does justice to the specimen, but it shows what a fine plant is Tropaeolum polyphyllum when, as in this case, it finds a congenial home. *C.*

MAZUS RUGOSUS.

THIS is another subject which has flowered exceptionally well this year, obviously relishing the warm, sunny weather which prevailed during July and early August, when a large carpet of it, growing on a raised border on the margin of a small pool in the rock garden, was literally covered with its small, lovely lilac-blue flowers.

In dull, sunless weather, this subject grows luxuriantly and spreads rapidly, but seldom produces flowers with any pretence of freedom, although, even then, it is an attractive carpeting plant, with its close mats of verdant leaves. But when hot weather arrives and the foliage becomes bronzed by the heat, then the flowers are produced in abundance, and the carpets become transformed into sheets of blossom.

M. rugosus is, unfortunately, unable to withstand severe winters, or so has been my experience with it, therefore it is a wise precaution against complete loss to place small portions of it in sixty-sized pots during the latter part of the summer, and to protect them during the winter in a cold frame.

OENOTHERA SPECIOSA.

THE genus Oenothera contains quite a number of species which are valuable garden plants—some useful for growing in herbaceous borders, others suitable for naturalising in the semi-wild portions of the garden, and yet others, such as the striking, large-flowered O. missouriensis (sometimes known as O. macrocarpa) and the beautiful O. taraxacifolia, are valuable subjects for planting in sunny positions on the rock-garden. For the latter purpose, and equally as reliable as the two species mentioned, is the taller-growing O. speciosa, a plant of slender and graceful habit, the growths of which attain a height of eighteen inches, or sometimes more. It grows freely and spreads rapidly by means of underground runners, but this habit of spreading should not deter would-be growers, for it is so delightful when in flower that one cannot have too much of it, or, indeed, charge it with rankness of growth, especially if it is planted in a sunny, warm position, in soil that is not too rich in character, a light loamy compost being most suitable for it. It is a sun-lover, and this season has been most congenial to it, for it has flowered abundantly, producing a continuous supply of large, white flowers which, upon reaching maturity, become tinged with pink, and so add to the general attractiveness of it. Under the conditions advised it is quite hardy, while, as may be recognised, it is easily increased by division, although if more plants are required than may reasonably be obtained by this method, cuttings of the growths, about two inches in length, may be inserted in sand, in a cold frame, or under a bell-glass during the summer, and will be found to root quickly and make plants of suitable size for planting out in the following spring.

O. speciosa is by no means uncommon and may be obtained from the majority of nurserymen who offer alpine plants for sale, many of whom also stock an attractive, pale rose-pink form, O. s. rosea, which is also well worth securing, and may be grown in conjunction with the type to produce a very charming effect. *M. W.*

POTENTILLA TOMMASINIANA.

IN his *English Rock Garden*, the late Mr. Farrer, in discussing the Potentillas, gives what may be called an *index expurgatorius* of species which are not worth growing in themselves, or are inferior to those which he describes. This is a really formidable list, comprising about fifty species, and included is one which he calls "de Tommasii," which I take to be what I have as P. Tommasiniana.

I am not disposed to agree with Mr. Farrer in belittling P. Tommasiniana, which is doing very well in my garden and is quite a good plant. It forms a carpet of prostrate growths composed of neat leaves of a shade of grey-green, and bearing a number of small golden flowers for a considerable time. It is excellent for a bank or for trailing over a boulder or large stone. This species comes from Dalmatia, and is quite hardy. It is growing here in loam, leaf-soil and sand well down on a rocky bank.

THE BEST HARDY OXALISES.

THE list of Oxalises or Wood Sorrels known to botanists, is a lengthy one. Alpine plant lovers are tempted to try a few in the open garden, lest happily some may prove hardy. Yet it is questionable if the game would be worth the candle, as the proportion of losses among those on trial would be almost colossal, and for the many it is wiser to adhere to the Wood Sorrels which have been well proved and which may be trusted to withstand our winters. They are generally easily grown and, although not splendid, are exceedingly valuable for the positions for which they are adapted.

In the first place I would refer briefly to a charming lilac variety of our native Wood Sorrell, Oxalis Acetosella, which is called rosea, but which in the writer's view, appears to be more lilac than rose. However that may be, it is very pretty in a half-shaded position.

Next, perhaps, ought to come, O. floribunda, which is of high value on account of the pretty rose-coloured blooms it produces all the summer through. There is also a pleasing white variety, O. floribunda alba. O. floribunda and its white variety are each about nine inches high. It likes a rather dry position in loam and leaf-soil or peat and should have either a sunny or semi-sunny place.

The élite of the hardy Wood Sorrels are O. adenophylla and O. enneaphylla. Even allowing for the fascination of greater novelty these are par excellence the Oxalises for the select rock or border garden. They are very lovely and have now been long enough in our gardens to satisfy us that they are generally thoroughly hardy, and that they will flower freely if they receive the small amount of attention they require. Of the two species, O. enneaphylla, from Patagonia, was the first to come to our gardens. It is a lovely plant, about four inches high, with delightful leaves and exquisite white flowers, satin-like in texture, and fragrant. It loves at least partial shade, and I have seen it do very well under the full shade of shrubs. Loam, leaf-soil, or peat and a little sand will suit it well. Mr. Clarence Elliott has also introduced a charming rose-coloured form, called O. enneaphylla rosea.

The more recent advent of Oxalis adenophylla has given us still another little Wood Sorrel of commanding loveliness. It is about the same height as O. enneaphylla, but has exquisite silvery-grey leaves and then covers itself in summer with fascinating flowers of warm rose. It is as hardy as the others, and thrives in the same kind of soil as O. enneaphylla, but should have full sun, as it is only in sun that it expands its blooms. The way in which the flowers fold themselves when they close is well worth examination.

O. lobata, although useful, cannot hope to rank with the above.

These Wood Sorrels may generally be bought in pots for planting out at any time.—*S. Arnott.*

SOME ATTRACTIVE ANEMONES.

THE genus Anemone furnishes our gardens with a large number of beautiful, hardy, perennial plants, mostly of a low-growing character, and many of which are not so largely grown as their merits deserve. Their colour range is extensive, including the brilliant reds of A. fulgens and A. coronaria; the bright blues of A. apennina and A. blanda; the clear yellows of A. palmata and A. ranunculoides; the almost transparent white of our own native A. nemorosa, and a variety of soft shades of purple, pink and yellow.

Our native Wood Anemone is a charming little plant and an ideal subject for the woodland garden and shrubberies, where it may carpet the ground with its elegant foliage and produce masses of pure white flowers which are made still more attractive by their beautiful clusters of golden stamens. There are also varieties with blue coloration, notably A. nemorosa Allenii and A. n. Robinsoniana, a charming variety for the rockery. Closely allied to A. nemorosa is A. trifolia, an alpine of robust constitution and good flowers, of which there are also white and blue forms.

A. Hepatica and its varieties are attractive early spring-flowering plants which alone might make the Anemone family an honoured one in gardens. The typical plant is a glorious bright blue, but there are several other colour forms available. A. angulosa is undoubtedly the finest of this group, its beautiful, sky-blue flowers being two inches in diameter.

The clear blue, star-like flowers of A. apennina are one of the joys of spring, and with its close relative, A. blanda, it succeeds either in partial shade or in the open spaces of the woodland garden where it flowers freely and increases from year to year. A. ranunculoides bears small, cup-shaped flowers of a buttercup-yellow and is suitable for the rock garden or woodland, but should be grown in fairly wide drifts to be really effective. Another yellow-flowering species of exceptional merit is A. palmata, which likes a sunny position in the rock garden, but should be provided with a rich, moist soil.

A. Pulsatilla, the Pasque Flower, is typical of a quaint and beautiful section of the genus, and has much divided leaves of a delightful silvery-grey colour and silky in texture. It occurs in several parts of England, but is probably not truly indigenous. The colour of the flower is a rich purple, although it varies somewhat in hue; when opening the blooms stand erect, but as the stems lengthen they become pendent. A. Hallerii is closely related to it, and has similar grey and silky foliage, but which is not quite so finely divided. It is a European alpine plant and a very beautiful subject, which should be given a position in full sunshine.

Among other species of the Pulsatilla section may be mentioned A. montana, with dark purple flowers and green foliage; A. patens, with distinct, finely cut but rather rounded leaves, which do not commence to unfurl until after the blossoms have expanded; and A. pratensis, which sometimes masquerades in gardens as A. Pulsatilla but is inferior to it, although well worth including in a collection.

A. narcissiflora is an alpine of distinct grace and loveliness, with cream-coloured flowers which are sometimes purplish on the outside. The umbellate inflorescences are about a foot high and look exceedingly attractive when growing among small Ferns. Similar conditions also suit A. sylvestris, a distinct and rather showy species of free growth, with satiny-white flowers borne well above the foliage.

There are many other Anemones of similar habit suitable for the rockery and woodland garden. Most of them present no difficulties in cultivation and succeed in ordinary soils enriched with organic matter, and although some of them are rather fragile in appearance, they are generally good growers and display their charms, in a variety of positions, during the spring and early summer months. *W. A.*

ORCHID NOTES AND GLEANINGS.

ANGRAECUM FALCATUM.

This lovely, floriferous, epiphytic Orchid is found throughout Japan growing on the trunks and the branches of various kinds of trees. Except for this one, the most northern and isolated species, the genus Angraecum is confined to tropical Africa and Madagascar. Several rare varietal forms of the species are still cultivated, reminders of the popularity of this Orchid in bygone days in the fanciers' gardens.

The leaves are thick, linear and falcate, three inches to four inches long, channelled above. The peduncles are slender, with three to eight odorous, pure white flowers which gradually turn light yellowish-orange within a week or ten days. The sepals and petals are acute and linear-oblong in shape, and the lip is three-lobed, having a broader one in the centre; while the long, slender spur adds considerably to the loveliness of the flower. In Japan this species blooms in July.

It is easy to establish on the crotches, branches and trunks of the living trees or on rocks. The rough-barked trees, such as Oak and Pine, are preferable to the smooth-barked ones, but even on the latter it establishes itself excellently, especially on the Maple tree. To establish it on a tree, strong, well-rooted plants should be chosen and the roots spread out over a little Sphagnum-moss, on the place where it is desired; it should then be lightly fastened with wire or cord, after which it should be watered twice or thrice a week. The plant soon sends its roots over the bark and establishes itself. A moist atmosphere is not desirable, and even if it becomes quite dry during the growing season, this Orchid, although it has no pseudo-bulbs, does not suffer very much. In its native habitat, Angraecum falcatum enjoys a semi-shady and airy position. At the village called Obe, about ten miles from here, I saw many specimens of this Orchid growing on a straw roof naturally, which shows that it resists drought and the diversity of climate. There also, I saw several plants of Diospyros Kaki smothered with this lovely Orchid.

It is, I think, hardy in England, at least, in the south and west, and should make a lovely feature.

In the Orchid house it is best grown on a piece of wood rather than in a pot. It is figured in the *Bot. Mag.*, t. 2,097, under the name of Limodorum falcatum. *K. Yashiroda, Japan.*

INDOOR PLANTS.

FREESIAS AND LACHENALIAS.

Of all our greenhouse-flowering bulbous plants, it would be difficult to name two more amenable to pot culture or so charming and so delightfully fragrant as the Freesia and Lachenalia—genera of Cape bulbous plants belonging to the Order Iridacae and Liliaceae, respectively. The Freesia was introduced into this country early in the last century, and the Lachenalia, according to Miller, about the year 1752.

They may be had in flower throughout the first three or four months of the year without the least forcing, the only condition being that the bulbs are potted and started into growth in September. Frost, of course, they will not withstand; at the same time, they should not at any period of their growth be subjected to a high temperature. The ideal to be aimed at is a night temperature of 40° to 45°, for the cooler they may be grown, the sturdier and the more self-supporting will be the flower stems. This is particularly so in the case of Freesias, for I have vivid recollections of the meticulous care bestowed on the staking and tying of the old F. refracta, thirty or more years ago. The introduction of such varieties of Freesia as Treasure (Fig. 114), Apogee, Canary, Wistaria and others, is a distinct advance, both in vigour and strength of stem, size of bloom, and fragrance, which make them charming for house decoration, whether as pot plants or in a cut state.

The culture of Freesias presents little difficulty, as they are not in the least fastidious. They thrive best in a mixture of two parts loam, and one part each of leaf-soil and well-decayed cow manure, with enough sand to keep the whole porous. Clean, well-drained, five-inch pots are the most convenient for nearly all purposes (although where cut flowers are required in quantity they may be grown in deep, cutting-boxes). Half fill the pots with the prescribed mixture; on this place a little sand to ensure drainage for the six or eight corms, then cover with the compost, but do not make it too firm.

Place the receptacles in a cold frame, giving plenty of air and light. It is quite unnecessary to cover with fibre, ashes or other material, as all this tends to make the growth weak and leggy. Sufficient water should be given to create and maintain root action, but it should not be overdone. Grow the plants in full light, protect them from frost, and keep the growths upright by means of light wire or Hazel stakes and strips of raffia, avoiding all stiffness. As the plants develop, assist them, occasionally, with weak liquid manure.

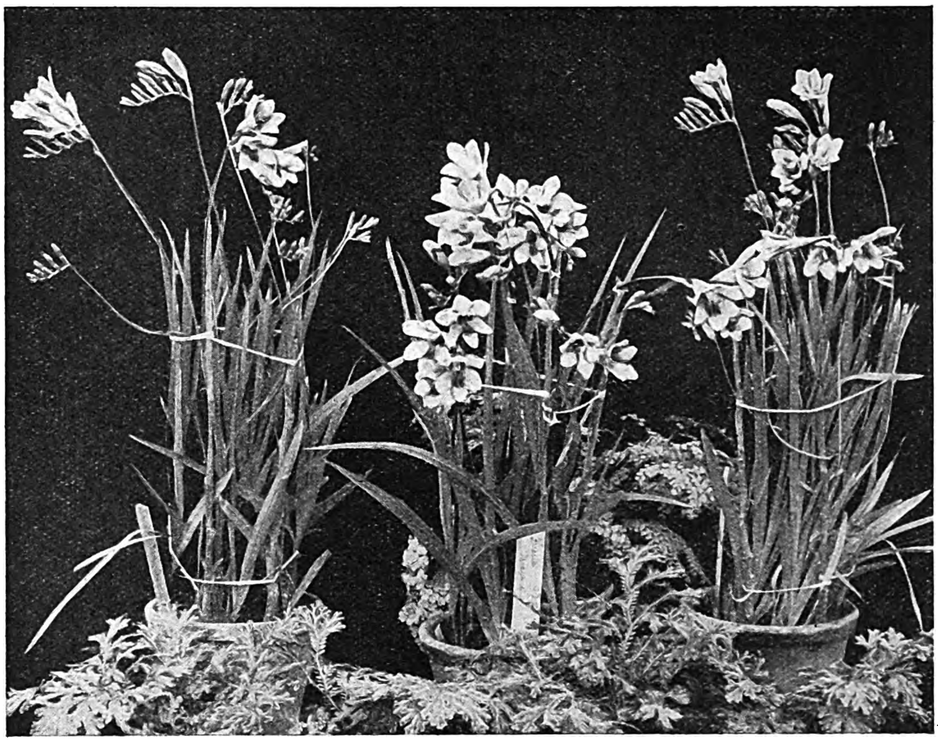

FIG. 114.—FREESIA TREASURE.

Those required to flower about Christmas should be introduced, early in November, to a greenhouse with a temperature of 40° to 45°, placing them well up to the light to maintain sturdy growth. Small batches brought along at fortnightly intervals should keep up a succession of these charming flowers, and the season may be prolonged right up to April and May.

When cutting the flower spikes, all the care possible should be taken to preserve the foliage. This, and the light feeding, should ensure the building up of good corms for flowering a year hence. Once the foliage begins to turn yellow, all water should be withheld and the pots stood in a sunny, dry place until the end of July or early in August. This "roasting" is very essential to their well being. The ideal place is on a shelf in a Peach house or plant stove, in full sun.

During July, when convenient, the corms should be shaken free of the old soil and graded into two or three sizes. The largest corms should be set aside for potting up as advised, and the smaller grades may be grown in boxes to make flowering corms a year or two hence.

Six of the best and reasonably cheap varieties are: Treasure, with very large, bright yellow flowers of great substance; Apogee, with very large flowers of soft primrose-yellow; Buttercup, large, soft chrome-yellow with good, stiff stems; Monette, creamy-white, suffused with pink; Chapmanii, rich orange-yellow, sweetly-scented; Success, deep golden-yellow, with bronze shading on the outside of the petals; Sweet Lavender, rosy-lavender, with orange blotches on the inside of the petals; Excelsior, a superb cream-coloured variety of great substance; and Leichtlinii major, with large sprays of yellow and white flowers.

Lachenalias or Cape Cowslips should be afforded the same cultural treatment as the Freesias in almost every detail. They resent a high temperature even more so than Freesias, but they are altogether more accommodating, as we have grown them in the same pots and soil for two and three years without any apparent sign of neglect. Lachenalias are particularly charming when grown in wire baskets for the decoration of the cool conservatory, the pendant habit of the flowers and foliage then showing to advantage. These wire baskets are first lined with fresh moss and the interior filled with good rich soil, into which (all round the sides and on the top) the bulbs are placed. They should be watered with care at the beginning, but once the roots have taken possession of the soil, water should be given ungrudgingly, and liquid manure may be given twice weekly with advantage so soon as the flower spikes begin to show.

With cool treatment, the flowering period lasts from four to eight weeks. Gradually withhold water when the foliage shows signs of ripening, and afford them the same "roasting" on the Peach-house shelf with the Freesias.

Early in September, the bulbs should be shaken free of the old soil, graded, and started into growth with the Freesias. Some of the varieties raised by Sir Frederick Moore and the late Rev. J. Jacob are still scarce and a trifle expensive, so I give only one or two varieties, the cost of which is not quite so prohibitive: L. Nelsoni, with golden yellow flowers, large leaves with purple spots; L. luteola, bells citron-yellow, with green shading; L. tricolor, a very showy and effective variety, flowers scarlet, yellow and green. *H. H. Cook, Reading.*

BULB GARDEN.

NARCISSUS SILVER PLANE.

This beautiful Daffodil (Fig. 113, p. 245) belongs to the Leedsii section (IV b.) and is a peculiarly attractive variety, with broad, white, shapely perianth segments that form a perfect setting for the broad, flattened and frilled cup that is of an attractive primrose-yellow. The pose and texture of the flower are fine. Narcissus Silver Plane was exhibited by the Donard Nursery Co., Newcastle, Co. Down, at the meeting of the Royal Horticultural Society on April 17 last, on the occasion of the London Daffodil Show, when it received an Award of Merit.

BRODIAEA UNIFLORA.

Brodiaea uniflora—the Missouri Hyacinth or Star Flower, of Buenos Ayres—is a pretty, delicately-scented member of the Liliaceae. The flowers are white and porcelain blue and borne in April and May. It is a vigorous grower in any open situation in well-drained soil, and attains a height of from nine to twelve inches. Massed in the woodland garden, colonised in the herbaceous border, in a pocket of the rock garden, or grown for early flowering in pots or earthenware pans, it is always attractive. Bulbs may be planted now, three to four inches deep and three inches apart. For indoor use, bulbs in pans should be placed in a cold frame and covered with ashes. When growth commences, remove them to an open house in a temperature of about 45°. Propagation is effected by means of seeds sown one-eighth-of-an-inch deep, in pots placed in a cool frame, in March, or by offsets. This plant is sometimes listed as Triteleia (or Milla) uniflora. *Brendan P. Mansfield, Dublin.*

HARDY FLOWER BORDER.

ASTER PYRENAEUS.

Those who have a partiality for Aster species rather than those of garden origin will find the subject of this note one of the best of the taller kinds. It is a robust, hardy plant, sending up a copious sheaf three feet high of undivided stems from a self-contained clump. These growths are amply furnished with oval, pointed leaves which are distinctly grey owing to the downy hairs with which they are covered, and they terminate in branching heads of blossom. The first blooms usually open in late July, and from that time onward until autumn arrives a generous show of blossom is maintained. The flowers, which are just over two inches across, are a bright bluish-purple, or clear lavender, with a yellow centre. A. pyrenaeus is a useful perennial for the mixed herbaceous border, but I find it has a distinct partiality for a moist soil and does very well in stiff land near water. It is a species which does not offend by running or seeding, and the clumps increase in size but slowly. These are the better for breaking up every two or three years, but beyond that this easy-tempered plant needs no special attention. *J.*

KIRENGESHOMA PALMATA.

This is a plant which, if it has no great pretentions to beauty, possesses a certain decorative value, and a clump covering nearly a couple of square yards is an object which is not likely to be overlooked in one's autumn garden. A native of Japan, Kirengeshoma palmata is an herbaceous perennial which produces a quantity of black, glossy stems furnished with palmate leaves in a pleasing shade of green and some three inches to six inches across. These growths terminate in loose sprays of flowers which, as they never fully expand their rays, look as much like shuttlecocks made in old ivory as anything. As they are over two inches in length, these creamy-yellow blossoms, with their thick, waxen texture, are, as I have suggested, not without ornamental merit, and they are borne in airy flights of much elegance.

I have grown K. palmata for a good many years in cool, but well-drained soil, and have never found it other than hardy and free, both in foliage and flower. It seems to enjoy partial shade, and this is fortunate, for as the young spring growths are very susceptible to frost, it is possible to give the plant a little overhead shelter without any risk of adversely affecting its well-being. But a well-established clump of K. palmata is so full of vigour that I have known it to be blackened by frost two or three times during spring, and ultimately to make as hearty a growth as usual. With the first autumnal frost, however, K. palmata at once surrenders. The broad leaves turn colour—often a good yellow—in a single night, and the stems die back to the ground level. Here the plant never has any winter protection whatsoever. It does not set seeds with me, but propagation may be carried out by division. *A. T. J.*

BOG AND WATER GARDEN.

LILY POOL AT THE RAFT.

Artificial Lily pools are usually much more satisfying when placed in a formal setting than when seen in the more natural background of the rock garden. This is largely due to the greater difficulty in harmonising the shape and the edge to the neighbouring rock work.

In our pool (Fig. 112) the shape was made slightly irregular, and an efficient covering for the edge was found in the common Periwinkle. Around the pond, for the width of about two or three feet, flat stones were placed so as to form an open, crazy path, this allowing close access to the water and a connection with the rock garden. Among the stones were planted Primula denticulata, P. Bulleyana, P. Beesiana, P. cashmeriana, P. Juliae and P. Sieboldii; Ranunculus amplexicaulis, and R. gramineus; Trollius Ledebourii, Astilbe hybrida crispa, Liatris spicata, Ajuga reptans multicolor, Sisyrinchium grandiflorum, Cardamine pratensis fl. pl., Arenaria balearica, various Saxifrages and dwarf Campanulas.

At the upper end, the taller plants are Iris sibirica Emperor, I. Snow Queen, I. Kaempferi, Hemerocallis flava, Anthericum Liliastrum, Leucojum aestivum, Lythrum Salicaria rosea, Astilbe Arendsii hybrids, Trollius chinensis, T. Orange Globe, T. Empire Day, Anchusa myositidiflora, Epilobium rosmarinifolia and Stenanthium robustum.

The plants in the pool are limited to Water Lilies—Nymphaea Marliacea rosea, N. Laydeckeri rosea, N. Froebeli and N. James Brydon, as a difficulty has been found in keeping the pond from becoming overcrowded. *H. Walkden, The Raft, Sale.*

FLOWER GARDEN.

PAPAVER RUPIFRAGUM VAR. ATLANTICUM.

One is disposed to wonder why so few of the perennial Poppies are to be found in the majority of gardens. The magnificent blooms of the Oriental Poppy, P. orientale, are justly favoured, but the other perennials, with few exceptions, are rarely seen. P. pilosum, a fine but very fugacious-flowered species, is, perhaps, the one which comes next in favour to P. orientale, but very far behind.

One which I, however, prefer to P. pilosum is P. rupifragum var. atlanticum. It has, possibly in the eyes of some, the defect that it sows itself with great freedom, the seedlings ofttimes appearing where they are not wanted, but this failing—if such it is—may well be condoned. It makes a good border plant and is capital for naturalising in the wild garden or in some corner where it may be allowed to sow itself. It grows about a foot or rather more high, the blooms being raised quite above a low tuft of bluish-green leaves. The flowers, which are of good size, are borne on slender, naked stems, and are of a good orange colour. Seeds of this Poppy may be sown where they are to grow, or seedlings may be raised in a nursery bed or under glass and transplanted later in the season. This Poppy transplants quite well if reasonable care is exercised. *S. A.*

TREES AND SHRUBS.

ORNAMENTAL VINES.

One may scarcely over-rate the value of the ornamental Vines—they provide a wealth of handsome foliage, and the autumnal colour assumed by some species is very striking, while their wide diversity of foliage and different degrees of vigour and growth enable them to be employed for almost every purpose to which plants of a scandent habit may be put.

They are especially valuable and unusually effective when used to clothe pergolas, loggias, arbours, verandas, fences, and the walls of houses, and those of vigorous growth are very happy when allowed to ramble over living trees or rough hedges. Cultural requirements call for little comment. The plants should be procured in pots, and care exercised in planting before a root-bound condition is reached, as Vines do not easily recover from such conditions. They are moisture-loving plants and respond to liberal treatment. A deeply-cultivated and enriched soil is reflected in healthy and abundant foliage, while plants may be limited to a required size by judicious pruning, but where possible, a free, uncurbed growth produces the most satisfying and picturesque effect. The majority of the species may be propagated by cuttings, or eyes; in the case of obdurate varieties, layering may prove useful, and in some few cases seeds provide the best means of increase.

These Vines are very numerous, so that the following selection comprises but a few of the more desirable forms.

Vitis Coignetiae, a native of the forests of Yeso, Japan, has large, thick leaves which assume beautiful colours in the autumn, and it is then, with its tints of yellow, orange-red and purplish-crimson, that this fine species is seen at its best.

V. Thomsonii is a graceful and charming Chinese Vine with greyish foliage and stems, the colour of the foliage changing in autumn to deep purplish-red with a metallic lustre, while V. Thunbergii is a large-leaved species approaching, in general habit and aspect, to V. Coignetiae, and providing autumnal colour of equal brilliance.

V. Davidii is a handsome and distinct plant from China; the large, heart-shaped leaves are bronzy-green when young, deep, fresh green when mature, and rich crimson in the autumn.

V. heterophylla and its varieties dissuta, humulifolia, striata and variegata, are all desirable sorts, as are V. aestivalis, V. flexuosa and V. flexuosa major, V. Labrusca and V. vulpina. A group of Vines, introduced by Messrs. James Veitch and Sons, and not so well known as they deserve to be, are V. Davidii Veitchii, a glorified V. Davidii; V. flexuosa Wilsonii, with leaves of metallic bronze, the under surface of the immature leaves being bright purple; V. Henryana, with dark velvety-green leaves, the mid-rib and veins being white, and in autumn, when the ground colour of the foliage changes to red, the contrast with the white veins is pronounced and attractive; V. leeoides (syn. Ampelopsis Watsoniana), with glossy-green leaves, deep claret beneath; V. megalophylla, with huge leaves, not unlike those of Koelreuteria paniculata, which are dark green above and pale green beneath; and V. repens (Veitch), a self-clinging species with young growths of a bright shade of reddish-brown, the older leaves being deep velvety-green, with a peculiar glossy surface.

These Vines are capable of producing some very effective garden pictures, but my remarks equally apply to Ampelopsis and Cissus, now usually included under Vitis. *Ralph E. Arnold.*

CEANOTHUSES.

The present season has been very favourable for the growth and flowering of the deciduous Ceanothuses. The rather numerous named varieties are among the most delightful of late summer and autumn-flowering shrubs, for from July until October the bushes produce a wealth of blossoms in warm, sunny positions.

The fact that the species are natives of California, a land famed for its genial climate and brilliant sunshine, obviously points to the desirability of choosing warm and sheltered, sunny positions for them. The best soil is a light, well-drained loam, with some leaf-mould added. Plant them on high, sloping ground, rather than in low, moist positions, for cold, damp conditions are detrimental to the health of Ceanothuses in winter. The application of a mixture of well-decayed manure and half-decayed leaf-mould, as a top-dressing, about midsummer, serves the dual purpose of a mulch and stimulant.

Although usually cultivated as bushes, and kept shapely by fairly hard pruning each year in early spring, the stronger-growing sorts, such as Gloire de Versailles and Indigo, are very attractive subjects for growing against south and west walls.

A representative collection of named sorts gives a fairly wide range of colours, including shades of blue, mauve, rose, pink and white. The Ceanothuses recommended below are arranged in approximately their order of merit, to serve as a guide to any reader requiring a small selection, and who should give preference to those named high in the list. The variety Gloire de Versailles has large panicles of deep powder-blue blossoms; Marie Simon is a free-flowering, attractive form of dwarf bushy habit, with mauve-pink blooms; Henri Defosse is a rich dark blue variety; Topaz has flowers a shade deeper in colour than Gloire de Versailles; Céres has blooms of a pleasing rosy-mauve shade; Arnoldii is a particularly free-flowering, pale blue variety of vigorous habit; Pinquet Grindon produces flowers of a distinct shade of deep mauve, suffused with pink; grandiflorus, which has small inflorescences of pale powder-blue colour, is vigorous in habit and free-flowering; Perle Rose is the best of those with pink colour blooms, but the plant is rather tender and should be planted at the foot of a sunny, south wall; Georges Simon has flowers of a mauve-pink shade; spectabilis roseus is upright in habit and produces light mauve, pink-tinted blooms; and flore pleno albo has double white, slightly tinted flowers. *A. Osborn.*

VERONICA PINGUIFOLIA.

Of the numerous shrubby Veronicas, among the most suitable for growing on the rock garden, or in other positions where dwarf, evergreen shrubs are desired, V. pinguifolia is well deserving of consideration, for although free in growth, it never seems to become straggly and leggy, as so many of its relatives do; but remains dense and compact, forming a rounded bush, one foot—seldom more—in height, the short growths being densely clothed with small, very glaucous leaves, which enable the plant to remain attractive throughout the year. These growths, in early summer, are terminated by short, dense spikes of white flowers, with purple stamens.

V. pinguifolia is one of the hardiest of the shrubby Veronicas, the severest of winters leaving it almost unscathed, provided that the position it is growing in is not inclined to remain moist. No position is too hot for it, in fact, a warm, sunny situation and moderately light, well-drained loamy soil, are the conditions which ensure the production of the glaucousness of the foliage—the chief charm of this subject.

V. pinguifolia is very easy to establish, and it may be propagated readily by means of cuttings, while the growths often layer themselves and so provide a useful means of increasing the stock, if so desired. *Kent.*

SCIADOPITYS VERTICILLATA.

Good examples of the Umbrella Pine are not common, possibly owing to the difficulty experienced in providing just those conditions so necessary to its welfare. A constant supply of moisture at the roots is requisite, and if this supply is intermittent, the Sciadopitys does not thrive. In Veitch's *Manual of Coniferae*, one reads: "Where the Rhododendron thrives, the Sciadopitys will grow," indicating a soil sufficiently retentive to afford a constant and uniform supply of moisture during the period of growth.

This remarkable tree was first detected by Thunberg, who met with it in cultivation during his mission to Japan in 1775–76. The first plant to reach England alive was obtained by Thomas Lobb, at Buitenzorg, Java, from the collection imported there by the Dutch, and the plant reached Exeter in 1853 and subsequently died. In 1861, Mr. John Gould Veitch collected cones and seeds of I. verticillata in Japan, and from these most of the oldest existing specimens in this country were raised. At about the same time, Robert Fortune sent seeds to Mr. Standish, at Ascot, and by some authorities it is erroneously stated that the first living plants were sent to Mr. Standish.

The species is apparently confined to one very small area of Japan, in Eastern Nippon, upon the mountains of Koja-San, in the province of Kii. Its distinctive character and restricted distribution point to an ancestry far more remote than that of most other Conifers, excepting perhaps Ginkgo.

As a single specimen, this remarkable tree is of great interest, and if planted boldly with groups of other Conifers, its distinctive appearance will lend character and unique beauty. —*R. E. A.*

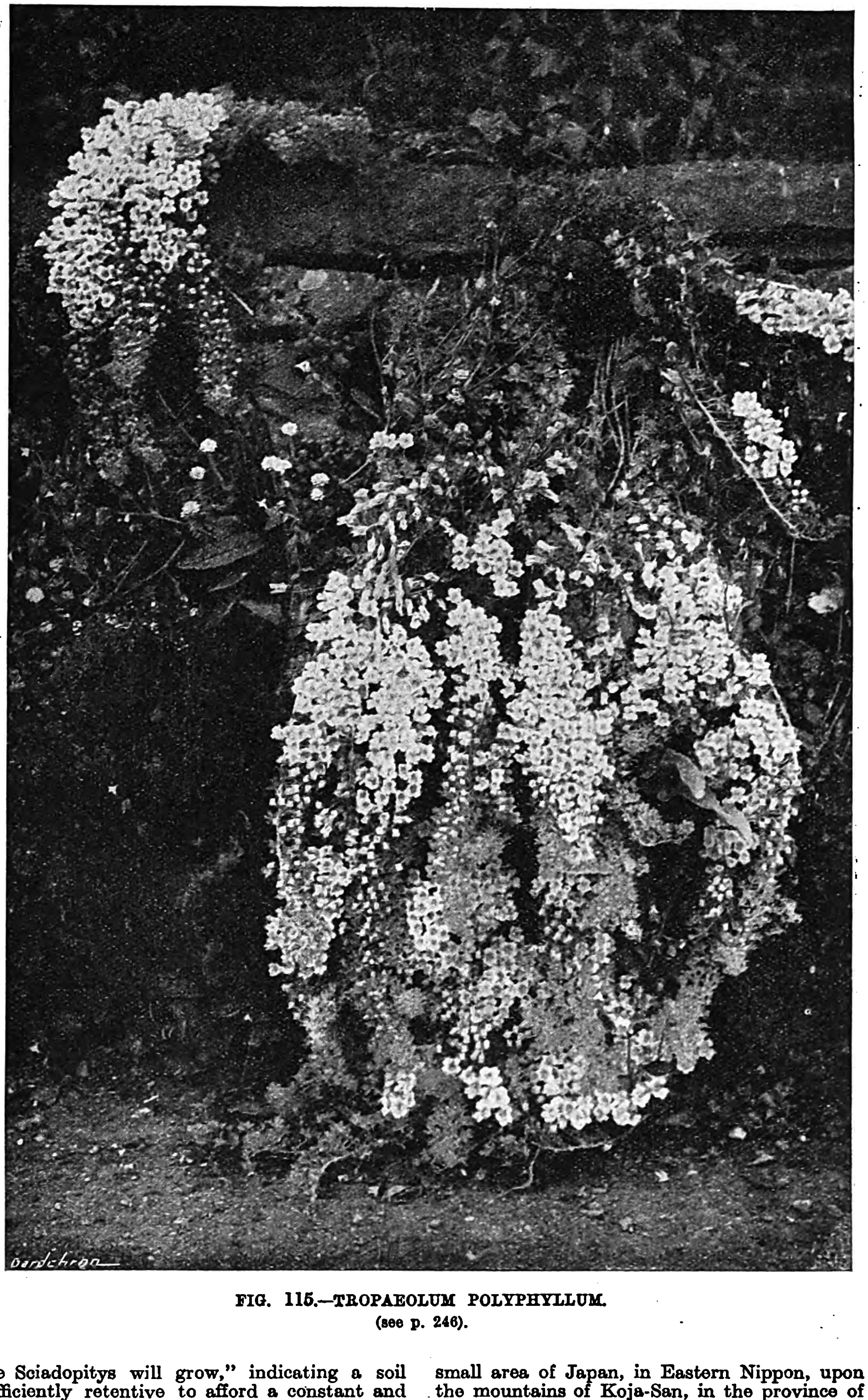

FIG. 115.—TROPAEOLUM POLYPHYLLUM.
(see p. 246).

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THE FLORA OF ROME.

IN spite of the inexhaustible and incomparable attractions of the Eternal City, I was able, during a recent visit to Rome, to give considerable time to the study of its flora. Held up on one occasion in the Campagna, it was possible to collect a large number of specimens far away from the haunts of men. Visits to the Colosseum, the Forum, the Appian Way and other places, also afforded golden opportunities to the naturalist, and as each of these occasions was diligently improved, a representative collection of wild flowers was the result. Then there are the well-known Farnese Gardens, in which no plant is cultivated which does not represent the native flora, although with these no attempt has been made to swell the list.

It is true that the commonest flowers of Rome are exactly of the same species as those we find at our own doors, but even so, they had their peculiarities and their special charm. I thought the common Daisy, for example, surpassed in size and beauty any specimens of Bellis perennis which I had ever gathered in the British Isles.

At one time the wild flowers growing in the Colosseum were so numerous that the idea of making a list of the whole was carried out by a local botanist, who found upwards of one hundred species. Later on, another and completer list was compiled, and more than two hundred species were recorded. Unfortunately, many of these are no longer to be found within the ruins, a clearance having been made to prevent the building being entirely overgrown. Nevertheless, an almost incredible number of species still remain.

The Pellitory-of-the-wall is here, as it is everywhere among the ruins of ancient Rome, in rich profusion. On May day the Ivy-leaved Toad Flax was in full bloom, along with the brilliant blue Salvia or Sage, the golden Buttercup, the pink Geranium, the red Clover, and the tall and stately Mignonette. The scarlet Poppy flaunted its paper-like petals beside the pure white blossoms of the Stitchwort (Stellaria Holostea) from the midst of which there fluttered an orange-tipped butterfly.

Near the Arch of Titus in the Forum, the large umbels of the Fennel, growing wild, were most arresting. I saw flowering stems which were like young trees, from six to ten feet in height, in striking contrast to the pigmy stalks which one usually finds on the sea coasts in England. The fragrant Alyssum, often called White Rock, or Snow-in-Summer, by our country people, grew here in rich profusion, while Hawk-bit, Hawkweeds, Vetches of various kinds, and many other well-known flowers abounded on every hand. Among the rarer plants, "bright tufts of Wallflower," to borrow the words of Augustus Hare, "sent up their tongues of flame from an old tomb peering above the wall, as if from a funeral pyre." The crimson blossoms of the red Orchis seemed to be playing at hide and seek with the fantastic flower spikes of the Bee and Spider Orchids in a way to delight the heart of the naturalist.

Very conspicuous along the Appian Way are the milk-veined leaves of the St. Mary's Thistle, concerning which there is an old-time legend. Just as the milk of Juno gave the Lily its whiteness, so did that of the Virgin Mother as she gave suck to the infant Jesus near where the Thistle grew. A lady whom I met gathered a leaf to press and carry home, not because of this legend, which she had never heard, but because she had mistaken it for that of the Acanthus, in connection with which is another legend of an archaeological nature. She still retained the leaf after learning how the white veins had been acquired, and prized it even more than she would have done had she never been enlightened. Ignorance may be bliss, but surely wisdom is "blissfuller." The true Acanthus, by the way, abounds in the neighbourhood of the Catacombs, and may even be studied at leisure in the Forum itself.

Here, too, grows most luxuriantly that otherwise rare form of Ivy whose beautiful foliage both hides and reveals the clusters of fruits which, instead of being black or purple, are of a golden-yellow hue. Other native plants which make the place beautiful are the Asphodel, which flourishes almost everywhere in the Mediterranean region, and the Hyacinth.

Looking over my collection, I find that several representatives of our Pink or Campion family occur in and around Rome. Among these is a pretty little Catchfly, with pink or rose-tinted petals, which is abundant in the Forum and elsewhere. Very conspicuous in many places are the beautiful blossoms of the Borage, but hardly less attractive are those of the Gromwell or Lithospermum, with its bright, purplish-blue corolla measuring half-an-inch in diameter. The attention of a fellow traveller was drawn to the Melilot, one of the weeds of civilisation to be found in almost every part of the world. It was sent to me once from the heart of China, as one of the typical plants of the district, by one who did not know native plants from wanderers. My companion in Rome had not heard of it before, but instantly seized upon the botanical name and translated the Greek words for honey and lotus into English, thus showing the value of a knowledge of the classical languages for the study of science.

But there are Thorns and Thistles in Rome, as well as fragrant Lotos flowers, and among the plants collected was one which has Leguminous flowers like the Melilot, combined with stout spines arranged in pairs and capable of giving great pain if trodden upon, or even brushed against by the unwary traveller. We have a similar plant in our own flora known as the Spinous Rest-harrow, but the Roman plant is much more formidable.

Some wild flowers there were in Rome, greatly interested the writer because he first made their acquaintance by the Solway at Silloth, in Cumberland. The seeds had been brought from other lands in the imported corn used by Messrs. Carr for biscuit making. When this was cleaned the refuse was thrown out on to the dunes. Here, from year to year, many plants, rare and curious to the stay-at-home collector, sprang up, blossomed and died, without having found an insect which could fertilise them. A few, however, were more fortunate, and year by year they produced their seeds, flourished, and looked in every respect like natives. Among these was a Hawk's-beard (Crepis), a rare Goat's-beard, a Fleabane, and a number of other Composite plants, the most interesting of which are found as weeds near the Arch of Titus and among the ruined palaces of the mighty Caesars.

In watery places around Rome, as also on the Riviera and in Corsica, the yellow Iris is abundant, and in dry places a shrub with leaves like the Holly, covered, as is so often the case, with plants found in such localities, by a soft pubescence or vesture of cotton-wool. It is probably common enough, although I have never met with it elsewhere, and regret that I am unable to give its name.

Particularly noteworthy are the Roman grasses. Brome and Fescue and Poa are here in bewildering variety, usually much more vigorous than with us, although frequently the very same species. Many other plants might be enumerated. In the hedgerows the familiar White Thorn, or Hawthorn, is common, while Privet and Dog Roses are constantly encountered. It will be noticed that only such flowers as are found in spring time or the early summer are spoken of here, and of these only the most characteristic are mentioned. A list of those which occur later in the year would be much more extensive, and would include the names of many which are familiar alike in legend and in garden literature. *Hilderic Friend.*

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

THE spires of blossom which Astilbe Davidii produces in such profusion in late summer run too near magenta to please some persons of fastidious taste; but they produce a fine effect in the open woodland or by the waterside, where they are easily naturalised. After all, we can hardly afford to be hypercritical in the matter of colour, else many of our native wild flowers that enliven the landscape would be condemned for their approach to magenta, including the Foxglove, Bloody Cranesbill, Epilobium hirsutum, Colchicum autumnale, etc.

It is remarkable that, although so many herbs and shrubs from southern Chile adapt themselves readily to the climate and soil of our western seaboard, the colour-scheme of wild flowers in the two lands is widely different. Neither scarlet nor orange occurs among British wild flowers, except in the Corn Poppy and the Scarlet Pimpernel, both of which only occur on cultivated land, and are, almost certainly, weeds introduced with agriculture. There is also an orange variety of Meconopsis cambrica, probably of garden origin, as it is not mentioned in Bentham and Hooker's *British Flora*. In Chile, on the other hand, these are among the prevailing colours, displayed on Embothrium, Desfontainea, Mitraria, Habranthus pratensis, Mutisia decurrens and many others.

I received a Composite last year under the name of Grindelia speciosa, but, as no such species is entered in the Kew *Hand List*, it may be the North American G. squarrosa. Anyhow, it is a desirable addition to late-flowering herbaceous plants, growing some two feet high with blossoms of peculiarly clear yellow, which form a strong but pleasing contrast with the rich blue spikes of Veronica longifolia subsessilis, beside which it happens to have been planted. No herb is more generous in prolonging its display than Geum Borisii, which begins to flower in May and never ceases until checked by frost. Even so, scattered blooms may be seen at Christmastide. It is a hybrid raised by Ferdinand, ex-King of Bulgaria, and named by him after his son, Boris, the present king. That monarch has inherited his father's passion for gardening. He was in this country during the summer, and told one of my friends that we had not the true plant here, and promised to send him some. If it produces flowers of a richer, softer orange than those of the plant we have in cultivation, it must indeed be a fine thing.

The genus Gilia is best known in gardens by some pretty annual species; but I received from the Edinburgh Botanic Garden a perennial under the name of G. californica. This is the only shrubby species of Gilia known to cultivation. In its native habitat it forms bushes three feet or more in height, but its hardiness has yet to be proved in our humid west. It has thriven in an open border since spring, and is now flowering in mid-September. The blossoms, about one inch across, are at the ends of branchlets densely set with grass-green, linear leaves, and are of a lovely satiny-pink with a crimson centre. G. californica is figured in the *Bot. Mag.*, t. 4872, as Leptodactylon californica; it was also figured and described in *Gard. Chron.*, Vol. LXXX, p. 11, fig. 8.

Anaphalis nubigena, from the same bounteous source, is a Himalayan Composite, now densely covered with snowy-white, globular flowers, making the plant very conspicuous, although, as yet, it is only six inches high.

Some shrubs and trees only flower freely in alternate seasons, but Eucryphia pinnatifolia never stints its profusion of blooms. When raised from seeds, some of the seedlings produce double flowers, which lack the delicate beauty of the single form, but make a pretty show in the mass, and have the merit of outlasting the single flowers. In that respect the evergreen E. cordifolia also excels E. pinnatifolia; for although its flowers have not the exceeding grace of the latter, they are borne over a much longer period.

Tricuspidaria lanceolata is another shrub or small tree which flowers with equal freedom in consecutive years. It presents an interesting sight just now, for although the branches are thickly hung with fat, russet capsules, opening to display the large, white seeds within, here and there a belated crimson bell appears among a multitude of flower buds for June in next year. *Herbert Maxwell, Monreith.*

PARASYRINGA SEMPERVIRENS.

We owe the existence of this shrub in our gardens to the labours of Mr. George Forrest, who found it several times during his travels in the Chinese provinces of Szechuen and Yunnan; also to Mr. J. C. Williams, who seems to have been the first, if not the only one, to raise it. It had, however, been discovered a good many years previously by some French collector, and was originally called Syringa sempervirens by Franchet, the French botanist. Superficially, it bears a closer resemblance to the Privets (Ligustrum) than to the Lilacs, but differs from both in a rather obscure character of the fruit, by reason of which Professor W. W. Smith of Edinburgh gave it the name it now bears.

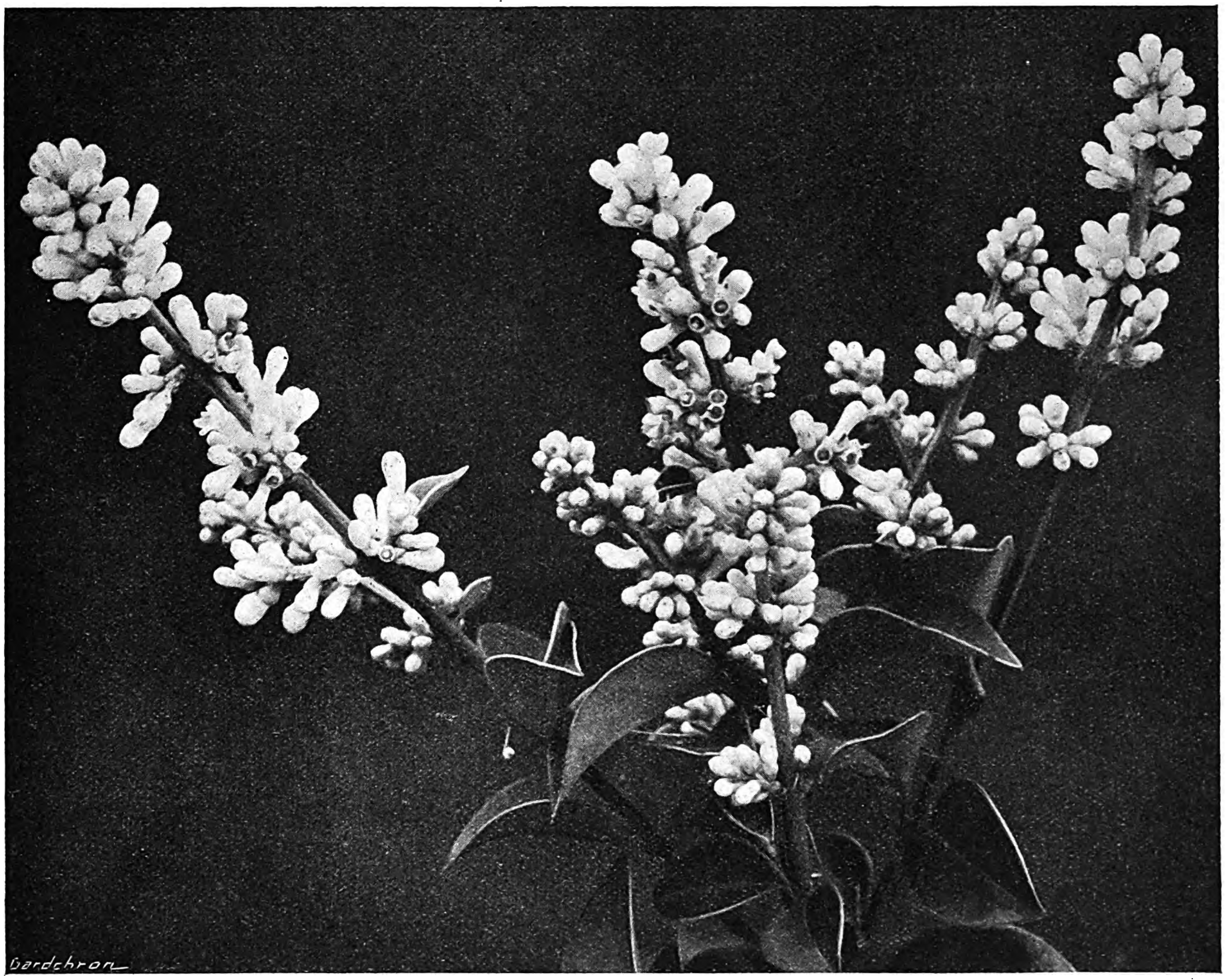

FIG. 116.—PARASYRINGA SEMPERVIRENS.

Forrest describes it as growing six to seven feet high in a wild state, and it promises to attain at least that stature under cultivation. At Kew it is already five feet high—a densely leafy, bushy evergreen of rounded habit—and hitherto has given no sign of tenderness. The leaves vary in shape from sub-orbicular and oval to obovate, are half-an-inch to two-and-a-half inches long, pointed, very shortly stalked, dark green and of leathery texture. The flowers are dullish creamy white, borne in panicles about thre inches long, very much resembling those of an evergreen Privet in shape and arrangement. The fruits are oval, quarter-of-an-inch long and black It has produced both flowers and fruit at Kew.

As an evergreen shrub of dense sturdy habit, free growth and handsome healthy appearance, it promises to have some value in gardens and may even prove useful as a hedge plant. I do not think it promises at present to be anything more than a second-rate flowering shrub, but it may, of course, improve in that respect as it gets older. The sprays now illustrated (Fig. 116) were exhibited by Mr. Armytage Moore, of Rowallane, Co. Down, at the Royal Horticultural Society's meeting of September 11. *W. J. Bean.*

NOTES ON SOME IRIS SIBIRICA CROSSES.

On first seeing a row of Iris orientalis var. Snow Queen in bloom, my first thought was how much it would be improved if the stems were a foot taller, so that the flowers would show up better. We had no plants of I. sibirica alba in the garden, but a fine plant of I. sibirica maxima, might, I thought, give the height, so I crossed it with Snow Queen, both ways. This was in 1920, and ninety-two seedlings grew. They bloomed well in 1924 and were all medium to tall, and all blue, but the depth of colour varied very much, as did the markings on the falls. There did not seem to be any difference between those which had Snow Queen (Fig. 117) as seed parent and those that had I. sibirica maxima.

Among these seedlings there are some pale blue varieties, which are greatly admired by visitors, and two of them, which we gave to the Viscountess Byng of Vimy, were well thought of at the show of the Royal Horticultural Society on June 5 and 6, 1928. (See *The Gardeners' Chronicle*, p. 423). One, named Ottawa, received an Award of Merit, and China Blue the Committee wished to see again.

I was not successful in selfing these seedlings, and as I was very anxious to get a quantity of second-generation plants I sowed all the seeds that formed naturally. The seedlings were planted out in light, sandy soil in full sunshine, and the majority of them grew. There were two thousand four hundred planted, and possibly the four hundred died. Unfortunately, the records were not kept very carefully. A great number bloomed in 1927, and they made a fine show in 1928. I counted three hundred and seven white ones, and it is possible that I missed some of the earliest to flower. All the white ones were of the same colouring as Snow Queen and none of them showed any of the streaks or flushings that distinguish I. sibirica alba. The shape and size of the petals varied very much; in some the petals were so narrow as to be worthless. Unfortunately, the tallest white form was among these. Many of them seemed very like Snow Queen, some were perhaps a little taller, or the leaves were shorter so that the flowers showed up better, but I doubt if there is any great improvement. There were, however, two white seedlings that were very interesting because they had the clear white and gold colouring of Snow Queen, with the shape and habit of I. sibirica. One was dwarf and not very strong, and the other was about the height of Snow Queen but quite distinct in growth. The illustrations (Figs. 117 and 118), show the differences between it and Snow Queen in shape and habit. The colouring, as stated, is the same.

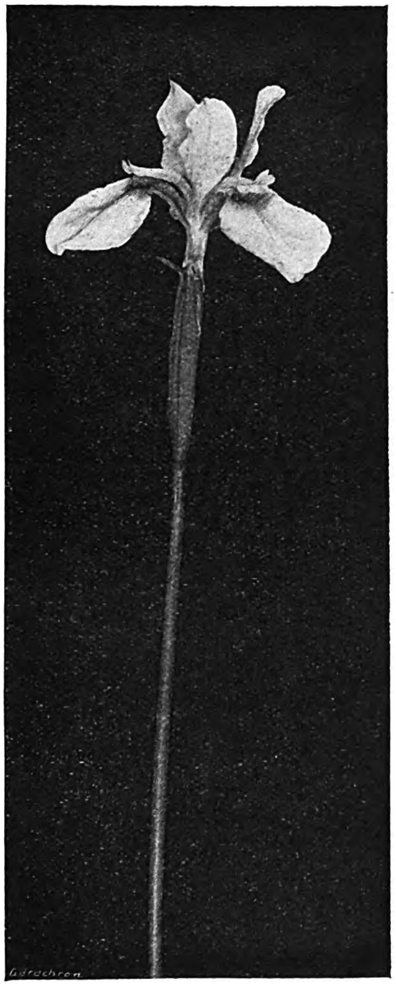

FIG. 117.—IRIS ORIENTALIS VAR. SNOW QUEEN.

There is great variation among the blue seedlings in depth of colour, markings on the falls, and shape and size of flower. In Fig. 119 the colour is rich blue, with prominent white markings on the falls, deepening into gold on the haft. The shape of the bloom resembles I. orientalis. In Fig. 120 the shape is quite different and the colour pale blue with the white and gold markings on the falls. In Fig. 121 the shape is more curious than beautiful, with twisted falls which are almost covered with white markings. Unfortunately I have no photographs of the first generation seedlings, but many of them are considered to be worth further testing. Although my tall Snow Queen is still to come, the experiments have already proved interesting and worth while.

The I. sibirica var. Caesar, which received an Award of Merit on June 5 last, originated with Mr. F. Cleveland Morgan, of Montreal, Canada. In the report of the show, the United States of America was given as his home.—*Isabella Preston, Central Experimental Farm, Ottawa.*

DIANTHUS NEGLECTUS.

The subject of this note belies its specific name, for Dianthus neglectus is one of the greatest treasures of those who grow European alpines; it is dwarf and compact, bears a profusion of beautiful and brilliantly-coloured flowers, and is of comparatively easy culture if certain requirements are supplied. The species is definitely recorded from the Maritimes and the Alps of Dauphiné and Savoy, at elevations between 6,000 and 8,000 feet. According to Thompson, *Alpine Plants of Europe*, it also occurs in Lombardy, the Tyrol, and the Eastern Pyrenees, but these regions are not mentioned by Farrer in his *English Rock Garden*, where he states that "The plant has a limited range, only being found in Dauphiné, the Graians, Cottians, and Maritimes, in the upper alps, and so to the uppermost (though never to the highest, alpine elevations)." The species appears, therefore, to be absent from the Balkans, the north-eastern ranges and Switzerland (except, perhaps, where the Graians join the Pennines via the great Massif of Mont Blanc).

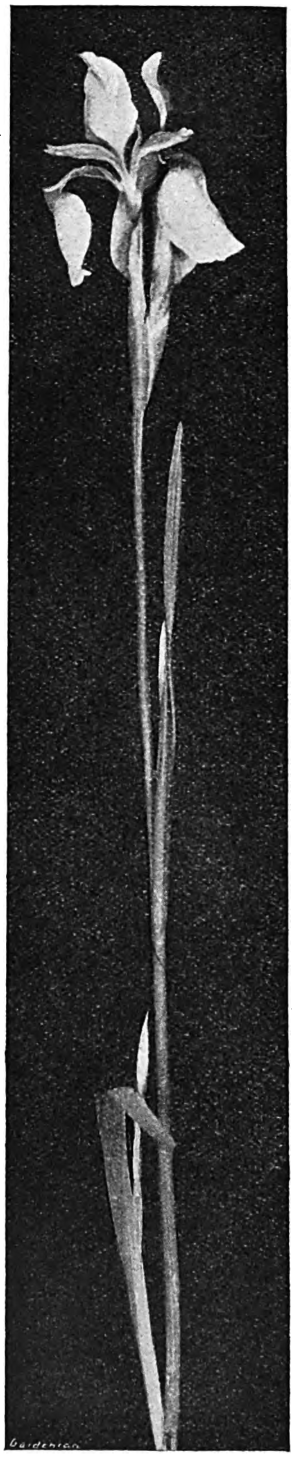

FIG. 118.—IRIS SIBIRICA SEEDLING, SHOWING THE COLOURING OF I. O. SNOW QUEEN.

In any case, it is difficult to determine the exact geographical limits of this plant, for, like so many other mountain species, D. neglectus varies considerably, according to either latitude or altitude. The typical alpine development is that most prized by the rock gardeners, none the less because it usually retains the bright tone of its flowers in our lowland gardens and because cultivation appears to intensify the compact habit of the plant, since side-tufts are produced with less freedom than in the natural state. This form, usually regarded as true D. neglectus, has tufts of glabrous, linear, grass-like leaves—short, compact and sharp to the touch—radiating from a central tap-root which may fork into several smaller "taps." The flowers are held singly (rarely two) on short, erect stems of, perhaps, half-an-inch to an inch in length. They are variable in tone, but in the best forms are a lovely rosy-pink, and possess a blue eye and a most entrancing buff or nankin reverse. They should also be round in shape, the petal-segments meeting or overlapping to form a flat disc fully half-an-inch across, with a very delicately and evenly scalloped margin, and stare straight up at the sun from their stiff, little stalks. Frequently, the petals have almost entire margins, but this is no improvement on the minutely fimbriated forms. In its wild state, D. neglectus flowers in July and August, but in gardens in this country it commences flowering somewhat earlier, and may

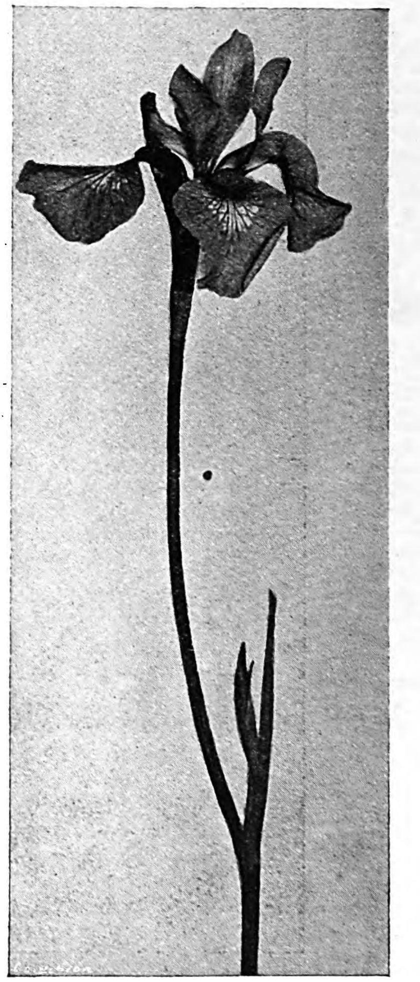

FIG. 119.—IRIS SIBIRICA SEEDLING.

Large flower; colour rich blue, with prominent white markings on the falls, shading to gold.

blossom again in the autumn, although more sparingly than before.

There are variations, chiefly those of lower altitudes or bordering the southern extensions of the species, which possess tall stems, each bearing several starry flowers of a pale, "washy" pink, and lacking the buff reverse. Farrer suggests that specific rank could be accorded the attenuated form of the southern ranges, which differs in many respects from the northerly alpine development. Even at the higher altitudinal limits of the plant much variation occurs, principally in the size and tint of the flowers and in the comparative breadth of the petals. Good forms should therefore be selected from the nurseryman's stock, or uprooted when flowering in their native hills.

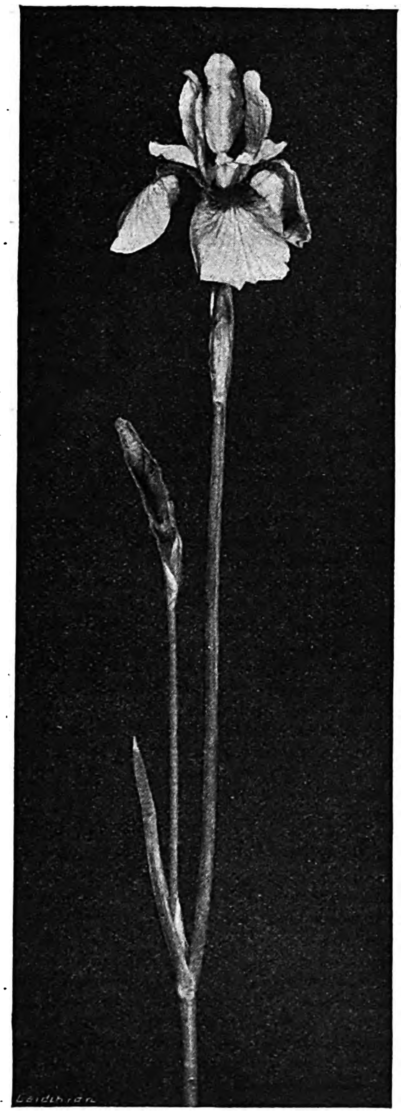

FIG. 120.—IRIS SIBIRICA SEEDLING.

Large flower, pale blue, with prominent white markings on the falls, shading to gold at the base.

Should the reader visit the higher Alps in July, he will probably tramp over some of those rolling hillocks of short turf which characterise the natural alpine meadows (before the grass grows long and lush and the cattle are driven up from the cropped pastures below). At that season of the year he may find certain of the southern slopes bespangled with the squat, rosy blooms of D. neglectus, especially if the soil is stony and not over wet. But it is possible that the trip may be hastened, in order to catch the first flush of the alpine spring, when the snow is retreating and the hills are a constantly changing kaliedoscope of colour. The Dianthus will not be in flower so early as this, and if the collector be inexperienced he will need to inspect the ground on "all-fours" to distinguish the "grass" of the Pink from the true grasses among which it grows, so closely does this species associate itself with the turf and other alpine plants.

Collecting when not in flower is a gamble, but it is one which may yield unexpected results. Some two or three years ago, the writer took this risk and brought home a few non-flowering plants of D. neglectus. These were placed in a sand-frame to recover from the shock of removal. In spite of having been packed quite dry in a biscuit tin and remaining there during two weeks of very hot weather, the plants soon established themselves in the sandy medium. They were then moved to small pots, in a mixture of loam, leaf-mould and sand, where three flowered the same year. One proved to be a really fine form, having almost sessile, beautifully round flowers of a deep rose colour, with the characteristic buff exterior. Cuttings of this were rooted in pots of silver sand, plunged in a frame. The original plants were kept in pots for the winter and planted out in spring, when their root-systems had become fully restored. All have retained the tufted habit, none having produced side-shoots on long "runners," as in nature, and the good form is now a fine, light mound, some four or five inches across. It was planted with others in a small alpine lawn, *i.e.*, a flat or gently sloping piece of ground, well-watered, but in full sun, and stocked with a variety of dwarf plants. One specimen of the Dianthus was placed in the moraine, and its subsequent behaviour has proved interesting.

As D. neglectus is usually to be found in the alpine meadows in competition with other plants, one might infer that it should be placed in a similar position in gardens. Of the plants mentioned above, one of those in the alpine lawn flowered last year, but has not done so this season. The one in the moraine flowered freely this year but failed to bloom last year. It has, however, made better growth and did not suffer so much in the winter, as compared with those in the alpine lawn. This appears to agree with the view that D. neglectus dislikes competition in gardens. In the opinion of many keen cultivators of alpines, the plant is not long-lived when subjected to the necessarily artificial conditions of garden culture, in a climate so different from that to which it is accustomed. This may be so when it is planted in ordinary soil, as D. neglectus produces a woody base or root stock which is liable to suffer from damp in wet winters. Moraine treatment should help to eliminate the difficulty, and as a special precaution the plants may be covered with glass if an excessively rainy period should be experienced. If the plant is not placed in a moraine, annual top-dressings should be applied with great care, preferably in spring after the heavy rains are over. The species is not tender; chilly damp, without sun, appears to be its chief enemy. It is hoped that the above experiment will be continued on a larger scale.

There remains the question of lime, in regard to which there appears to be a difference of opinion. D. neglectus is not a lime-lover, although it is occasionally to be found wild on certain calcareous formations. It will grow in a soil containing lime, although not giving of its best under such conditions.

Seeds germinate readily, but they frequently yield inferior forms; all good variations should be increased by cuttings or "slips." *L. B. C., Cheshire.*

MESEMBRYANTHEMUM.

(Continued from p. 212.)

OWING to the unscrupulous manner in which the usual courtesy and code of honour maintained among scientific workers has been discarded, and the way results of my own investigations are being persistently published elsewhere, in spite of protest, for the purpose of claiming priority of authorship for name combinations that must be known to be in my own MSS. and awaiting publication, I here interrupt my monographic account to publish some of the name-combinations that are still left to me. A fuller account, with synonymy and descriptions, will follow later.

CONICOSIA, N. E. BR.

C. affinis, N. E. Br. (M. elongatum, Salm Dyck, not of Haworth); *C. brevicaulis, N. E. Br.* (M. brevicaule, Haw.); *C. capensis, N. E. Br.* (M. pugioniforme, Haw., not of Linné); *C. elongata, N. E. Br.* (M. elongatum, Haw.); *C. fusiformis, N. E. Br.* (M. fusiforme, Haw.); *C. Muirii, N. E. Br.* (Root fleshy, elongated, leaves trigonous, Muir 4128, will be fully described later); *C. pugioniformis, N. E. Br.* (M. pugioniforme, Linn., M. capitatum, Haw.); *C. Roodiae, N. E. Br.* (root fleshy, elongated; capsule 1¼–1½ inch in diameter); *C. robusta, N. E. Br.* (M. pugioniforme, L. Bol., not of Linn. Leaves on the flowering branches 6–8 inches long and 3–3½ lines broad when dried).

HYMENOGYNE, N. E. BR.

H. glabra, Haw.; *H. Stephensiae, N. E. Br.* (M. pomeridianum, L. Bol. partly).

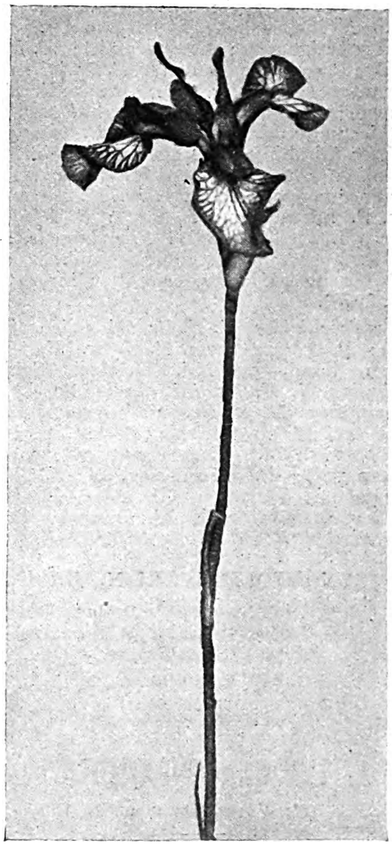

FIG. 121.—IRIS SIBIRICA SEEDLING.

Small flower, dark blue, with white markings covering the falls.

OPOPHYTUM, N. E. BR.

O. aquosum, N. E. Br. (M. aquosum, L. Bol.); *O. dactylinum, N. E. Br.* (M. dactylinum, Welw.); *O. fastigiatum, N. E. Br.* (M. fastigiatum, Thunb.); *O. Forskahlii, N. E. Br.* (M. Forskahlii, Hochst.); *O. speciosum, N. E. Br.* (described without a name in *Ann. S. Afr. Mus.*, IX, 151, and will be described fully later).

PHYLLOBUS, N. E. BR.

P. Lesliei, N. E. Br.; will be described later, but differs from P. resurgens by its longer pedicels and larger flowers; *P. pubicalyx, N. E. Br.*, calyx pubescent; *P. resurgens, N. E. Br.* (M. resurgens, Kensit. Aridária resurgens, L. Bol.).

PSILOCAULON, N. E. BR.

P. absimile, N. E. Br.: *P. acutisepalum, N. E. Br.* (M. acutisepalum, Berger); *P. album, L. Bol.*; *P. arenosum, L. Bol.* (M. arenosum, Schinz, and M. gymnocladum, Schlecht, and Diels); *P. articulatum, N. E. Br.* (M. articulatum, Thunb., and M. scundum, Thunb.);

P. asperulum, N. E. Br. (erect; branches covered with minute blunt points, not granules, Van der Bijl 31); *P. Bijliae, N. E. Br.* (erect; branches $1\frac{1}{2}$–$2\frac{1}{2}$ lines thick, microscopically granulate, Van der Bijl 30); *P. caducum, N. E. Br.* (M. caducum, Ait., not of L. Bol.); *P. clavulatum, N. E. Br.* (M. clavulatum, Berger.); *P. corallinum, N. E. Br.* (M. corallinum Thunb.); *P. coriarium, N. E. Br.* (M. coriarium, Burch).

P. densum, N. E. Br. (flowers in dense leafy masses, Schlechter 1); *P. dimorphum, N. E. Br.* (M. dimorphum, Welw.); *P. Dinteri, N. E. Br.* (M. Dinteri, Engl.); *P. diversipapillosum, N. E. Br.* (M. diversipapillosum, Berger); *P. fasciculatum, N. E. Br.* (branchlets bunched together in clusters on the main branches; petals magenta-pink); *P. fimbriatum, L. Bol.*; *P. Gessertianum, N. E. Br.* (M. Gessertianum, Dint. and Berg.); *P. glareosum, N. E. Br.* (M. glareosum, Berger.); *P. granulicaule, N. E. Br.* (M. granulicaule, Haw.).

P. junceum, N. E. Br. (M. junceum, Haw., not of L. Bol.); *P. leptarthron, N. E. Br.* (M. leptarthron, Berger.); *P. Levynsiae, N. E. Br.* (shrub 18 inches high, smooth and glabrous; leaves subtrigonous; flowers pink); *P. luteum, L. Bol.*; *P. melanospermum, N. E. Br.* (M. melanospermum, Berger.); *P. mentiens, N. E. Br.* (M. mentiens, Berger); *P. mucronulatum, N. E. Br.* (M. mucronulatum, Dint.); *P. namaquense, N. E. Br.* (M. simile var. namaquense, Sond,); P. *Pageae, L. Bol.*; *P. parviflorum, L. Bol.* (M. parviflorum, Jacq., not of Haw., M. micranthon, Haw, P. micranthum, L. Bol.); *P. Pfeilii, N. E. Br.* (M. Pfeilii, Engl.); *P. pubescens, N. E. Br.* (stems erect or becoming decumbent, stout, much branched, pubescent. Flowers pink. Muir, 3978).

P. salicornioides, N. E. Br. (M. salicornioides, Pax.); *P. Schlichtianum, N. E. Br.* (M. Schlichtianum, Sond. and M. Kuntzei, Schinz.); *P. simile, N. E. Br.* (M. simile, Sond.); *P. squamifolium, N. E. Br.* (M. junceum, L. Bol. partly and M. clavellatum, Berger, partly, as to Pearson 3273. Leaves reduced to scales. Flowers red); *P. subnodosum, N. E. Br.* (M. subnodosum, Berger.); *P. tenue, N. E. Br.* (M. tenue, Haw. and M. bicorne, Sond.); *P. Trothai, N. E. Br.* (M. Trothai, Engl.).

SYNAPTOPHYLLUM, N. E. BR.

S. Juttae, N. E. Br. (*M.* Juttae, Dint. and Berg.); *S. Sladenianum, N. E. Br.* (M. Sladenanum, L. Bol.). *N. E. Brown.*

(*To be continued.*)

THE GENUS PRIMULA.

(*Continued from p.* 234.)

EBURNEA (Balf. f.) Ivory-flowered P.
(Soldanelloideae.)

A BEAUTIFUL, slender species with fringed, ivory-white blossoms. It is closely allied to P. Reidii and produces a small rosette of more or less mealy leaves, with elliptic or oblong-elliptic, blunt blades varying from one inch to four inches long; their margins are furnished with lobe-like teeth which are themselves finely toothed; the blade tapers to a winged stalk which is dilated and clasping at the base. Flower stem about nine inches tall, slender, covered with white meal and bearing a many-flowered head of deflexed, nearly stemless blossoms. Corolla cup-shaped, about three-eighths-of-an-inch across with narrow, reflexed, fringed lobes. Flowers in July.

Grows on the banks of alpine streams in peaty soil and glacial debris, in Bhutan, central Himalayas, at about 14,000 feet above sea-level.

Culture: Provide it with peat and limestone chips in full sun, with abundant underground moisture when in growth, and protection in winter.

EDGEWORTHII (Pax.). Edgeworth's P.
(Petiolaris Sonchifolia.)

A handsome, deciduous perennial with the habit of the common Primrose. The plant is devoid of meal except in the resting buds, which produce a tuft of oval or elliptic, blunt or pointed leaves, four to eight inches long, including the broadly-winged stalk; margins irregularly and coarsely toothed or lobed, the lobes are frequently again finely toothed. Flower stem almost obsolete or quite wanting. Flowers numerous on stout stalks three to four inches long springing from the very short flower stems or the crown of the plant. Corolla purple, flat, about one-and-a-quarter-inch across, divided into five broadly egg-shaped, toothed lobes.

This species is found in the central Himalayas at Simla, Chachpur-Tal and the Madhari Pass, at from 7,000 to 10,000 feet above sea-level.

Culture: Plant in good gritty loam in a damp, shady spot, or in a cleft in a limestone rock packed with the above compost.

EFARINOSA (Pax.). Meal-less P.
(Farinosae.)

This plant is allied to P. Knuthiana. It produces rosettes of smooth, non-mealy, somewhat thin leaves, one to two inches long, with oblong blades, broad and blunt at the tip and tapering to a winged stalk; the margins are sharply and irregularly toothed. Flower stem four to eight inches tall, bearing a loose, many-flowered umbel of violet blossoms. Corolla nearly five-eighths-of-an-inch across, divided into five narrowly egg-shaped lobes, with a very deep cleft in the centre of each lobe; the cylindrical tube is but little longer than the calyx.

This Primula is found on the mountains of western Hupeh, central China.

Culture: Afford good, somewhat heavy loam mixed with limestone chippings, in a damp, half-shady spot.

EFFUSA (W. W. Sm.). Free-flowering P.
(Malacoides.)

A tufted, somewhat fleshy, sparsely hispid perennial plant allied to P. Forbesii, and perhaps but a microform of that variable species. The numerous leaves have kidney-shaped blades about two inches across, heart-shaped at the base and usually rounded at the tip; their margins are sharply and more or less equally toothed; they are borne on slender, rounded, hairy stalks, two to five inches long. Flower stems numerous, slender, flexuous, smooth, six to twenty inches tall, bearing two to three superposed umbels of six to eighteen blossoms on slender stalks one to two inches long. Corolla rose or rosy-mauve, with a white eye, about half-an-inch across; lobes wedge-shaped, deeply notched; tube narrowly cylindrical with a ring at the mouth. In some specimens there is meal on the lower surface of the leaf, on the calyces and on the flower stalks.

This shade-loving plant is found on damp banks among Ferns and grasses and on the margins of thickets, in western Yunnan, at 7,000 to 11,000 feet above sea-level.

Culture: Plant in a damp, sheltered, shady spot in the rock garden in good, somewhat heavy loam and leaf-soil.

EGALLICCENSIS (Wormsk.). Greenland P.
(Farinosae.)

This dwarf, arctic perennial is probably a microform of the ubiquitous P. farinosa. It is quite devoid of meal and produces a rosette of smooth, pale green leaves from half-an-inch to one inch long, with diamond-shaped or lance-shaped, blunt, entire blades tapering to winged stalks. Flower stem two to four inches tall, bearing an umbel of two to five white blossoms with a yellow tube, on stalks one-eighth- to one-quarter-of-an-inch long. Corolla about three eighths-of-an-inch across, divided into five narrowly heart-shaped lobes, which are again very deeply divided into two linear segments; tube cylindrical, as long as the calyx.

This species, which is closely allied to P. sibirica, is found in damp, rocky soil in Greenland.

Culture: As for P. efarinosa, but with more sun. *A. W. Darnell.*

(*To be continued.*)

GARDEN MANURES FOR OCTOBER.

THE proper application of suitable manures is an important factor in the routine of garden work for the maintenance of soil fertility, and their application at the right time is equally important. During the less active period of the year, when little growth takes place, there is no need for the application of very soluble manures, as the use of such results in loss. Even dressings of farmyard manure are not entirely exempt from this liability to loss, for on free-draining soils loss of nitrates sometimes occurs in the wet winter months. On the contrary, the convenience of being able to work the dung into the ground at this time of the year doubtless outweighs the relatively small loss of nitrates which may occur, while other organic manures, such as shoddy, feathers, sewage sludge and town refuse, the decomposition of which is a rather slow process in the soil, may certainly be applied advantageously during the autumn and winter.

In the preparation of sites for Roses, shrubs, bulbs and other spring-flowering plants at the present time, the applications of bulky, organic manure will naturally be considered. Animal manures, although difficult to obtain in some districts, are available in others, and may be used freely for such purposes. That from the cow-sheds and pig-styes, being of a cold, sticky nature, may be used more advantageously on light, sandy soils, while stable manure, being of a lighter nature, is of special value in ameliorating the physical condition of heavy soils. Where animal manure is not obtainable, vegetable manure may be employed with equally good results, and in many gardens this is the chief supply of bulky manure.

It is remarkable how much this obvious method of making a supply of excellent manure is still neglected, for in all types of garden refuse there is a store of fertilising matter which should be taken advantage of, and can only be taken advantage of by means of a properly controlled compost heap. Dwellers on the coast should realise that they have a valuable source of organic manure in seaweed, and should follow the lead of the Guernsey and Jersey growers who use it on a large scale in their intensive cultures. As washed up, it frequently contains too much salt to be suitable for direct application to the land, therefore it is a good plan to stack it with other material to decompose. Many vegetable crops seem to derive special benefit from the application of seaweed.

The amount of bulky organic manures of the types mentioned which it is desirable to apply in the preparation of the soils, depends somewhat on the nature of the soils in question. Decayed organic matter is essential to fertility in all soils, and it is one of the great functions of these bulky manures to provide the humus-forming material which exercises such a powerful influence physically, chemically, and as a medium for bacteria. Very heavy dressings of such manures are not, however, necessary or desirable, and the best results are obtained from moderate dressings used in conjunction with the so-called artificial manures.

The value of ground bones for fertilising purposes where lasting qualities are required, should not be overlooked. With some nitrogen content and very rich in phosphates, they are extremely useful in fruit culture, but not less valuable for many other cultures. As bone meal or steamed bone-flour it is obviously more soluble and therefore quicker in action than the actual ground bones. But crushed bones and bone fragments are always worth digging into the soil, especially when preparing for fruit trees, shrubs or even hedges, all of which are destined to occupy the same site for a very long period and frequently receive little attention in the way of manuring after planting. Crushed bones applied in this way disappear very slowly, largely as a result of root action, and it is interesting to see the way in which roots cling to fragments, sometimes years after their application.

As already mentioned, the useful application of inorganic manures at this season is confined to those of a slow-acting nature, and among nitrogenous manures in this category may be mentioned cyanamide. Although by no means a new fertiliser, it is not nearly so largely used in this country as on the continent. It is a combination of nitrogen, calcium and carbon obtained by a process of fixation of atmospheric nitrogen with calcium carbide, at a high temperature, and contains about nineteen per cent. of nitrogen and up to sixty per cent. of lime. In the soil the nitrogen is transformed by a series of changes into compounds which may be taken up by the plant. Because of the relative slowness of these changes it is sometimes used with good effect on the more retentive soils, application being made in autumn. As with most other chemical manures, action is more rapid in highly cultivated soils in good physical condition, and on such soils later applications may be made. The high calcium content helps to maintain the lime supply, but its use should not be regarded entirely as a substitute for liming.

A not unimportant source of potash is found in flue-dust which, although productive of harm if allowed to come into contact with growing crops, is useful when applied to vacant ground during the dormant season. *W. Auton.*

THE GREASE-BANDING OF FRUIT TREES.

As the month of October approaches, it behoves the owner of fruit trees to be prepared for the practice of grease-banding. This method of trapping certain insects is abused by many gardeners, many of whom pass deprecatory remarks on the usefulness of the operation. That this preventive measure is limited in its sphere of usefulness is not to be disputed, nevertheless, it should play an annual part in the scheme of gardening operations. One reason for the lack of enthusiasm is the parrot-like cry of certain people who contend that after applying bands to their trees they still have caterpillars and "wormy" fruits. Persistence in this method of trapping shows clearly that an attack by certain caterpillar is minimised.

Fruit trees are attacked by the larvae of at least six species of moths, the females of which are either apterous or brachypterous, chief among which are the Winter Moth (Cheimatobia brumata), the Mottled Umber Moth (Hybernia defoliaria), and the March Moth (Anisopteryx aescularia). The pupation period of these species is passed in the soil beneath the trees, and the wingless insects, on emergence, make their way up the trunks for the deposition of their eggs on the shoots and branches. The female of one common fruit pest, the Vapourer Moth (Orgyia antiqua) is also wingless, but against this grease-banding is useless, as it pupates on the shoots.

With the increasing area given over to shrub borders in gardens, it behoves the owner of ornamental species of Pyrus, Prunus and Cerasus to apply grease bands to the stems. The choicer varieties of these plants are particularly susceptible to attack by the pests mentioned. These plants, together with fruit trees in small gardens, are often grown in close proximity to Nut and Whitethorn hedges and plantations of Oak and other forest trees, many of which are hosts of Winter, Mottled, Umber and March Moths, and special attention should be paid to such trees so that they are guarded against attack.

Two factors are important for efficiency, and they are:—(1) strong grease-proof, parchment-like paper; and (2) an efficient grease, *i.e.*, a product which is easy to apply, reasonable in cost, not unduly affected by weather (frost, drying winds, saturated atmosphere and hot sun), and remains "tacky" for at least six months.

The bands should be in position by the end of the first week in October and remain on the trees until the end of June. It is often stated that the bands should be removed at the end of March, but observations show that many important pests are captured during May and June. Many female March Moths emerge so late as mid-April. Great numbers of migrating woolly aphides, the larvae of Winter and Green Pug Moths and a leaf weevils (Phyllobius species) are captured during May and June. After heavy rain and high wind, the larvae of many moths are thrown to the ground and may be prevented from returning to the trees by the presence of the bands. Again, during spraying operations against immature capsid bugs, many of them drop to the ground and may be deterred from ascending the trees.

A great waste in time and labour will ensue if no further attention is paid to the bands for, during the early autumn months, large numbers of insects are captured and form natural bridges over which the wingless moths may pass. The bands act as a fly-paper for many insects particularly Winter Gnats (Trichocera), Owl Midges (Psychodidae), Leaf-hoppers (Jassids), winged Aphides and Psyllids, flies (Muscids and Anthomyiids), millipedes (Julus), woodlice and "harvestmen" (Phalangids), and it is necessary to examine the bands periodically and clear them of such captures.

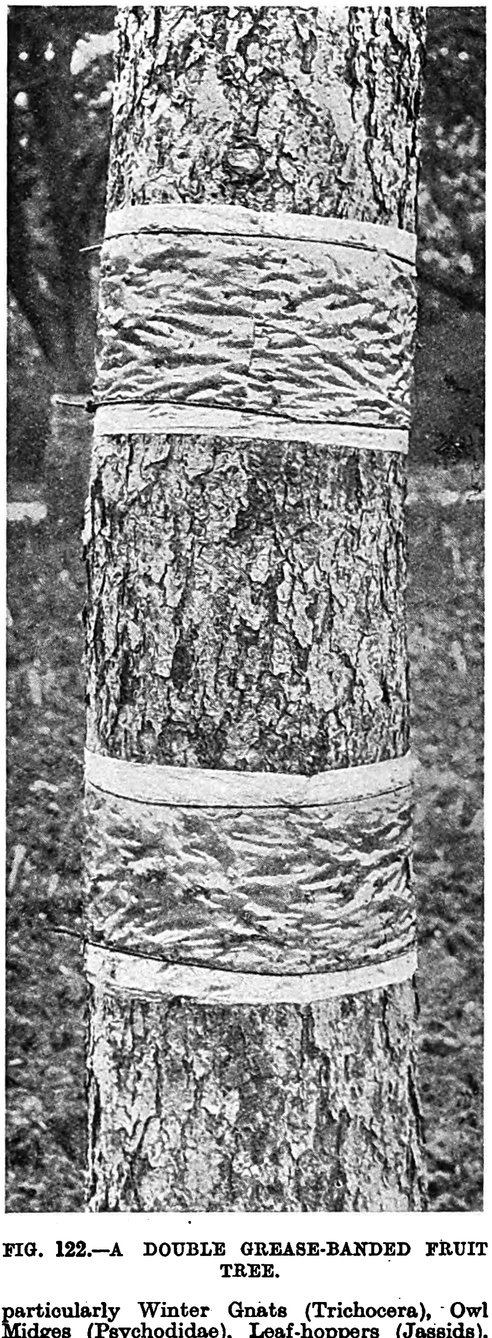

FIG. 122.—A DOUBLE GREASE-BANDED FRUIT TREE.

Stakes to which trees are tied should be banded, and ornamental trees should be kept free from the shoots of neighbouring plants. Female Winter Moths have been observed to crawl on to ornamental Pyrus by way of intertwining shoots of Forsythia.

The bands should be tied securely to the trunks so that no crevices are left beneath. Double-banding (Fig. 122) has given better results as a certain number of moths escape the first band and this may be due to the male carrying the female during pairing.

It is not an economic proposition to band bush fruit trees growing in arable land, for two reasons:—(1) Soil is splashed up to the bands during heavy rains; and (2) great numbers of leaves are blown against the greased paper, both of which form natural bridges. A mulch of straw or herbaceous material, placed around the trees, will minimise this danger somewhat, but the banding of such trees should never be considered unless the bush possesses at least a nine-inch "leg." The height at which bands should be placed on standards and half-standards should be from three to four feet above the ground.

The bands should be at least six inches wide, which allows for just over four inches of grease. It is unwise to apply the grease directly to the trunks by reason of the absorption and consequent blocking of the lenticels. In the eastern United States, however, it is the practice to apply the grease, which is similar in composition to a product known as "Raupenleim" used in German forests, directly to the trunks of street trees as a barrier against the ascending hordes of Gypsy Moth caterpillars.

Grease banding may be practised with excellent results on standard Rhododendrons as a deterrent against the attacks of certain wingless weevils, *e.g.*, the vine and clay-coloured (Otiorrhynchus sulcatus and O. picipes). Standard Roses and pot fruit trees are often infested with ants which ascend the stems and damage the buds, besides transferring aphides from one plant to another, and the presence of a narrow grease band will deter these marauders.

A trial of proprietary greases was carried out by the Royal Horticultural Society during the winter 1923-1924, and the results are published in the *Journal* of the Society (Vol. XLIX, Part II, 1924, pp. 237-241). *G. Fox Wilson, R.H.S. Laboratory, Wisley.*

NURSERY NOTES.

MESSRS. J. CHEAL AND SONS, LTD.

The several members of the National Dahlia Society, and others, who took advantage of Mr. Joseph Cheal's kind invitation to visit the famous Lowfield Nurseries, at Crawley, Sussex, on Monday, September 17, had an unique opportunity of seeing a magnificent collection of Dahlias, numerous varieties of every section, and in addition a number of promising new seedlings, growing under genuine garden conditions.

The Lowfield Nurseries are situated on the main Brighton Road, and the spectacle which greets the passing motorist at the present season may only be described as magnificent. A large square field is devoted to the Dahlias, which are planted closely in broad rows, all all the varieties being grouped together in their sections. Down the centre of the field is a long grass walk, flanked on either side with broad borders containing masses of Mignon varieties; these borders were, at the time of the visit, literally sheets of vivid colouring. Among those which provided the greatest quota of colour we noticed Edith, a good pink and very free; Ethel, crimson; Daphne, deep crimson; and Peter Pan, of the same colour as Coltness Gem, but as seen, lasting much longer in bloom. Pembroke was a good primrose-coloured variety, very free-flowering, with the petals edged and tinged with pink; and Lustre, with vivid scarlet flowers and purplish foliage, was also striking.

Among the single varieties, those which made especial appeal as good border Dahlias were Amy Barillet, with rich scarlet blooms and dark foliage; Beacon, a good yellow; Owen Thomas, with crimson petals tipped with yellow; Kitty, rose-pink with a purple central zone; and Winona, a free-flowering deep velvety-crimson sort. The miniature Paeony-flowered family also included some exceptionally good varieties of wonderful colouring and great freedom of flowering, among the best of them being

Danae, deep velvety-crimson; Favourite, yellow suffused with salmon; Mermaid, a splendid yellow Dahlia; Saturn, rich rose-pink suffused with salmon; Bishop Llandaff, scarlet, with dark purplish foliage; Our Annie, one of the best, and Radium, vivid orange-scarlet.

Among the Collerette varieties, which occupied a considerable portion of the Dahlia display, Glen Devon, purple and white, and very free; Diadem, purplish-rose and white; Lowfield Beauty, orange-scarlet and yellow, and Mrs. Carr, of the same colouring, but with a more pronounced collar, stood out prominently.

Messrs. J. Cheal and Sons, Ltd., are well-known as the introducers of the Star type of Dahlia to commerce, and the display provided by this group at their nurseries amply emphasizes the value of the group from a garden decoration point of view. Each variety, and every plant, was a mass of blooms, and the myriads of spent flowers gave testimony of those that had gone before. The work of improving and adding to this group is still going on, and we noticed several really good, distinct seedlings, while among those already on the market none were better than Rye Star, coppery-orange, tipped with pink; Richmond, apricot-salmon; Burford Star, Haslemere Star, Rowley Star, a fine scarlet; Primrose Star, and Yellow Star.

In striking contrast to these, and the Decorative sorts, from a garden point of view, were the Cactus varieties. The majority of these show too much leafage, the individual blooms being practically hidden by the foliage. The only varieties which were really showy were Guardian, scarlet; Miss Eckert, Mary Murray and Joyce Goddard, described as a garden Cactus.

In the portion devoted to Decorative sorts, several good seedlings were selected and named, among them being Mrs. David Ingamells, a fine white, Camellia-flowered, free-flowering sort; Mrs. J. B. Linford, with geranium-red blooms, also very free and of good habit; Mrs. Charles Hay, approaching cherry-red in colour; and Mrs. D. Campbell, another choice sort with attractive, shapely, rosy-cerise blooms. Among the older named Decorative sorts, but a few of the best were Cheal's Pink and Cheal's Yellow; Cheerful, Oamaru, Red Rover, Lowfield Maroon, Fireman and King Harold, but space will not permit of further discourse upon this magnificent collection.

After tea, the party inspected other portions of the extensive nurseries, covering, in all one-hundred-and-twenty acres, and it is no exaggeration to say that there can be no cleaner nurseries throughout the United Kingdom, for every portion portrayed exceptionally careful cultivation, reflected in the condition of the innumerable and various plants grown.

Roses there were by the acre, although past their best, but mention should be made of the dwarf Polyantha variety, Rodhatte, which was still a mass of blooms. Leaving the Roses, the party passed by acres of Rhododendron bushes, all extremely healthy; through the portions devoted to various shrubs, among which were noticed the fruiting Barberries and Cotoneasters, and Veronicas; through fields of Conifers and forest trees, to the section devoted to topiary, where many excellent examples of this craft were seen, and after the party had inspected the extensive collection of climbing plants, and visited field after field of fruit trees, all were in agreement that no more profitable day, from a horticultural view-point, could have been spent.

NEW PLANT REGISTERED.

The following novelty has been registered by the F.H.P.I. Bureau:—

Rose Soeur Therése.—A Hybrid Perpetual variety of vigorous habit; bud elongated, colour creamy-white; an enormous flower when open, and then of creamy-yellow. Raised and distributed by M. Francis Gillot, Trepillot-Besancon (Doubs.).

REMARKS ON THE CONDITIDN OF THE FRUIT CROPS.

(See Tables and Summaries, Ante. pp. 112-118.)

(*Continued from p.* 235).

ENGLAND, S.

Hampshire.—Fruit crops in these gardens have come up to expectations, as also have those in the neighbouring orchards. Small fruits, as is usually the case, have yielded heavy crops, and although the weather recently has been dry and hot, the Strawberry crop lasted well. Givon's Prolific proved a variety of merit for colour, flavour and prolonging the season. *Frederick Gooch, Bassington House Gardens, Houghton, Stockbridge.*

——Apples are an average crop this year, and the fruits are very clean, while the trees are free from aphis. The Pear crop is decidedly over the average, the fruits being very clean and of good quality. Plums are average and of good quality; Cherries, both Morello and Sweet, were about average and of good quality; and Peaches and Nectarines are above the average, both as to quantity and quality. Apricots are usually poor here, but this year they are a good average crop and the quality of the fruits is good. Small fruits, such as Raspberries, Red and Black Currants and Gooseberries, are wonderfully good, both in quantity and quality, and Strawberries were very fine, carrying large crops of very fine, well-flavoured berries. The soil here is a heavy clay. *W. G. Osborne, Sutton Manor Gardens, Sutton Scotney.*

Kent.—I cannot remember ever having seen Apple trees in such a deplorable condition as they are at the present time. Black spot is prevalent on the leaves, and what few fruits there are, are blotched with scab. Upon enquiry, I hear that both these troubles are very general in this district; I believe that they may be controlled, but it entails a great deal of expense in washes and labour. Damsons and Plums promise good crops, especially where spraying against aphis was done. Owing to the excessively warm and dry weather, Strawberries were over somewhat sooner, than is usual, and owing to the same cause, Raspberries commenced to shrivel early. *J. George Woodward, Barham Court Gardens, Teston, Maidstone.*

——Taking the fruit crops as a whole, in this district they are much below the average. This may be attributed to the continuous wet and cold weather experienced both during the flowering stage and for some time after. The natural soil throughout the district is clay of various kinds, all of which are very retentive percolation of moisture being extremely slow *Arthur W. Carrell, Great Maytham Gardens, Rolvenden.*

——The season generally is a remarkably good one for fruits, which may, no doubt, be due to the amount of sunshine we have had during the past three weeks, and which has been of great benefit to the Cherries and Plums. Loganberries have been very plentiful, but Raspberries were rather smaller than usual, probably owing to the drought. *G. R. Pierce, Huntleys Gardens, Tunbridge Wells.*

——The soil in these gardens is loamy and of fairly light texture, varying from twelve inches to twenty-four inches in depth. The subsoil is a mixture of green sand and clay, overlying Kentish ragstone. All classes of fruit trees produced an abundance of blossom, and the outlook was good, but a spell of cold, easterly winds and late frosts played havoc with Plums, Peaches, Cherries and late Apples. A great quantity of of Apples dropped owing to the hot, rainless weather experienced during July. Strawberries, Raspberries, Gooseberries, Red Currants and Black Currants have been exceptionally good, bearing immense crops. Spraying has been necessary to keep aphis in check. *Henry Brotherston, Lympne Castle Gardens, Hythe.*

——The fruit crops in this district are about average. Apple, Pears and Plums are fairly good, and Damsons are a heavy crop, while the varieties of Plums which are fruiting well are Czar, Belle de Louvain, Monarch and Victoria. Pears are also good, the only poor variety being Conference, the fruits of which dropped badly. The soil here is a heavy loam over chalk. *J. Bone, Olantigh Gardens, Wye.*

——Owing to the bad weather at the flowering season of Pears, Plums and Cherries, the crops are poor, and in Pears the fruits are poor and nearly all are badly scabbed. The later-flowering Apples are coming through in most cases fairly well, but trees which had big crops last year are generally short, except where the fruits were carefully thinned. Peaches and Nectarines under glass did not set so well as usual, for owing to the prevalent cold winds and frosts at the flowering time the houses could not be ventilated sufficiently. Gooseberries withstood the late frosts better than was expected, and Currants also came through undamaged. The first blooms of Strawberries were injured, but, nevertheless, a good crop was produced, and the showers throughout the month of June enabled the fruits to come to perfection. *E. A. Bunyard, Allington, Maidstone.*

——Contrary to the general belief that a good display of fruit blossom cannot be expected after a somewhat sunless summer, such as that experienced last year, never before has there been a greater quantity of blooms than that of 1928, and in general there is a finer display of fruits, although the weather until quite late into the spring was at times anything but favourable to the setting of fruits. Cold, cutting winds brought in their trail the many insect pests that the fruit grower has to contend with, but the adequate rainfall up to the spell of drought was all to the good. Small fruits are, and have been abundant, while the Apple crop is full of promise. The major portion of the soil is more or less of a clayey nature and cracks badly in dry weather. *James Mayne,* 32, *Wigtown Road, Eltham.*

——More than the average amount of blossom was produced on all kinds of fruit trees here. Plums, Cherries, Peaches and Pears had very favourable weather during the flowering period, but Apples had rather an unkind period, with low temperatures at night and north-easterly winds for about a fortnight. Some varieties of Apples, Bramley's Seedling for instance, and Plums, which carried light crops last year, are carrying very heavy crops and have had to be severely thinned. Leaf-scorch is rather prevalent on some varieties of Apples this year. Strawberries, Black Currants, Red Currants and Raspberries have produced heavy crops of fine quality. The soil here is medium to heavy, over clay and rock. *H. E. Kemp, Holmwood Gardens, Langton Green, Tunbridge Wells.*

(*To be continued.*)

PUBLIC PARKS AND GARDENS.

It is announced, in connection with the Dorman, Long and Co. colliery at Bowburn, near Coxhoe, Co. Durham, that plans have been approved for a recreation ground. The estimated cost of the draining and lay-out is £6,000.

At Erith The Ministry of Health will hold an enquiry into an application by the Urban District Council for sanction to borrow £6,400 towards the cost of the purchase of property known as the "Oaks" for the extension of Frank's Park, which is to be acquired at a total cost of £8,000.

Mr. Beresford Heaton, a former Sheriff of Surrey, has presented the National Trust with about fourteen acres of land at the west end of Hackhurst Downs.

HOME CORRESPONDENCE.

The Colours of Flowers.—When *will* some authoritative body take up the question of colour nomenclature and rescue it from its present chaotic state by introducing a colour chart that will be accepted as a standard? I am led to raise the question by the fact that I have been making a hopeless endeavour to select a few hybrid Rhododendrons, relying on nurserymen's descriptions for colour. The following result of my efforts shows that either the hybrids named differ exceedingly in colour, or that the nurserymen have but a vague idea of colour nomenclature:—Helen Waterer: crimson, white margin; white, crimson margin; white, margined rose. The Warrior: crimson, dark shaded; scarlet; rosy-scarlet. Prince Camille de Rohan: rosy-pink; white, bordered rose; blush-pink, spotted purple. Lord Roberts: deep blood-red; rosy-scarlet; deep crimson. Lady Eleanor Cathcart: intense lustrous rose; geranium-rose; pink; rose. Alice: rose-pink; deep rose; bright rose; improved Pink Pearl. There are others, but these are sufficient. One is always in difficulties over this question of colour; at shows, in private or public gardens, in fact wherever flowers are in bloom, rarely can two or three persons agree as to what the various colours really are. Each has his own definition as to what, say, pink is. I had, until a short time ago, when I asked a not unknown artist to give me his idea of pink. Placing some pigment on his palette, he remarked, "That's pink." I was astounded, and now confess complete ignorance of colour definition. And how many are the same as I? Ask the average person if he knows pure blue, and the answer would be a decided affirmative. Ask him to select pure blue from the following pigments: azure-blue, violet-blue, lavender-blue, plum-blue, Prussian-blue, gentian-blue, and sky-blue, and I rather fancy he would be worried. But supposing he was lucky and selected Prussian-blue as pure, he would be completely bowled out if he was asked to *name* the remaining colours. Yet, if he named them all wrong, who could deny him in the absence of a standard colour chart? Nurserymen are as much at fault as the average gardener in mis-naming colours. Take Irises, for instance, and two catalogues at random:—I. aurea: rich yellow; golden-yellow. I. Delavayii: deep violet; deep blue. I. spuria: blue; purple-blue. I. tenax: rosy; mauve, marked yellow and white. Now look at Primulas:—P. Bulleyana: rich apricot; orange and yellow. P. helodoxa: rich gold; golden-yellow. P. japonica: blue; purple-blue. P. Juliae: claret-crimson; purple. And so on through the whole of our flowering plants and shrubs. It might be said that paint merchants are also prone to give several names to the same colour, but it must be remembered that most of the reputable colour firms issue their own named colour chart. And why should not the horticultural world have its standard colour chart? Surely the R.H.S. could produce such a chart, based on Sir A. H. Church's or some other chromatic circle, in enamel, and kept at their headquarters as the standard colour chart. This could then be reproduced as carefully as possible in chromo-lithography and placed on the market for the use of amateurs, nurserymen, show secretaries, etc. Difficulties abound, but not so many or so great that they cannot be overcome. If the desire to produce a standard colour chart is there, such a chart will be produced. In any case, it seems strange that after spending a couple of hundred thousand pounds on a new hall for housing floral exhibitions, the R.H.S. is not in a position to satisfactorily verify the colour of a single exhibit placed there! *Percy E. Chappell (Major), Tredorwin, Nancledra, Longrock, Cornwall.*

Actinidia chinensis.—In your issue for September 15, Mr. Ralph E. Arnold states that Actinidia chinensis rarely flowers in this country. He may, therefore, be interested to learn that one of the plants in the R.H.S. Gardens, Wisley, bore several orange-yellow flowers on short spurs during the summer. This plant is growing out-of-doors on an iron pillar. *B. O. Mulligan, Wisley.*

SOCIETIES.

PAISLEY FLORISTS'.

The one-hundred-and-forty-sixth autumn show of the Paisley Florists' Society was held recently in the Town Hall, and the entries, which numbered close on one thousand, or about four hundred in excess of last year, necessitated the overflow of the vegetable exhibits into a side hall.

Fruits were but poorly represented, but the pot plants and cut flowers made a fine display and vegetables were particularly good, both in number and quality.

In the open section, Messrs. Torrance and Hopkins excelled with twelve vases of Sweet Peas; six vases of Pompon Dahlias; six vases of Chrysanthemums, and a group of cut flowers with a frontage of twelve feet. Messrs. George Mair and Son, Prestwick, had no opposition in the class for twelve spikes of Gladioli, while Mr. Claud Jenkins, Cambuslang, staged the best twenty-four blooms of Collerette Dahlias. This competitor created a new record of successes for the show, with a total of eighteen first prizes in the plant and cut flower section, and ten first prizes in the vegetable classes. The latter included first place for a collection of nine sorts of vegetables.

Mr. James Baxter excelled in the Pansy, Viola and Rose classes, and Mr. D. McArthur was the chief prize-winner in the fruit section; he was first for the collection of four dishes; two bunches of black Grapes, and two bunches of white Grapes; six Peaches, and six baking Apples.

The Silver Cup, presented by Major Brown for competition among amateurs, was awarded to Mr. A. Cook for three varieties of vegetables and three vases of cut flowers.

In the non-competitive classes, the number and excellence of the private, as distinct from trade exhibits, was an encouraging feature. Mr. Robert Shand, Meikleriggs, staged a collection of well-furnished fruit trees in pots, and Sir John Reid, Ardencraig, Rothsay, was represented by well-grown specimens of Lilium auratum, Ericas, Gladioli, Montbretias, Spiraeas, etc.

Major Brown, Westerlia, provided two interesting exhibits. The chief one embraced a group of choice varieties of Begonias, Fuchsias, pot Chrysanthemums and Ferns; while a collection of Dahlias occupied a smaller table.

Although the Corporation Parks Department was responsible for the official floral decorations in connection with the visit of the British Association, Mr. Fleming (Superintendent) contributed to the success of the show by occupying an extensive area of floor space with a large and varied group of ornamental foliage and flowering plants in pots. Handsome Palms, reaching to the base of the balconies, Codiaeums, Abutilons, Fuchsias, Begonias, Impatiens and Dahlias were effectively used in the decorative scheme, while on a separate table in front of the platform were staged Ten-week Stocks, Roses and Sweet Peas in massed formation.

Mr. John Holmes, of the Formakin Hardy Plant Farm, Bishopston, sent a collection of thirty-six varieties of herbaceous cut flowers, and other trade exhibits were furnished by Messrs. John McFee and James Laidler, and Messrs. Torrance and Hopkins.

A seedling Collerette Dahlia, raised by Mr. Claud Jenkins, Cambuslang, was awarded a Certificate of Merit.

BIRMINGHAM AND MIDLAND COUNTIES GARDENERS'.

Members of the above Association recently visited the City of Chester to view the famous gardens at Eaton Hall, by special permission of His Grace the Duke of Westminster, K.G., through the good offices of Mr. N. F. Barnes, V.M.H., the gardener. Luncheon was partaken at the Bars Hotel, and the journey to Eaton was by steamboat from Chester to Eccleston, which was reached about 2 p.m. The party was met by Mr. Barnes at the gardens and conducted by him through the several sections and departments of interest, among which the Duchess's garden made special appeal for a halt to admire the wonderful display of Roses and other seasonable flowers.

The flower garden with terraces in front of the stately mansion was the next halt, and here was to be seen a glorious display of Phloxes, Roses, Antirrhinums, Hollyhocks and Dahlias, all of which were at their best. The Phloxes especially called for admiration, as they are very seldom to be found in private establishments in such massed formation. The Rose garden also was admired and many recent introductions of good things were noted. The glasshouses, both fruit and plant, demonstrated the hall mark of good cultivation, cleanliness and order. Carnations are grown in many thousands, including the best varieties of Malmaison and perpetual sorts. Grapes, Peaches and other choice fruits were to be seen in splendid condition, while the kitchen gardens and hardy fruits also claimed considerable attention.

Votes of thanks were passed by the Chairman, Mr. J. Smith, to His Grace for granting permission to visit these celebrated gardens; also to Mr. N. F. Barnes, for his kindly attention and courtesy in conducting the party. All were agreed that the visit had proved most enjoyable and instructive.

ABERGAVENNY SHOW.

The Abergavenny Agricultural Association is fortunate in being able to hold its annual show in Bailey Park, amid such delightful surroundings. The day was fine and there was a record crowd. The horticultural section continues to improve, thanks to the organising abilities of the Honorary Secretary, Mr. H. J. Rice. This year the number of entries was nearly 1,200, which constitutes a record, and the large marquee was extended by forty feet.

Among the non-competitive exhibits was a group of pot fruit trees from the King's Acre Nurseries, Hereford. The quality was good and the fruits highly coloured and well finished, especially Apples William Crump, The Queen, and Cox's Orange Pippin; while Pears, Figs, and Peaches were shown well. A Gold Medal was awarded to this meritorious display. The same firm also set up a fine collection of Dahlias.

Messrs. I. House and Son, staged beautiful varieties of Scabiosa caucasica, bright Kniphofias, good forms of Montbretia, and a few Roses in their Silver-gilt Medal exhibit. An attractive group was also set up by Messrs. Pitt and Co., Abergavenny, in which Carnations, Lilies and floral designs were conspicuous.

There were four entries in the class for the best trade exhibit, and the first prize, with the Vaughan-Morgan Shield, was deservedly awarded to Messrs. Stephen Treseder and Son, Cardiff, whose effort was artistically arranged, and contained a grand collection of Carnations, Gladioli, Roses and Scabious. Messrs. Townsend and Sons, Abergavenny, were second, and Messrs. Fraser and Brown, Abergavenny, third. These exhibits were quite a feature of the show.

For a collection of Roses, there was only one entrant, *i.e.*, Messrs. J. Barham and Sons, Bassalleg, who were awarded the first prize. The blooms were well-staged, clean, and delightfully fresh. The tall pillars of Golden Emblem, I. Zingari, Etoile de Holland, and Los Angeles, were noteworthy, as also were those of Vesuvius, a bright red, single Rose, suitable for bedding; Elizabeth of York and Margaret McGredy.

The class for table decorations was well filled, a remark which also applies to most of the flower classes. Unfortunately, some of the exhibitors failed to note the difference between kinds and varieties, consequently the judges had no option but to disqualify a few fine exhibits among the annuals and herbaceous subjects.

For herbaceous cut flowers, Col. B. Herbert, Trebincyn, was placed first, with a beautiful group of Gladioli, Heleniums and Kniphofias. This exhibit also secured a special prize. The classes for Dahlias, Asters and Gladioli were very well filled, and some excellent flowers shown.

The class for a collection of vegetables resulted in the staging of six first-rate exhibits, and the first prize and Challenge Cup were secured by

Mr. T. Bowen, Abergavenny, with excellent produce. Mr. A. Turner, Aberaman, was second, and Mr. L. R. Pym, Penpergwm, third. There was keen competition throughout the classes for Potatos, and the champion dish of Arran Comrade was staged by Dr. Towney, Abergavenny.

For a collection of twelve dishes of hardy fruits, the first prize, together with the Challenge Cup, was again won by Miss C. Solly Flood, Porthmawr, with fine examples of Morello Cherries, Pears, Plums and Apples. Mr. A. B. Thomas was second, and Lord Treowen, third. In the Grape class, the exhibit from Llangattock Park was placed first, and Captain Hincks, Hereford, was second.

The farmers' and amateurs' sections were remarkable both for the quality and the number of exhibits, while bottled fruits, etc., were shown extensively.

The Monmouthshire County Council filled a tent with a display of great interest and educational value, and here the gardener and farmer could glean much knowledge.

Among the special awards, a Gold Medal was given to the King's Acre Nurseries, Hereford, for an exhibit of early-flowering Chrysanthemums and Dahlias, also a Silver Cup for the best non-competitive group in the show. A special prize was awarded to Mr. T. Bowen, Aberaman, for his collection of vegetables, the trade being excluded from competing for this award.

Altogether, it was a grand show, and the officials, and especially the Honorary Secretary, are to be congratulated on the admirable way in which all the business was carried out.

ROYAL HORTICULTURAL.

The following awards have been made to the undermentioned flowers by the Council of the Royal Horticultural Society, after trial at Wisley.

Awards of Merit.

Annual Phloxes.—5, 7, *P. grandiflora alba*, sent by Messrs. Dobbie and Co., and Messrs. Barr and Sons; 9, *P. Giant White*, sent by Messrs. A. Burpee and Co. (these three are alike); 11, *P. grandiflora oculata*, sent by Messrs. Barr and Sons.

Perennial Phloxes.—1, *P. Rachel*, sent by Mr. H. Aldersey; 2, *P. Amami*, sent by Messrs. Fairbairn and Sons; 5, *P. Sweetheart*, sent by Messrs. Rich and Cooling; 7, *P. Evangeline*, sent by Mr. H. J. Jones.

Lobelias.—Cardinalis type: *The Bishop*, sent by Mr. Reid.

Gladiolus.—G. primulinus grandiflora type: *Dragon Lyonnais*, sent by Messrs. H. Prins.

Annual Sweet William.—*Sweet Wivelsfield*, sent by Messrs. Allwood Bros.

Highly Commended.

Annual Phloxes.—1, P. nana compacta Snowball, sent by Messrs. Barr and Sons; 2, P. nana compacta White, sent by Messrs. Watkins and Simpson (these two are alike); 38, 39, P. nana compacta Fireball, sent by Messrs. Watkins and Simpson and by Mr. W. H. Simpson; 41, 42, 43, P. grandiflora coccinea, sent by Messrs. Barr and Sons, Messrs. Benary and Messrs. R. Veitch and Son (the last four are alike); 47, P. grandiflora Scarlet, sent by Mr. Morris; 57, P. Red Prince, sent by Messrs. Barr and Sons; 50, P. grandiflora stellata splendens, sent by Messrs. Barr and Sons; 76, P. Paragon Dwarf Mixed, sent by Messrs. E. Webb and Sons; 80, P. Drummondii Mixed, sent by Mr. Spruijt.

Godetia.—Double Shell Pink, sent by Messrs. Sutton and Sons.

GERMAN HORTICULTURAL.

As in former years, the German Horticultural Society organised from August 17 to 21 an exhibition of Dahlias and summer flowers. The number of visitors was exceptionally high, there being about 13,000 paying for admission, and of this number only about one thousand were children or others admitted at half price for special reasons; but the price of admission was low, the figure for the first four days being only one mark, reduced for the fifth day to fifty pfennigs. The firm of Ewald Dröge, of Berlin-Lichterfelde, arranged a rock garden in a corner of one of the large halls of the Town Hall, and this was the rendezvous of the exhibition. All the flowers and plants were well arranged and displayed to advantage, especially the various Heaths and Astilbes. Wilhelm Majunka, Berlin-Spandau, showed cut Dahlias and hardy flowers, among which the Phloxes were noticeably good; especially Europa, white with a red eye; Hindenburg, fiery carmine red, and Württembergia, crimson. Ernst Benary, of Erfurt, showed Gloxinias, including novelties for 1929, viz., Donau, white and violet; and Rhein, white and deep pink. Paul Reichardt, of Berlin-Mariendorf, had a fine collection of Dahlias, including the well-known sorts Goldene Sonne, Wahre Freude and Riesen-Kriemhilde, while the Weigelt firm showed Antirrhinums, including a novelty to be sent out in 1929 under the regrettably cumbrous name of A. Riesen-Bukett-Feuer-Fackel. Wilhelm Pfitzer, three of whose Gladiolus novelties received Awards of Merit at the British Gladiolus exhibition on August 10, showed Gladioli in great numbers and of excellent culture, including Pfitzer's Triumph, Andenken and Wilhelm Pfitzer, and Paul Pfitzer. Roses were shown by the firm of V. Teschendorf, Cossevaude, near Dresden, who in honour of their approaching twenty-fifth business anniversary have named a new Polyantha Rose Teschendorff-Jubiläumsrose. This was on view, and also the new Gloria Mundi. The same firm exhibited several Dahlia novelties. Roses were shown by W. Kordes-Söhne, of Sparrieshoop, and by Math. Tantau, Uetersen.

DUNDEE HORTICULTURAL.

The Dundee Horticultural Association held its annual exhibition on Magdalen Green, Dundee, on September 6, 7 and 8. The entries were a record number, being 450 above those of last year, and several hundreds higher than the great centenary show in which the Association excelled all previous records. The outstanding feature was the vegetable section, there being upwards of six hundred entries. The fruit sections, too, were very full, and the plants in pots made a grand show, both in quantity and quality.

Notwithstanding a season abounding in climatic vagaries, the display of pot plants was remarkably fine. From Miss Gibson (gr. Mr. George Reid), Invertay, came the premier winning entries, numbering no fewer than thirteen first and two second prize exhibits. These included first prizes for four plants; for exotic Ferns; Pelargoniums, single and double; a specimen plant in flower; British Ferns; Palms; and lastly, a magnificent collection of alpines, for which a special prize was given. Another outstanding winner here was Mr. T. C. Brown, Balcairn, his Begonias, single and double, extorting great admiration. Mr. George Bonar (gr. Mr. Martin Taylor), The Bughties, Broughty Ferry, scored successes for Liliums, Lilium auratum, Coleuses and Cycas. The best Chrysanthemums came from Mr. W. Hunter, Delvine Gardens, and among his other successes, Mr. W. D. Grieve, Hazelwood, took leading place for the best specimen foliage plant.

The cut flower section proved very popular. The leader here was Mr. George Reid, Rouken Vale, Downfield, who took first places for a hand bouquet; a basket of Roses; a lady's spray; and for a display of Sweet Peas. The latter achievement won for him the Challenge Trophy, presented by Mr. D. J. Macdonald. Sweet Peas were also successfully shown by Mr. James McIntosh, Rosehill Cottage, Cornhill Road, Aberdeen; Mr. A. S. Dow, Darnaway Castle, Morayshire; and Mr. F. Wheeler, Alicebank, Tayport. From Binrock Gardens (gr. Mr. J. Beats), came the finest Chrysanthemums, herbaceous flowers and annuals, and Mr. D. Beats, Taybank, had the best wreath of flowers. Mr. Charles Bricknall, Fernbrae Nursing Home, and Mr. J. M. Robertson, Balmullo, shared the honours for Carnations.

Displays of Roses were provided by Messrs. D. and W. Croll, Dundee, and Messrs. C. Arnot and Son, Forfarshire. To old stagers—using the word in the literal sense—there is a tinge of regret in the passing of old favourites. To many of us yet the two Dicksons—George and Hugh—Madame Abel Chatenay, Frau Karl Druschki, Madame Ravary, Caroline Testout and The Queen, supply the lasting pride of the Rose border. Really the newer products of the very best class, such as Colonel Fitzgerald, Mrs. Henry Bowles, Lady Inchiquin, Mrs. Lamplough and Betty Uprichard, are hard put to it in their contest for supremacy with their elders. Among gardeners, Mr. F. Wheeler, Alicebank, led well for Roses; Mr. James Smith, Crawford Priory, for Collerette Dahlias; Mr. W. Hunter, Delvine, Murthly, for six vases, distinct, of Dahlias; Mr. C. Bricknall, Fernbrae Nursing Home, for Asters; and Mr. A. Armit, Rathillet, Cupar, for Antirrhinums.

Both in quality and tone, the exhibits of fruits were most commendable. Grapes were shown well, Mr. W. M. Willocks, Balruddery House, leading for four bunches of not less than three varieties; and for Black Hamburgh Grapes. Lord Kinnaird (gr. Mr. J. McGregor), Rossie Priory; Colonel Tyrie (gr. Mr. T. Dobbin), St. Helens, and Mr. J. A. Nicol, Tay Park, led in the other Grape contests. For Melons, Peaches and Nectarines, the chief honours went to Rossie Priory, Lismore and Balruddery House. For six dishes of hardy fruits, selected from Apples, Pears, Plums, Apricots, Cherries, Gooseberries, Raspberries, Red and Black Currants and Strawberries (grown in the open in Scotland), the leading entries were staged by Mr. Robert Duncan, Old Montrose, and Mr. A. S. Dow, Darnaway Castle. Apples were shown well and Plums looked most delectable, while there was also keen competition in the classes for both dessert and cooking Pears.

Some remarkably fine exhibits of vegetables were shown. The blue ribbon of the exhibition—the Dundee Corporation Cup—was awarded to the best collection of vegetables, twelve kinds, distinct, arranged on a space not exceeding seven feet by four feet. Mr. Herd, of Balancraig, Broughty Ferry (gr. Mr. Peter Kerr), gained the Trophy with a superb collection. For the best collection, six distinct sorts, the honours went to the Lismore Gardens. Mr. David Dalrymple, Rathclune, showed the best Leeks, Onions (white), Carrots, Beet, Kidney Beans, Potatos (kidneys excluded), and kidney Potatos.

The amateur sections were all well filled, and the Corporation Cup was worthily awarded to Mr. David Smith, Heron's Lane, Dundee, for a grand display of cut flowers.

Outstanding features of the exhibition were the non-competitive exhibits by leading florists and seedsmen; such firms as Messrs. Storrie and Storrie, Messrs. George Paton and Son; Messrs. Laird and Sinclair; Messrs. James Laurie and Son; Messrs. D. and W. Croll; Messrs. W. and E. Dryden and others, providing magnificent displays. The Society was also indebted for special exhibits to the Earl and Countess of Strathmore, Glamis Castle; the Earl of Moray, Darnaway Castle; and Mr. Cox, of Glendoick. The last-named gentleman, after visiting the show, presented a handsome Cup for the amateur section.

It may truly be said that the counties of Perth, Fife and Angus are finely served by the Dundee Horticultural Association, and to their infinite credit be it said, the gardeners of these areas give of their very best to make the annual exhibition on Magdalen Green one of the finest in the United Kingdom.

NATIONAL CHRYSANTHEMUM.

September 10.—The Floral Committee held their first meeting this season at the Horticultural Hall, Westminster, on this date, when there was a good attendance and more novelties than is usual at this season were considered. Mr. D. B. Crane was unanimously elected Chairman of the Committee for the twenty-fifth successive year. Before the general business of the Committee was dealt with, Mr. Crane made a very sympathetic reference to the great loss the Committee had sustained through the recent sudden death of Mr. H. J. Jones, and a vote of sympathy was passed, silently, the members standing.

Thirteen new seedlings, all of the early-flowering type, were submitted. The Committee wished to "see again" the yellow variety, Champion, shown by Mr. H. Shoesmith, junr. and made the following awards :—

First Class Certificates.

Pink Domino.—The award to this bright mauve-pink variety was for its merits as a border plant. It is a well-formed flower, and the plants are said to become about three feet in height. This and the following variety were shown by Mr. A. W. Thorpe.

Robin.—An exceedingly attractive, free-flowering variety recommended for the border and for cut sprays. The rounded, compact flowers are somewhat reflexed and of bright reddish-chestnut colour.

Old Gold.—This variety, which has larger flowers, is also recommended as a border plant and for cut sprays. It is of old gold colour, lightly shaded with bronze.

Warrior.—A finely-formed, fully double flower of warm Indian-red colour. This and the above variety were shown by Mr. H. Shoesmith, junr.

The Ashes.—This is quite the best of the early-flowering spray varieties. It is of dwarf, compact habit, good size and form, and of bright golden-yellow colour. Shown by Mr. W. T. R ts.

ANSWERS TO CORRESPONDENTS.

Antirrhinum Plants Diseased.—*E. G. C.* The Antirrhinums are attacked by the fungus Phyllosticta Antirrhini, which is described by Mr. W. Buddin and Miss E. M. Wakefield in *The Gardeners' Chronicle,* Vol. LXXVI, 1924, p. 150. It was not possible to determine the cause of the disease in the one Viola plant sent.

Bulbs Attacked by Insect Pest.—*D. W. T.* From the scanty material sent, it appears that both the Iris and Gladiolus have been hollowed out by some insect.

Begonias Diseased.—*H. F. N.* The plants are attacked by Botrytis cinerea. Keep the plants as dry as possible, and remove all dead or dying vegetable debris from the neighbourhood.

Huckleberry.—*Ponica.* The large berry, No. 1, is Solanum nigrum var. Douglasii. It is known in America as the Huckleberry; but the original Huckleberry was the fruit of the species of Gaylussacia, belonging to the Vacciniaceae. One of the best-known members of this Order is the Whortleberry, or "Hurt" (Vaccinium ovalifolium). Another member of the same order was also gathered and eaten as Huckleberry. The small-berried plant (No. 2) is the form of Solanum nigrum known as the Wonderberry of Burbank. A number of people in this country have stewed or otherwise cooked the berries, and one correspondent who had eaten the best part of a quarter-of-a-pound of them after stewing them, said they had no pronounced flavour, but he would range them with Blackberries. They had done him no harm. This being so, the larger berry, named Huckleberry, should be as harmless, after being cooked. They could be tried in moderate quantity at first, because not everyone is affected the same way.

Laburnums Failing.—*W. P.* Your seedling Laburnums would appear to be growing under crowded conditions, and the falling of the leaves and withering of the growing points is probably due to lack of food, combined with insufficient moisture. The roots and stems are quite healthy and the majority of the plants should recover if transplanted in the near future.

Melon Diseased.—*G. F. G.* The specimen was much rotted on arrival and in a condition which made diagnosis of the trouble difficult. The disease is probably foot rot, described by Dr. Bewley, *Diseases of Glasshouse Plants,* p. 124.

Muscat of Alexandria Grapes Disfigured.—*Spot.* As you are so confident that the rust on your Muscat of Alexandria was not caused at thinning time, or later, by any rubbing which disfigures them when ripe, other causes must be looked for. Cold draughts of air, especially while the Grapes are young; over-heated pipes; a dry, parched atmosphere; or sulphur applied to hot pipes to destroy red-spider, are all sure causes of rust. Although no red spider could be found on the berries, the marks are exactly the same as those caused by thrips and red spider. Sudden chills, such as by having the house very close and moist and then, on some bright morning, admitting too much cold air suddenly, are frequent causes, and Muscat of Alexandria is one of the varieties most likely to be affected. Follow up these suggestions, and we do not think you will be troubled further with the rusty markings on the berries.

Names of Plants.—*J. P. F.* Lychnis coronaria —*W. H. M.* 1, We do not undertake to name florists' flowers, but if you took them to a local nurseryman, he would no doubt name them for you; 2, Lilium chalcedonicum (probably); 3, Tradescantia virginiana.—*W. E. M.* Eccremocarpus scaber, from Chile.—*A. E. R.* Tradescantia virginiana.—*J. H. E.* Maritime Pine, *i.e.*, Pinus Pinaster.—*R. P.* 1, Zephyranthes candida; 2, Coriaria terminalis var. xanthocarpa; 3, Hedysarum multijugum; 4, Hardenbergia monophylla.—*H. F. B.* 1, Francoa sonchifolia; 2, Pyracantha Lelandii; 3, Lathyrus sativus.—*M. A. R. H.* Exacum affine; treat as an annual.—*S. U. N.* 1, Quercus coccinea; 2, Pyrus arbutifolia; 3, Acer dasycarpum var. laciniatum; 4, too withered; 5, Crataegus Crus-gallii var. ovalifolia; 6, C. coccinea var.; 7, Tsuga Pattoniana; 8 and 9, too withered.—*W. McG.* Violas: 1, not recognised; 2, V. gracilis; 3, a species, not recognised; Hypericums:—1, H. Buckleii; 2 and 3, H. elatum; Silene: (1) S. Schafta; Veronicas:—1, V. pimeleoides var. minor; 2, V. elliptica; 3, V. buxifolia; 4, V. diosmaefolia; 5, V. cupressoides; 1, send in flower; 14, probably Ranunculus Ficaria; 15, not recognised, send in flower; 16, Thymus Serpyllum variety; 17, Linaria, probably a form of L. purpurea.—*J. K. and S.* The specimen arrived in a very shrivelled condition, but we believe it to be Calceolaria Camden Hero.—*J. C. G.* Crinum Moorei.

Names of Fruits.—*H. E.* 1, not recognised; 2, Devonshire Quarrenden; 3, Worcester Pearmain.—*W. E.* 1, 2, 3, 4 and 6, Pitmaston Duchess; 5, Beurré Diel.—*C. M., Hunts.* 1, Too damaged for identification; 2, Plum Washington; 3, Goliath; 4, Pond's Seedling; 5, Kirke's; 6, Apple Beauty of Kent; 7, not recognised; 8, decaved when received.—*W. P. C.* 1, Beurré d'Amanlis (syn. Beurré Backhouse); 2, decayed when received.—*C. H.* Worcester Pearmain.—*Altho.* Plum Pond's Seedling. 1, Williams's Bon Chrêtien; 2, Souvenir du Congrès; 3, probably Charles Ross; 4, Celini.—*A. W.* 1, probably Souvenir du Congrès; 2, Doyenné du Comice; 3, Souvenir du Congrès; 4, Clapp's Favourite; 5, Marie Louise; 6, probably Catillac; 7, fruit damaged, not recognised.

Peaches Rotting.—*H. W.* The Peach sent was so much decayed that it afforded no evidence. It is very difficult, even under the most careful cultural treatment, to grow Grapes and Peaches successfully in the same house. Peaches on the back wall of a vinery cannot obtain the light and air necessary to ripen their fruits properly. Give a dressing of lime to sweeten the soil, and add some old lime rubble to the winter top-dressing to help in the formation of the stones and so assist in the better ripening of the fruits.

Prunus Dying.—*J. S.* There is nothing in the soil that would account for the decline of your Prunus. It would appear as if fungus has attacked roots that were injured while digging the border, or the base of the stem may have been injured. There is nothing either in the specimen or soil received that indicates the cause of the trouble.

Rhododendron Failing.—*S. H. S.* The appearance of the Rhododendron shoot suggests that the roots are not active, and that the soil in which they are planted is sour. Sandy soil into which a little peat has been dug is often a better rooting medium than a considerable depth of imported peat. It may be that your peaty soil is badly drained.

Spiraea compacta coccinea: Rock Plants with Berries, etc.—*J. M.* (a) We cannot find the name Spiraea compacta coccinea; it may be, as you suggest, a variety of S. bullata. You should enquire at the source of supply; (b) Actaea alba, A. spicata, A. spicata var. rubra; Podophyllum Emodii and P. peltatum. We are not aware that any of the Clintonias are in cultivation; C. borealis is generally regarded as being the most effective for the garden; (c) There are no varieties of "Lenten Roses" that have pure white or pink flowers; (d) Polygala lutea, a native of America, is a good species; (e) Saxifraga Gloria fimbriata we do not know, but it would appear to be a variety of S. Burseriana; (f) You probably mean Rhododendron Cunningham's Sulphur, or R. Cunninghamii (R. maximum × R. arboreum); 9, No. Do you mean a species or one of the numerous forms of Trollius europaeus ?; 10, we do not know any Fragaria to answer your purpose, as any species in cultivation, other than the ones you mention, are too rampant growers; 11, we do not know the varieties of Myosotis you mention; 12, Dianthus graniticus is a native of the Pyrenees and south France, while D. Griesbachii is from Bulgaria; 13, we do not know of any nurseryman who offers Atraphaxis Billardieri; 14, it is not unusual for Cassinia fulvida to flower out of season.

Spruce Injured.—*S. H. S.* The branches of Spruce received for examination have been injured by Spruce aphis (Aphis abietina), earlier in the year. This insect is small, green in colour, and is very provalent between March and July. The best remedy is to spray affected plants once a week for a period of four or five weeks during late March and early April with a paraffin wash, then, if insects appear again at a later date, resume the spraying.

Strawberry Flowers not Developing.—*J. H. F.* No fungus is concerned, the question is purely horticultural.

Vines Dying.—*W. S. G.* The pieces of Vine sent provide no clue to the cause of dying back. The trouble is probably at the roots.

Wasps on Dahlia Stems.—*J. S. B.* The only way to prevent the wasps doing the damage which you suggest they are, is to provide some counter attraction such as jars placed here and there, containing a mixture of stale beer and sugar.

Yew Hedge Dying.—*W. Y. E.* While it is not possible to state, from the appearance of the Yew shoots received for examination, the reason of their death, they suggest that the trouble has to do with dead roots. It is possible that at some period, perhaps several years ago, the ground has been waterlogged, and that some of the roots have been killed, or fungus may have spread to the roots from dead roots of trees some distance away.

Communications Received.—D. A.—A. Y. C.—H. M.—A. E.—W. R.—R. G.—E. A.—A. T. J.—T. W. B.—W. J. B.—R. A.—H. G. C.—H. F.—F. S. B.—W. L.—M. B.—A. C. B.

MARKETS.

COVENT GARDEN, Tuesday, September 25, 1928.

WE cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in the day.—EDS.

Plants in Pot, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz. ...	10 0–12 0
—elegans	10 0–12 0
Aralia Sieboldii	8 0– 9 0
Araucarias, per doz. ...	30 0–40 0
Asparagus plumosus ...	12 0–18 0
—Sprengeri ...	12 0–18 0
Aspidistras, green ...	16 0–60 0
Aspleniums, doz.	12 0–18 0
—32's ...	24 0–30 0
—nidus ...	12 0–15 0
Asters, white and coloured ...	9 0–12 0
Cacti, per tray, 12's, 15's ...	5 0—7 0

	s. d. s. d.
Chrysanthemums per doz. ...	12 0–18 0
—white, per doz.	15 0–18 0
—yellow, per doz.	12 0–18 0
—pink, per doz.	18 0–21 0
—bronze, per doz.	12 0–18 0
Crotons, per doz.	30 0–45 0
Cyrtomiums ...	10 0–12 0
Kochia, per doz.	15 0–18 0
—60's	9 0–12 0
Lilium longiflorum, 48/32's ...	15 0–21 0
Nephrolepis in variety ...	12 0–18 0
—32's ...	24 0–36 0
Palms, Kentia	30 0–48 0
—60's ...	15 0–18 0
Pteris in variety	10 0–15 0
—large, 60's ...	5 0—6 0
—small ...	4 0—5 0
—72's, per tray of 15 ...	2 6—3 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	9 0–10 0
—cuneatum, per doz. bun. ...	5 0—8 0
Asparagus, plumosus, per bun., long trails ...	2 6—3 0
—med. sprays	2 0—2 6
short ,,	— 1 0
—Sprengeri, bun. long sprays	2 0—2 6
med. ,, ...	1 0—1 6
short ,, ...	0 6—1 9
Asters, white, per doz. bun. ...	2 0—4 0
—pink, per doz. bun. ...	2 0—5 0
—single var., per doz. bun. ...	2 6—3 0
—mauve, per doz. bun. ...	4 0—8 0
Carnations, per doz. blooms	2 0—4 0
Chrysanthemums—	
—white, per doz. blooms ...	2 0—3 6
—yellow, per doz. blooms ...	2 0—3 6
—bronze, per doz. bunches ...	5 0—8 0
—bronze, per doz. blooms ...	2 0—2 6
—pink, per doz. bunches ...	8 0—9 0
—pink, per doz. blooms ...	3 0—4 0
Coreopsis, per doz. bun. ...	1 0—1 6
Cornflowers, blue, per doz. bun.	2 0—2 6
Croton leaves, per doz. ...	1 9—2 6
Daisies, large white, per doz. bun. ...	2 0—2 6
Fern, French, per doz. bun.	10 0–12 0
Forget-me-nots, per doz. bun.	10 0–12 0
Gaillardia, per doz. bun. ...	2 6—3 6
Gladiolus, giant varieties, coloured, per doz. spikes ...	2 0—2 6
Heather, white, per doz. bun.	9 0–10 0

	s. d. s. d.
Lily-of-the-Valley, per doz. bun.	18 0–30 0
Lilium longiflorum, long, per bun.	3 0—3 6
— — short, per doz. blooms	3 0—3 6
—speciosum, long, per bun. ...	3 6—4 0
— — — short, per doz. blooms	2 6—3 6
— speciosum rubrum, long, per doz. ...	3 6—4 0
— — — short, per doz. ...	1 6—2 6
Marigolds, per doz. bun. ...	2 0—3 0
Myrtle, green per doz. bun.	1 6—2 6
Orchids, per doz.	
—Cattleyas ...	36 0–60 0
—Cypripediums	10 0–15 0
Physalis, per doz. bun. ...	12 0–30 0
Roses, per doz. blooms—	
—Mme. Butterfly	2 6—3 6
—Columbia ...	2 6—3 6
—Golden Ophelia	1 6—2 6
—Richmond ...	2 0—3 0
—Aaron Ward	1 0—1 6
—Roselandia	2 0—3 6
—Hoosier Beauty	3 0—4 0
—Molly Crawford	1 6—4 0
Scabiosa caucasica, per doz. bun.	4 0—5 0
Smilax, per doz. rails ...	4 6—5 0
Statice sinuata, blue, per doz. bun. ...	4 0—6 0
— —white, per doz. bun. ...	4 0—6 0
— — pink, per doz. bun. ...	4 0—6 0
— — yellow, per doz. bun. ...	5 0—8 0
Stephanotis, 72 pips ...	2 6—3 0
Stocks, white, per doz. bun. ...	4 0–10 0
— — mauve, per doz. bun.	6 0—8 0
Sweet Sultan, white, per doz. bun. ...	2 6—3 0
— —mauve, per doz. bun. ...	2 6—3 0

REMARKS.—Business in the cut-flower department continues slow, Chrysanthemums being still very abundant and prices correspondingly low. With the advent of cooler weather the supplies of Lilium longiflorum blooms and Carnations are shorter, and the prices of these have advanced favourably. Roses continue to be plentiful and the blooms are arriving in excellent condition, Asters also, in general, being of good quality.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples, English—	
—Cox's, Orange Pippin ½-bushel	8 0–12
—Worcester Pearmain, case ...	16 0–20 0
—extra special, ½-case ...	7 0—9 0
—special, ½-case	— 7 0
—Lord Derby, per bushel ...	5 0—7 0
—James Grieve, ½-case ...	4 0—8 0
—Lanes ...	4 0—7 0
—Warner's King	5 0—7 0
Apples, Nova Scotian—	
—Gravenstein, per barrel ...	17 0–21 0
Apples, Californian—	
—Gravenstein...	11 0–14 0
—Newtown ...	11 0–13 0
Bananas, per bun. ...	13 0–25 0
Figs, hothouse, per doz. ...	3 0—6 0
Grapes, English—	
—Muscat of Alexandria, per lb.	2 0—5 0
—Alicante ...	1 3—2 0
—Canon Hall Muscat per lb.	2 0—6 0
—Black Hamburgh, per lb. ...	1 0—2 0
Grape Fruits—	
—Porto Rico ...	30 0–37 6

	s. d. s. d.
Grapes, Guernsey—	
—Muscat of Alexandria ...	1 3—1 9
—Canon Hall Muscat ...	1 9—2 6
—Black Hamburgh ...	0 9—1 2
—Gros Colmar...	1 0—1 6
—Almeria, per barrel ...	20 0–24 0
Lemons, Messina and Palermo, per case ...	40 0–45 0
—Naples ...	40 0–65 0
Melons, hothouse, each...	1 0—4 0
—Cantaloupe, each ...	1 6—3 0
—Valencia, 24's and 36's ...	17 0–18 0
Oranges, Valencia Late	20 0–25 0
Peaches, hothouse, per doz.	6 0–24 0
Pears, per ½-sieve—	
—Williams's ...	5 0—6 0
—Fertility ...	4 0—6 0
—Conference ...	4 0—6 0
Pineapples, each	2 0—5 0
Plums, English, Monarch, ½-case ...	10 0–16 0
—President ...	12 0–14 0
—Damson ...	8 0–10 0
—Pond's Seedling	12 0–18 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans—	
—French, ½-bush.	3 0—3 6
—Guernsey, per lb.	0 6—1 0
—Scarlet Runner, half bag ...	4 0—5 0
Beet, per bag...	5 0—6 0
Cabbage, per box	3 0—4 0
Cucumbers, doz. 36's, 42's, 48's	10 0–14–0
Lettuce, Cabbage, English, doz.	2 0—3 0
—Cos	2 0—3 0
Marrows, outdoor, per tally ...	5 0—7 6
Mint, per doz bun. ...	1 0—1 6

	s. d. s. d.
Mushrooms—	
—cups ...	3 0—4 0
—broilers ...	2 0—2 6
Peas, English—	
—flats, special	8 0–10 0
Potatos—	
—English, cwt.	6 0—8 0
Tomatos, English, pink ...	2 6—4 6
— — pink and white ...	2 6—4 6
— — white ...	1 6—2 6
— — blue ...	1 6—2 0
—Dutch, 28 lb. box	2 0—2 6
—Guernsey ...	1 9—2 6
—Jersey ...	1 9—2 0

REMARKS.—Trade in most sections of the market has been rather slow during the past few days, but just now there is a tendency towards improvement. Stocks of English Apples, available have been augmented by considerable quantities from the United States, British Columbia, and Novia Scotia, and it is not surprising that values for even well-graded home-grown Apples are lower. Grapes are plentiful and consist mainly of English Gros Colmar, Black Alicante and Muscats, as well as heavy supplies of Belgian and Dutch produce. Other choice fruits, such as Figs, Peaches and Melons, show some improvement upon conditions ruling a week ago. The Tomato trade has been through a depressing period, from a producer's point of view, but values have now taken an upward movement, which it is hoped will continue. Cucumbers are not so plentiful as of late and quotations are steady. A few Plums have been marketed, consisting of fruits of Pond's Seedling, President and Monarch, and these have realised firm prices. A few Pears have also been available and have sold comparatively well. Some hothouse Beans from Worthing and Guernsey have found a good market, in spite of competition of out-of-door Beans; Mushrooms are not plentiful, but prices are slightly easier, and salads remain a steady market, with little variation in prices. The Potato section has ample stocks on offer, but prices keep fairly stable.

GLASGOW.

The demand for cut flowers was not so good last week, business being adversely affected by the wet weather. Disbudded Chrysanthemums realised the following prices: Debutante, 1s. 3d. to 1s. 9d. for 6's; Alcalde, 1s. to 1s. 6d.; Harvester, 10d. to 1s. 3d.; Sanctity, 9d. to 1s. 4d.; and Mrs. Roots, 6s. per dozen. Sprays fluctuated between 2d. and 5d. per bunch. Carnations ranged from 1s. to 2s. 3d. per dozen; pink Roses, 2s. to 3s.; white and red Roses, 1s. to 2s.; Richardias, 2s. to 2s. 3d. per bunch; Lily-of-the-Valley, 2s. 6d.; Dahlias, 6d.; Calendulas, 2d. to 4d.; Smilax, 1s. to 1s. 6d.; and Ferns, 6d. to 9d.

In the fruit market, Plums continued in plentiful supply, Victorias being worth from 2½d. to 3d. per lb.; Monarch, 3d. to 5d.; and Damsons, 10s. to 11s. per half-sieve. Cooking Apples sold at 14s. per keg for No. 1 grade, and 12s. for No. 2; York Imperials made 20s. to 25s. per barrel; and Gravensteins, 14s. 6d. to 15s. per case. Lemons were dear at 30s. to 33s. per case. Beurre Hardy Pears realised 10s. to 11s. per half-case; Colmar Grapes, Scotch-grown, 4s. to 4s. 6d. per lb.; Belgian Royal Grapes, 1s.; Dutch, 7d. to 8d.; Almeria, 18s. to 22s. per barrel.

Scotch Tomatos, at 5d. to 6d. per lb., were affected by the imports of Jersey and Dutch fruits, which were bought freely at 1d. to 2d. per lb. Cauliflower prices recovered to 2s. and 3s. per dozen; while Lettuces were worth 1s. 6d. to 2s.; and Cucumbers, 3s. to 4s. Mushrooms were quoted at 2s. 6d. per lb.

THE WEATHER IN AUGUST.

IN most respects this was a fairly normal month, but northerly to easterly winds were unusually infrequent, even for August, while the duration of south-easterly and southerly ones was excessive; and more than twice as much rain fell after noon as before it—a very uncommon experience at Southport. Obviously, such rains were of the thunderstorm type, but the serious parts of the thunder storms invariably kept well outside the borough boundaries, as for many years now has been so generally and curiously the case. The month's mean temperature was 59.7° or half-a-degree above the average. As in July, 72° was the highest reading of the maximum thermometer. There were 166 sunny hours, or ten fewer than the normal number. Rain fell on fifteen days, or two less than usual; and the total quantity (in Hesketh Park) was not more than 3·12 inches, or 0·55 inch below the average. A brief thunderstorm, of little consequence, occurred on August 11, and thunder was heard on August 29. *Joseph Baxendell, F.R.Met.Soc., The Fernley Observatory,* Southport.

CATALOGUES RECEIVED.

FRANK CANT AND CO., LTD., Braiswick Rose Gardens, Colchester.—Roses.

WILLIAM YANDELL, Castle Hill Nurseries, Maidenhead.—Violas, Chrysanthemums and Dahlias.

D. PRIOR AND SON, LTD., The Nurseries, Colchester.—Roses, etc.

CLIBRANS, LTD., Altrincham.—Fruits trees, Roses.

STUART LOW AND CO., LTD., Bush Hill Park, Middlesex.—Roses.

CHARLES J. DILLON, Woolsington, Ponteland Road, Newcastle-on-Tyne.—Roses, fruit trees, etc.

THOMAS RIVERS AND SON, LTD., Sawbridgeworth, Herts.—Fruit trees, Roses, etc.

GEORGE PYNE, Denver Nurseries, Topsham, Devon.—Fruits.

JOSEPH FISON & CO., LTD., Ipswich.—Lawns.

JOHN WATERER, SONS AND CRISP, LTD., The Nurseries. Twyford, Berks.—Hardy perennial and alpine plants,

ROBERT VEITCH AND SON, LTD., Exeter.—Hardy trees, shrubs, etc.

Foreign.

M. HERB, 24-26 Via Trivio, Naples.—Novelties.

KURT ENGELHARDT, "Dahlienheim," Dresden-Leuben.—Dahlias.

V. LEMOINE AND SON, Rue du Montet, 136-142, Nancy.—Greenhouse plants, trees and shrubs.

GARDENING APPOINTMENTS.

Mr. T. D. Boyd, late sub-foreman in the Rock Garden Royal Gardens, Kew, has been appointed Field Scout to the Commonwealth of Australia, attached to the Bureau of Entomology, Farnham Royal, Slough, Buckinghamshire. [Thanks for 2/6 for R.G.O.F. Box.—EDS.].

Mr. Thomas Findlay, for the past twelve months gardener in the gardens of LORD HAMILTON OF DALZELL, Motherwell, as Gardener to LORD ROSSMORE, Rossmore Castle, Monaghan, Ireland.

Cutting down the advertising appropriation when business is bad is like cutting down the cow-feed when the milk runs short.

AN EXPENSIVE ADVERTISEMENT is the CHEAPEST in the end; it BRINGS BUSINESS.

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Gardeners' Chronicle
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COLOURED PLATE:
Coloured Freesias.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 56·9°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, October 3, 10 a.m. Bar. 30·4. Temp. 52°. Weather, Fine.

Royal Horticultural Society's New Hall. THE holding of the first exhibition in the Royal Horticultural Society's New Hall at Westminster, places further emphasis upon the financial and numerical prosperity of the Society, and also serves to mark a new epoch in the progress of horticulture. At least three gentlemen must have been very delighted on this occasion; we refer to the veteran President, Lord Lambourne, V.M.H., who was unfeignedly pleased to be present; Mr. C. T. Musgrave, V.M.H., who, as Chairman of the Housing Committee, has not spared himself on behalf of the Council and Fellows; and Mr. H. B. May, V.M.H., another veteran, who several years ago urged the Council to extend its sphere of usefulness by building a new hall to accommodate larger exhibitions than are possible in the old, but extremely useful building that faces the famous Westminster playing fields in Vincent Square. Mr. May's suggestion, like many other innovations, did not meet with instant approval, but with his usual tenacity of purpose he eventually brought the Council to see that greater accommodation for its exhibitions was a necessity. History will not fail to record the great debt horticulturists owe to Mr. May and Mr. Musgrave. Evidence of the keen interest horticulturists now take in the work of the Royal Horticultural Society was forthcoming on Wednesday, September 26, when exhibitors had finished their work and judging was in progress; and again on September 27 and 28 during the great Autumn Show. Criticisms of the New Hall were almost as plentiful as the flowers exhibited. No one appeared to be wholly dissatisfied; nevertheless, no one was wholly satisfied. The New Hall is splendidly lighted by day and by night, the only weak place being the dais, where more artificial light will be needed after dusk whenever exhibits are staged upon it. On the occasion of the opening ceremony, we expressed the opinion that the great height of the new exhibition hall would have the effect of dwarfing exhibits; unfortunately, that opinion was correct; indeed, we believe that if the roof of the hall had been twenty-five feet lower, there would still have been abundant light by day, exhibits would not appear to be dwarfed, and the expenditure on the structure would have been reduced by many thousands of pounds. The pillars have the effect of reducing the apparent width of the hall, as also does the height of the roof. However, the construction of the New Hall was largely by way of experiment; there is no hall like it and, so far as our experience goes, none so well lighted naturally; it is a splendid hall, and had it been half as large again, a great many people would have been the better pleased. The arrangement of the exhibits last week was also obviously experimental. We have nothing but praise for the "no backgrounds" decision of the Council, but suggest that exhibitors who occupy positions against the wall should be encouraged to arrange their displays so that they rise a yard higher—starting from the same level—than at the first exhibition. Messrs. Stuart Low and Co.'s exhibit of Orchids demonstrated the value of this rising background of plants and flowers. Tall exhibits between the pillars also have the effect of reducing the apparent width of the hall, because they cut off the view to those arranged against the wall. When a flatter exhibition, such as the great Fruit Show, is held, there will be an almost uninterrupted view, and we believe everyone will be surprised to find how wide the New Hall is. It must be some little while before exhibitors of new plants, flowers and fruits become pleasantly familiar with the present arrangement of taking their specimens up by lifts to the finely-lighted and commodious Committee rooms. In these rooms the lighting is first-rate—all to the advantage of the subjects and helpful to judgment thereon. The display of new and interesting plants in the Lecture Room is also a good plan so far as the Fellows are concerned, but exhibitors may not altogether appreciate it, as many of them like to show off their novelties (and any awards received) in the hall proper. In the lower regions of the building, the large dining room met with general approval on the occasion of the Press luncheon, and again during the evening of September 26, when, under the genial presidency of Mr. C. J. Nix, the Council entertained to dinner the judges and members of the Scientific, Floral, Orchid, Fruit and Vegetable, and Narcissus and Tulip Committees. The kitchens, larders, buffet, cloak-rooms, store-rooms and other "offices" were also the subject of considerable surprise and favourable comment. The absence of a direct communication between the two halls—either overhead or underground—was very severely criticised; we made a similar criticism long ago, before building commenced, but we learn that the difficulties of constructing a sub-way were well-nigh unsurmountable, and that the cost of such a means of communication would have been nearly £20,000. This absence of direct communication creates a difficulty which will remain so long as the two halls are used for one show. Many and bitter were the complaints of those who paid 5s. or 7s. 6d. to see the show, and, having passed from one hall to the other, could not again enter the first without further payment. Visitors who were "caught" in this way expressed the view—and rightly—that one payment entitled them to view the show, as a whole, so long as they pleased; they objected to being penalised, as it was *one* show held in *two* halls that lacked direct communication. To one indignant lady we suggested that if all visitors became Fellows the difficulty regarding re-entry would cease to exist, but so great was her wrath and disappointment we did not venture the suggestion a second time. Lastly, the criticism offered by many Fellows was that a light gallery should have been built round three sides of the Hall, but we do not join in this criticism. So much for the New Hall. The great Autumn Show filled both halls to their utmost capacity (see pp. 273-278), and although the general arrangement of the displays was better in the Old Hall than in the new one, everyone agreed that the New Hall surpassed the Old in regard to light.

R.H.S. Autumn Exhibition, 1929.—During the recent great Autumn Show, the Council of the Royal Horticultural Society decided to re-arrange the programme of the Autumn Show for 1929. In order to suit the convenience of the exhibitors, provide them with more space, and provide better comfort for those visiting the shows next year, the following shows will be held:—September 18 and 19, 1929: A two-days' show restricted to hardy plants, including Roses, but excluding trees and shrubs. October 2 and 3: A two-days' show restricted to ornamental trees and shrubs. October 8: A show restricted to the display of fruits and vegetables (a competitive show). October 23 and 24: A two-days' show restricted to Orchids and stove and greenhouse plants.

Coloured Freesias.—The Coloured Supplement Plate presented with this issue serves to indicate the progress that has been made during the past few years in the production of brightly-coloured Freesias. In this progress, Mr. G. H. Dalrymple, of Bartley, has been, and still is, one of the most prominent and successful raisers, and our illustration represents flowers shown in one of his groups at Westminster. The varieties are: top, Yellow Hammer; left and right, Mauve Seedling; centre, Flame; lower left, Buttercup; lower right, Tangerine

Cambridge University Library.—A magnificent gift has been made to the Cambridge University Library by the International Board of the Rockefeller Foundation. The offer includes £250,000 and this enables the authorities to proceed at once with the building of a library from plans prepared provisionally by Sir Giles G. Scott. The entire gift, however, is said to amount to £700,000, subject to the provision that the University raises £229,000 to complete the scheme for housing and arranging the books and MSS. which form one of the finest collections in the world.

The National Mark.—The Ministry of Agriculture states that 20,000 leaflets, in which are given details of the new arrangements for the grading of Apples and Pears, are to be distributed to the wholesalers and retailers connected with the fruit and grocery trades, with a view to bringing to the notice of distributors and consumers the fact that Apples and Pears, graded and packed in the manner prescribed, and in standard packages, are now available in the principal wholesale markets.

Floods in the Yser Valley.—The gales and high tides of early September have burst the works built to prevent the sea from flooding the valley of the Yser in Belgium. It will be remembered that the sluices were raised at Nieuport when the Belgian army was forced back to that town during the early period of the war, with the result that the coastal road to Calais was barred to the German army. Temporary works repaired the damage done to the Yser dykes and locks on that occasion, and the Yser valley again became a fertile plain. This year the harvest was unusually good, but, alas! the floods have burst these defences, and the valley is once more a "vale of tears." It is estimated that many farmers are ruined, and the damage done is estimated at £5,000,000.

Legacies to Gardeners.—The late Paymaster Captain Frederick William Mortimer, R.N., of Riseholm, Elm Road, Horsell, Surrey, left the sum of £100 to his gardener, Mr. J. W. Wheeler, if in his service at the time of his decease.—The late Mr. Jacob Tyler, of The Warren, King's Lane, Carshalton, Surrey, left £75 to his gardener, Mr. Isaac Seymour.—The late Mrs. Louisa Caroline Shaw, of Ridgehill, Torquay, who died on August 6, left £100 to her gardener, Mr. Northey.—The late Mr. James Nisbet Paton, of Courtenay Beach, Courtenay Terrace, Hove, who died on August 7, left £50 to his gardener, Mr. Ernest Herbert.—The Most Hon. Charles Robert, first Marquess of Lincolnshire, of Princes Gate, S.W., who died on June 13, left £150, and a life annuity of £150, to his gardener, Mr. George Miles, and a further legacy equal to any sum in which his said gardener might be indebted to him.

Delphinium Society.—Several Delphinium fanciers and raisers met at the Royal Horticultural Hall, on Thursday, September 27, and agreed that the tremendous increase in the popularity of Delphiniums within the past few years warranted the formation of a Society devoted to its interests. A Committee was appointed and officers elected. All communications concerning this new Society should be addressed to the Hon. Secretary, Mr. S. Halford Roberts, 3, Warwick Road, Thornton Heath, Surrey; the Hon. Assistant Secretary is Mr. A. J. Moir, 25, Burstow Road, Wimbledon; and the Hon. Treasurer, Mr. G. D. Gold.

"Notes from the Royal Botanic Garden, Edinburgh."—The issue No. LXXVII, Vol. XVI, is largely occupied by Dr. H. Handel-Mazzetti's exhaustive work entitled, "A Revision of the Chinese Species of Lysimachia, with a New System of the whole Genus." In this work the whole genus is reviewed and re-classified, and the numerous species, in their various sections, are described in detail. Mr. J. E. Dandy, M.A., contributes an useful article on "New or Noteworthy Chinese Magnolieae," in which he describes Magnolia Biondii, M. Campbellii (*Bot. Mag.*, t. 6,793), M. Championii, M. Henryi, M. Sargentiana, M. sinensis (*Bot. Mag.*, t. 9,004), M. Wilsonii (*Bot. Mag.*, t. 9,004); Manglietia Forrestii, M. Hookeri, M. insignis, M. moto; and Michelia alba, M. Baillonii, M. doltsopa, M. fallax, M. lanuginosa (*Bot. Mag.* t. 6,179), M. platypetala, M. szechuanica and M. Wilsonii.

Linnean Society's Annual Dinner.—Sir Sidney F. Harmer, K.B.E., F.R.S., President, will preside on the occasion of the Annual Dinner of the Fellows and Associates of the Linnean Society, at the Criterion Restaurant, Piccadilly Circus, on Tuesday, October 23, at 7.15 p.m. A reception by the President will be held in the Rooms of the Society, Burlington House, at 9 p.m. on the same evening.

Parks and Botanic Gardens Superintendents.—The members of the London Branch of the Association of Parks and Botanic Gardens Superintendents paid a visit to Messrs. J. Cheal and Sons' nurseries on Monday, September 24. This proved to be a most enjoyable and educational outing, and the members were as much interested in the splendid trees and shrubs as they were in the grand collection of Dahlias, concerning which notes have already appeared in the pages of *The Gardeners' Chronicle.*

The Genus Eucalyptus.—A complete revision of the genus Eucalyptus was undertaken by the late J. H. Maiden, late Government Botanist of New South Wales and Director of the Botanic Gardens, Sydney, and at the time of his death, on November 16, 1925, sixty-five parts of his standard work, entitled *A Critical Revision of the Genus Eucalyptus,* had been published, and the final parts had also been prepared by him. With the permission of Dr. Darnell-Smith, Director of the Botanic Gardens, Sydney, the task of editing those remaining parts has been undertaken by Messrs. R. H. Cambage and W. F. Blakeley, both of whom were closely associated with the late Mr. Maiden during the progress of the work, and Part 9, Vol. VII, or Part LXIX of the complete work, has recently been published. The species described and illustrated in this publication are Eucalyptus kondininensis, E. terminalis var. nov. longipedata, E. patellaris, E. Pimpiniana, E. cylindriflora, E. Westoni, E. microneura, E. Dundasi, E. diptera, E. ovularis, E. Kesselli, E. desmondensis, E. aggregata, E. Forrestiana, E. Merrickae and E. clavigera var. gilbertensis.

M. Eugène Draps.—Born at Laeken, in 1874, M. Eugene Draps is the eldest of six brothers belonging to the Draps-Dom family of nurserymen, all of whom follow the horticultural profession. For fourteen years M. Eugène Draps managed the well-known business started by his father at Laeken, near Brussels, but in 1908 he commenced on his own account by starting a nursery at Uccle, St. Gilles, and opening a florist's shop in Brussels, a business he still conducts most successfully, and now has four flower shops in Brussels. In 1904, M. Draps co-operated in the reconstitution of the Société Royal de Flore (founded in 1660), and was secretary from 1904 to 1921, and since then has been the general secretary of the association. He was one of the founders (1905) of the Committee which holds monthly horticultural meetings in Brussels, and he continues to take part in the proceedings. He also acted as secretary of the Société Royale d'Horticulture et d'Agriculture of Laeken for fifteen years, and has been President of the Société Royale d'Horticulture et d'Agriculture of Brussels. For secretarial and administerial work, M. Draps is very much in demand, and he has had his hands full, for he acted in that capacity for the Horticultural section of the International Exhibition in Brussels in 1910, and for several other exhibitions in more recent years; he was also President of the Horticultural Exhibition in 1927. He has won over one hundred cups and trophies at various exhibitions held in France, Austria, Italy, Holland, Russia and Belgium, and is very proud of the awards he received at the International Horticultural Exhibition held in London in 1912. These successes are all proof of M. Draps' ability, both as a nurseryman and florist, while the various positions he holds are evidence of the very high esteem in which he is held by his own countrymen. M. Draps is a quiet gentleman, with a charming personality, and we are indebted to him for many acts of kindness.

M. EUGÈNE DRAPS.

Early Frosts.—Frosts occurred in many parts of the country during the past week-end, and in some cases so much as 13° was recorded, while in others the thermometer only just fell to freezing point. Dahlias were damaged in many places, although quite close-by they were uninjured; we have seen a fine bed of Polar Bear blackened, while in another garden only a few yards away Coltness Gem still flaunts its scarlet banners. This morning (Wednesday) the fine display of Dahlias in the Embankment Gardens, near Charing Cross, was as gay as ever, and showed no sign of damage to leaf or flower.

Imperial Fruit Show.—H.R.H. Prince Arthur of Connaught will open the Imperial Fruit Show at Belle Vue Gardens, Manchester, at 2.15 p.m., on Friday, October 19. Sir W. G. Lobjoit, Chairman of the Imperial Fruit Show Committee, will be present, and Lord Stradbroke, Parliamentary Secretary to the Board of Agriculture, has promised to attend. The exhibition will be held in the King's Hall and Skating Rink, and will occupy some 80,000 square feet of space. The Skating Rink will be used by the Empire Marketing Board for the demonstration of fruits from Canada, Australia, New Zealand, South Africa, the West Indies and the United Kingdom, and this promises to be one of the most spectacular features of the show, which remains open until October 27. There will be an invitation lunch on October 25, followed by a conference organised by *The Fruit Grower.*

Fruit-growing in Wiltshire.—The development of Wiltshire as a fruit-growing county is occupying the attention of the Ministry of Agriculture and Fisheries, and of the Wiltshire County Council, and already gratifying results have been achieved, as may be seen from the results of the Royal Agricultural Society's orchard competitions, restricted to growers in Wiltshire, Dorsetshire, Hampshire and the Isle of Wight. In the report of the judges, praise was bestowed upon Mr. W. C. Crisp, the County Horticultural Advisor, for the assistance he is giving to the pioneers, while the success attained with Strawberry Royal Sovereign on the red, sandy soils at Bromham, was also remarked upon. It is also stated that Black Currant growing has been firmly established in several districts, and it is suggested that a profitable Apple-growing industry might be started in districts where the soil is not too shallow, provided varieties are chosen to suit the soil and the larger markets.

Scotch Potato Trials.—On the invitation of the Board of Agriculture for Scotland, a representative company numbering about sixty Potato growers, raisers and merchants, witnessed the annual demonstration of new seedling Potatos at the Wart Disease Testing Station at Philpstoun, West Lothian, on Thursday, September 27. In welcoming the visitors, Mr. Alex. Main congratulated Mr. Donald McKelvie on having been awarded the Lord Derby Gold Medal at the Ormskirk trials for his new early variety Arran Crest, which was formerly known as Seedling No. 520. Mr. Thomas Anderson, Director of seed-testing to the Board, afterwards gave a brief outline of the work being done at Philpstoun. He said that 1,500 first-year seedlings were tested last year, and that one-third of that number were found susceptible to Wart disease. Of the 1,200 second-year seedlings, one-fourth were susceptible. By means of the laboratory tests it was now possible to tell in the first year whether a seedling will be susceptible to Wart disease or not, and the Board would like all growers to take advantage of these tests so as not to involve needless waste and expense in testing susceptible varieties in the trial grounds. The company was afterwards conducted over the plots by Mr. Adam Millar, who directed special attention to Arran Crest, which was the result of a Flourball-Epicure cross. Over the three-years test it had almost invariably proved a heavier cropper than

Epicure, the yield sometimes being more than fifty per cent. above, and seldom less than ten per cent., while it was the earliest bulking Potato ever tested in the trials, being seven to ten days earlier than Epicure. The tubers were large with practically no seed or chats. In the greenhouse tests Arran Crest had gone down badly when affected with Mosaic disease, and this had given rise to the opinion that the stock might degenerate badly. Their experience, however, indicated that this was not likely to be the case. Part of the stock had been grown at Philpstoun for four years and had shown practically no sign of Leaf-roll or Mosaic disease all the time. Besides, in Ayrshire the early crops were lifted before the carriers of disease were active, and there was very little severe Mosaic in early fields. Of the 700 varieties submitted for single-tuber tests this year, 65 had been selected for further trial from the following raisers:—Messrs. McGill and Smith, Ayr, 35; Mr. C. T. Spence, Dunbar, 13; and Mr. McKelvie, Lamlash, 7. In this year's six-tuber test, 35 varieties were considered worthy of further trial, fourteen of these being from Mr. McKelvie and ten from Mr. Spence. The most promising seedlings in the first year's registration tests are several bred by Mr. McKelvie from May Queen, which give promise of being efficient substitutes for that variety and Ninetyfold. Another seedling of great promise was No. 8,256, raised by Messrs. McGill and Smith. This is a Herald-British Queen cross, a heavy cropper, and in point of earliness coming between Epicure and British Queen. In the second year's trials the best include No. 3, from Mr. Gore Booth, Sligo, possibly a good substitute for British Queen; Mr. Spence's No. 19, a late variety resembling its parent King Edward; and Mr. McKelvie's No. 343 and No. 675, both of outstanding table quality. An outstanding seedling at the trials was No. 11,262, a maincrop variety raised by Messrs. McGill and Smith, which is practically equal to Arran Banner as a cropper. One root lifted weighed 9 lb. 6 ozs., of which 9 lbs. were ware. The tubers are big, round and solid, with a tendency to lemon colour in the flesh.

Over-sized Seed Potatos.—A case of some interest to English Potato growers came before the Sheriff Court, Forfar, recently, when a Scottish Potato merchant was fined £2 for supplying to an English firm a consignment of seed Potatos not in accordance with the declaration as to size and dressing given at the time of sale. The tubers were invoiced as "1¼ in. by 2 in.," but an examination by one of the Inspectors of the Ministry of Agriculture showed that over sixty per cent. were incapable of passing through a two inch riddle. The Seeds Act, 1920, requires every seller of seed Potatos to give the purchaser a written statement as to the class and variety of the seed as well as of the size and dressing.

Golden Wedding of Mr. and Mrs. T. W. Pockett.—An Australian correspondent informs us that Mr. and Mrs. T. W. Pockett have celebrated their golden wedding. All Chrysanthemum lovers will join in good wishes to the veteran Chrysanthemum raiser who has given us such first-rate varieties as T. W. Pockett, Louisa Pockett, Edith Cavell, William Turner and Kara Dow. Mr. and Mrs. Pockett were married on May 13, 1878.

Dahlia Exhibition at Weimar.—There was a fine show of Dahlias at the Weimar (Germany) Belvedere Exhibition ground from September 2 to September 6, and it was favoured by beautiful weather. The firm of F. C. Heinemann, from Erfurt, had an excellent exhibit of giant varieties, including some new seedlings not yet in commerce. Two other large Erfurt firms, Reiter and Friebel and Ernst Benary, showed their specialities, the latter firm exhibiting a new white and orange variety named Papagena which will be placed on the market in 1929. The arrangement of Messrs. Benary's exhibit was somewhat out of the ordinary, the ubiquitous vase being done away with in favour of jardinières and baskets of various kinds containing vessels full of wet sand, in which the stems of the Dahlias were placed, and which kept them beautifully fresh as well as giving firm support. Carl Heinrich, of Weimar, showed Decorative and Pompon kinds, and other exhibitors were Albert Eggar, also of Weimar; Paul Süptitz, of Saalfeld; and Carl Müller, of Almrich, Naumburg.

Appointments for the Ensuing Week.—SUNDAY, OCTOBER 7: Wakefield and North of England Tulip Society meets; Accrington Chrysanthemum Society meets. MONDAY, OCTOBER 8: Derbyshire Horticultural Association's lecture. TUESDAY, OCTOBER 9: Royal Horticultural Society's Fruit and Vegetable Show. WEDNESDAY, OCTOBER 10: Sheffield Chrysanthemum Society meets; United Horticultural, Benefit and Provident Society meets; Wimbledon Gardeners' Society meets. FRIDAY, OCTOBER 12: Royal Horticultural Society of Ireland meets. SATURDAY, OCTOBER 13: British Mycological Society's foray with Essex Field Club at Epping Forest; Peebles Chrysanthemum Show.

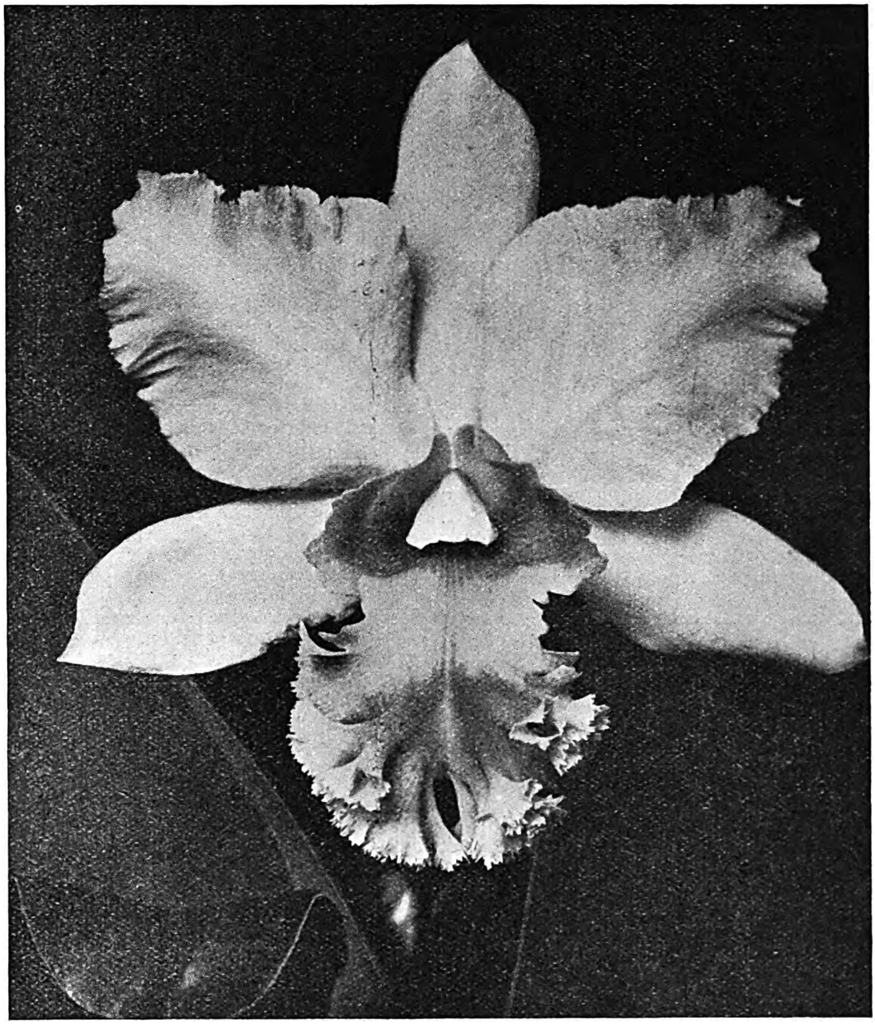

FIG. 123.—BRASSO-CATTLEYA MITHRA, DELL PARK VAR.

R.H.S. First-Class Certificate, September 27. Flowers orange-yellow and carmine. Shown by Baron Bruno Schröder (gr. Mr. J. Shill), Dell Park, Englefield Green.

(see p. 273).

"Gardeners' Chronicle" Seventy-five Years Ago.—*History of the Blenheim Orange Apple.*—The last remnant of the stem of the original tree which first produced this celebrated Apple is no more—the sapless and mouldering relic exists no longer; that which the wood-louse and the worm were gradually consuming, the war of the elements and the hand of man have hastened to a swifter decay. The rains and wind of the autumn of 1852 levelled the rotten and hollow shell, and the broken fragments have been gathered up and committed to the fire. "Thrown down and cast into the oven," this time-honoured relic has fulfilled the stern decree of Nature against all vegetable life. The only sound piece of wood remaining was preserved by an horticultural enthusiast to make a snuff-box, to serve as a memorial of the past, and to recall visions of him "who first planted the tree." In the autumn of 1851, we wrote as follows:—"In a somewhat dilapidated corner of Old Woodstock stands all that remains of the original stump of the Blenheim Orange; it is entirely dead, and rapidly falling to decay, and time will soon claim the hollow, rotten remnant." We told how the white-haired gardener Kempster first raised from seed this beautiful, and justly celebrated Apple—that he lived in his little cottage garden in Old Woodstock, a plain, practical, labouring man; and we mused on the mutability of all sublunary substances — on Kempster and his child. Kempster is long since gathered to his fathers, and the favourite tree to which he gave his name has followed him, and is now no more to be seen —the place which once knew it now knoweth it no more; nothing remains to mark the almost consecrated spot where once it grew and bore its ruddy ripening orange burden, except a young tree derived immediately from the patriarchal trunk itself. Though the parent stem has for ever vanished, a numerous and flourishing offspring thrive in the neighbouring crofts and orchards, and from thence are now generally dispersed throughout the length and breadth of this island, and have reached even to our American and Australian colonies. *Gard. Chron.*, October 1, 1853.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

Miltonias.—The Brazilian species, M. spectabilis and its fine variety M. s. Moreliana, together with the natural hybrids, M. Binotii and M. Cogniauxiae, which have been growing in a light, airy position in the intermediate house, are now showing flower spikes, and as the blooms expand they may be placed in cooler quarters. After the flowers have been removed the plants should be returned to their growing quarters, when less water will be required at the roots; when growth is completed only sufficient water should be given to keep the bulbs in a normal condition. The natural colour of some of these Brazilian Miltonias, when the growths are well ripened for flowering, is a pale yellowish-green. M. Clowesii and M. Regnellii, which flower a little later, should receive similar treatment as they pass out of flower, while M. cuneata, which usually flowers early in the year, requires, at this season, all the light available, together with a buoyant atmosphere and moist conditions at the roots. It should be grown in the intermediate house, where also accommodation may be found for the Peruvian species, M. Warscewiczii.

Cypripedium Seedlings.—If Cypripedium seeds were sown during the early part of the year, some of the largest seedlings may now be ready for pricking off into three-inch pots, in which they should quickly establish themselves if given moist conditions in a warm house. The pots should have ample drainage, and the compost, consisting of equal parts of Al fibre and Sphagnum-moss, cut moderately fine, should be pressed firmly into the pots the surface of the compost being trimmed closely. Several seedlings, according to their size, may be placed in each pot. In smoky districts where the light is usually very poor during the months of November and December, it is not advisable to remove the small plants from the seed beds as the short days arrive, provided that the bed is in good condition; they succeed better if left in it until the turn of the year. Plants that were pricked off earlier and require separating, may be potted singly, and as they increase in size they should be potted on, using slightly larger pots and reducing the amount of drainage and Sphagnum-moss in the compost, also incorporating a little fibrous loam and crushed crocks for the strong-growing, green-leaved varieties. As the plants are nearing the flowering stage they should be given a little cooler and more airy conditions to encourage sturdy growth.

THE KITCHEN GARDEN.

By Allan Falconer, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Cleaning Land.—As the various main crops are cleared, the land should be either lightly cultivated, or shallowly ploughed; I prefer the latter method on heavy land as the furrows are lightly laid over and soon dry on top for further deep cultivation during the winter and early spring; while the action of the weather breaks down the land and leaves the top surface in good condition for cultivating. Sometimes land becomes covered with annual weeds which soon seed, and it is not always possible to avoid this; where such crops as Peas and Beans are being cleared, after removing the sticks, the scythe may be used for cutting the tops off seeding weeds and for removing the Pea and Bean haulm, which should be collected into heaps and burnt, or removed to the compost heap. It is certainly an advantage to leave the roots of Peas and Beans in the ground as the nodules contain valuable nitrogen; the weeds are also of manurial value, and provided they are not allowed to seed, it is an advantage to turn them in rather than clear them from the ground, as by the time the land is required to be deeply cultivated the weeds and stems have decayed. In addition to presenting a more tidy appearance, I am convinced that much good is obtained by shallow ploughing or cultivating the land directly the crops are removed; it aerates the soil and allows the moisture to pass through it better, at the same time destroying vermin by giving the birds a chance to get at them. I have observed that heavy land, when treated in this manner, is more easily worked in the spring and becomes more free of slugs, than land which is allowed to remain untouched until the usual annual cultivation is indulged in. The tops of such things as Carrots, Beet, etc., may also be turned in.

Earthing Celery.—The earthing of Celery is one of the most important operations at this time and every advantage should be taken to get the work completed before sharp frosts occur. I am of the opinion that no useful purpose is served by protecting the tops of Celery from frost with Bracken, straw, etc., as often the damage done through rain and snow soaking the covering is worse than exposing it to all the elements. I prefer to lift any Celery left in the trenches in the New Year and store it in sand by the side of a building, protecting it with frame lights if the weather is very severe; and it is really surprising the length of time that Celery keeps under this method.

Saving Tomato Seeds.—It is a well-known fact that some of the virus diseases may be introduced through the seeds, and where fine specimen fruits have been obtained from healthy plants, it is advisable to save seeds from a reliable source, and it is really a very simple matter if carried out correctly. Having tried various methods, the following may be recommended: Select the best specimen fruits, nicely ripe, without being over-ripe; half-fill a bucket with water, and squeeze a fruit in each hand under the water until all the seeds are parted from the pulp, throwing this away; cover the vessel and allow fermentation for about forty-eight hours, then partly clean the seeds, drain the water off, and if the seeds are not quite clean, add fresh water and allow to stand another day, when the good seeds will settle clean in the bottom of the vessel and be ready to be placed on sheets of brown paper to dry in the sun for a couple of days before putting them in paper bags to store.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Orchard House Trees.—Now that the fruits have been taken from the trees in pots, any that require repotting should be attended to forthwith. The chief reason for completing this work at an early date is to have the roots well established in the new soil before the leaves fall. If the trees are well furnished with foliage, new roots should be produced freely during the next few weeks, provided that careful attention is given with regard to watering and frequent spraying of the foliage during dry weather. When repotting fruit trees it is not always advisable to use larger receptacles. The ball of soil at the roots should be reduced, ramming it with the aid of a pointed stick. It is well to use a slightly richer compost for pot trees than for those planted in borders, and a mixture of a good fibrous loam, bone-meal, charcoal, mortar-rubble, and a small portion of fruit border compound should be suitable. The compost should be worked down the sides of the pot by the use of a thin rammer and made firm about the roots. This completed, the trees should be sprayed frequently on bright days to prevent the leaves from flagging. The trees should be secured to stakes or partially plunged in ashes to prevent them being blown over and damaged by strong winds. Worms may prove troublesome if the pots are stood directly on to the ground, and to prevent the worms entering through the drainage hole it is a good plan to place two bricks on edge a few inches apart, and place the receptacles thereon. This method also ensures perfect drainage.

Strawberries in Pots.—Plants that are being grown in receptacles to produce fruits under glass still require attention with regard to keeping them free from runners and weeds. All side crowns should also be removed, as much better fruits are obtained from plants with single crowns. The pots, being well-filled with roots, should still be supplied with weak soot-water. It is not wise to overcrowd the plants; sufficient space should be afforded to allow the sun and light to penetrate evenly among the plants, and assist in the ripening of the crowns. The plants should not be stored in their winter quarters until there is danger from frost.

PLANTS UNDER GLASS.

By J. Coutts, Assistant Curator, Royal Gardens, Kew.

Storing Plants for the Winter.—There are quite a number of plants that require to be stored for the winter in a more or less dry condition. Bulbs, tubers and rhizomes of plants that require a stove temperature should be stored not only dry, but warm, for the too common practice of storing such plants under stages in plant houses leads to many losses. If the stage above them is waterproof, the room beneath it may form an excellent store, especially if the roots are kept clear of the ground by improvised staging. Bulbs and tubers may be stored in the pots in which they were growing, but it may save much space if they are turned out and stored in boxes of dry sand. On the other hand, some plants keep much better if they are kept somewhat moist—Cannas, for example, always winter best if stored on an earthen floor under a stage in a cool greenhouse. If wintered in a dry store, they are always difficult to restart into growth; thus purchased rhizomes are generally difficult to start as they have usually, of necessity, been kept completely dry. Young plants of Hydrangeas should be placed in cold frames, or in a cool house, or large specimens, if no house-room is available, may be stored in any frost-proof shed along with Crinums, Fuchsias, Erythrina Crista-galli, Agapanthus, etc. If the building has an earthen floor it is a distinct advantage, as there is always a certain amount of natural moisture, which may save occasional waterings.

Crocuses.—The many fine varieties of Crocus vernus, when grown in pots, are very beautiful for the cool greenhouse. They may be grown in pots or pans, five-inch pots being very suitable, placing five or six corms in a pot. After potting they should be stood out-of-doors and covered with several inches of fibre or weathered ashes until they are well rooted, when they may be removed to cold frames, which may be opened fully on all favourable occasions. They should be grown under perfectly cool conditions, as any attempt at forcing may result in their going blind. Although many of the varieties are suitable for this purpose, among the most beautiful are Kathleen Parlow, King of the Whites, Margot, Baron Brunow, Maximilian, purpureus, grandiflorus, Queen of the Blues, Sir Walter Scott and Albion. Many of the spring-flowering species are ideal for the alpine or small unheated greenhouse, but some of them are scarce and expensive. The following species and varieties are, however, useful for this purpose, viz.: Crocus aureus, C. Balansae, C. banaticus, C. biflorus and C. biflorus var. Weldenii; C. candidus, C. chrysanthus, C. reticulatus and C. Sieberi.

HARDY FRUIT GARDEN.

By T. E. Tomalin, Gardener to the Earl of Bessborough, Stansted Park, Emsworth, Sussex.

New Plantations.—If young Peach and Nectarine trees are to be planted this autumn, the work of preparing the border should be taken in hand now. Where the natural soil is a medium loam, with a well-drained sub-soil, very little preparation beyond deep digging and the addition of a little mortar-rubble and bone-meal is necessary, but where conditions are less favourable, more trouble should be taken if success is to be achieved. On heavy soils, the site for the new border should be excavated eighteen inches deep and four feet wide. A six-inch layer of broken bricks should be placed in the bottom, and over this fresh turves should be laid grass-side downwards. The border may then be made up with the best of the excavated soil, reinforced with a proportion of new loam, and made porous by the addition of broken mortar or bricks. The whole should be made firm, and made up to a height of a few inches above the ground level, to allow for the gradual settlement which is sure to occur. The following are reliable varieties which should provide a succession of fruits during the summer and autumn. Peaches: Hale's Early, Waterloo, Dymond, Peregrine, Violette Hative, Princess of Wales and Sea Eagle; Nectarines: Lord Napier, Early Rivers, Stanwick Elruge, Humboldt, and Pineapple.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to the Duke of Devonshire Chatsworth, Bakewell, Derbyshire.

Propagating Bedding Plants.—Apart from the bedding Pelargoniums, the propagation of which was dealt with in a recent calendar, the majority of plants used for summer bedding, as distinct from annuals, should now be propagated for next season's work. These include Marguerites, Pentstemons, Calceolarias, Veronicas, Heliotropes and Verbenas, all of which should be propagated at once, so as to secure well rooted and partially established plants before winter arrives. Cuttings may be rooted either in pots or boxes, or dibbled directly into beds, according to requirements, but for large quantities probably the latter is the best method, especially if a large number of Pentstemons and Violas are required. Use a moderately light, sandy soil, and, if a frame is used, a fairly solid bottom should be provided to prevent the roots penetrating into loose rich material—from which it would be a severe check to remove them in the spring. Spread a light layer of sand over the surface, firm the soil and water it well and then leave it to drain before inserting the cuttings. When inserting the cuttings, care should be taken that the base of the cutting reaches the bottom of the hole made for it; if they are just "hung" in the soil, failure to root may result. Water the cuttings in well, keep the frame closed, and shade them from bright sun until rooting has taken place. Damp them overhead once or twice a day, according to weather conditions, but if the frame appears too damp, and the cuttings commence to damp off, admit air at night, but not enough to cause the cuttings to flag. Under good conditions, practically one hundred per cent of the cuttings should root, and when this has taken place the air supply may be increased daily, until the lights may finally be dispensed with, except, of course, in inclement weather. By growing these subjects under perfectly cool conditions, the plants should be healthy and less susceptible to injury during a prolonged spell of severe weather. If the latter occurs, the plants should be protected well; if necessary, the frames may be left covered several days, without the slightest fear of injury to the plants.

Dahlias.—These are now at the height of their beauty and every effort should be made to keep them in good condition until frosts are experienced. For bright effects in the autumn no flower can equal the Dahlia for brilliance of colouring. See that all ties are secure in view of autumnal storms, and after rough winds replace any broken stakes and cut out all damaged shoots. By constant attention, even to covering from slight frosts, the Dahlia border may be most attractive for a short time yet.

Sub-tropical Plants.—Plants from the greenhouse, such as Grevilleas, Acacias, Palms and other flowering and foliage plants, which were used for bedding during the summer, should now be removed to their winter quarters. The hardier sorts will not be hurt by a few degrees of frost, and such may be left until the beds are cleared of their summer occupants to make room for Wallflowers and other spring bedding plants.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener at Jordanhill Training Centre, Glasgow.

Late Chrysanthemums.—While the bulk of Chrysanthemums are now placed under cover, there are always late varieties, such as Niveus, Pride of Ryecroft and others, which are indispensable for cut flowers early in the New Year, and these varieties, in a late season such as the present, may not be ready to take indoors for some time. They should be arranged in a sheltered spot, and a few tall stakes driven into the ground around them, whereon a light canvas cover may be placed when frosts are expected. This cover should be removed early each day and thoroughly dried, to be in readiness for the next occasion on which it may be required. By these simple precautions the plants may be kept out-of-doors until the flower buds are sufficiently advanced to allow of the plants being removed to a cool house. The earlier varieties should be regularly supplied with either liquid manure or top-dressings of artificial manure well watered in. An abundance of air should be given on all suitable occasions, reducing this only on frosty nights. So soon as the flowers begin to show colour feeding should cease, but an occasional watering with a weak solution of sulphate of ammonia should assist to develop both the colour and substance of the blooms.

Michaelmas Daisies.—The season of flowering of this beautiful race of plants has once more arrived, and although a few of the earlier forms, such as A. acris, A. Amellus, etc., may now be nearly over, the greater number of improved, forms of A. Novi-belgii are now at their best, and where a representative collection is grown the borders containing it are very bright. Great improvements in this class of plants have taken place in recent years, and if the older forms which passed muster as Michaelmas Daisies a generation ago are still being grown, they should be removed to the woodland or wild garden, and their places filled with a selection of the newer varieties, such as Barr's Pink, Beauty of Colwall, Cloudy Blue, Little Boy Blue, Little Pink Lady, Climax and many others. The dwarfer forms, such as A. ericoides and its varieties; A. Amellus in many new and improved sorts, of which King George is perhaps the best; and A. cordifolius varieties, such as Diana, Ideal and Profusion, should also be included. Michaelmas Daisies should be divided and replanted every second year, using the outer, younger growths, and discarding the central portion of the stool or rootstock.

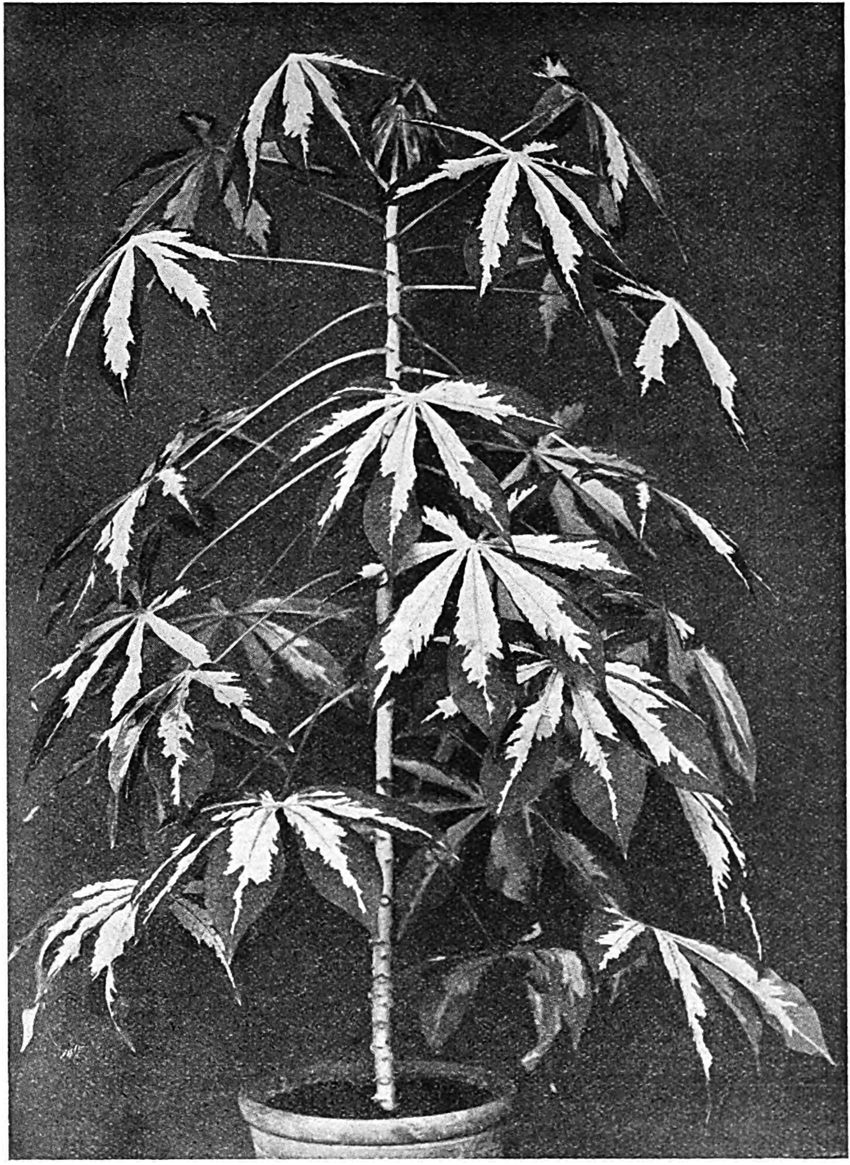

FIG. 124.—MANIHOT UTILISSIMA VAR. VARIEGATA.

R.H.S. Award of Merit, September 27. Foliage green and yellow; stem yellow. Shown by the Director, Royal Botanic Gardens, Kew (see p. 274).

TREES AND SHRUBS.

HIBISCUS SYRIACUS.

This heat-loving, autumn-flowering shrub is not always seen at its best, but given a position in the full sun and a favourable season like the present one, there is no late-flowering shrub more beautiful, for its large, trumpet-shaped flowers maintain a display of colour from August until November.

H. syriacus and its varieties do not flower freely until the plants have made considerable growth and become well established; moreover, in cold, sunless seasons many of the flowers fail to mature, thus detracting from their decorative value and producing disappointing results; but in spite of these drawbacks they are useful shrubbery plants when grown under favourable conditions. As it is a native of a warmer country than our own, it cannot be expected to flourish under all conditions, and it is essential that it should be planted in light, warm soil and in a situation sheltered from cutting winds, yet fully exposed to the sun. Under such conditions free growth is promoted, the wood becomes ripened and free flowering generally follows.

There are several varieties of H. syriacus with single and double flowers of various shades of colour, among which may be mentioned H. s. Coeleste, with large, single flowers of a deep blue shade; H. s. coerulescens plenus, which bears double blue flowers, stained with purple; H. s. Duc de Brabant, with double red flowers; H. s. Jeanne d'Arc, bearing double white flowers with rosy exteriors; H. s. Rubis, which has magnificent single, ruby-red flowers, and H. s. Totus albus, with large, single, pure white flowers of great beauty.

Like most other shrubs of a deciduous character, these plants may be propagated by means of cuttings of ripened shoots in autumn, but better results may be obtained by layering, and if well-matured shoots are selected, pegged down and covered with soil, they produce strong plants in one season. *W. A.*

SOME LATE-FLOWERING HEATHS.

The Heaths which bloom from late summer until the autumn is far advanced are so valuable in affording masses of colour during a period when most plants are on the wane that it is not surprising they are growing more popular year by year among all classes of gardeners. One of the most distinct, if not the most pleasing, at this season is E. stricta, the Corsican Heath, which is the only member of the class known as Tree Heaths, which flowers at the "back-end." Its bright rose blossoms, in terminal umbels, appear about midsummer, but a succession is usually maintained until the first frosts. This species, although a southerner, is quite hardy enough for most places, and its rich glossy green foliage, combined with the foxy-red of the faded flowers, forms a delightful feature of the winter garden. Used as an informal, ornamental hedge, E. stricta can be very delightful. Its average stature in this country is about five feet.

E. vagans, the Cornish Heath, is a most reliable stand-by throughout the autumn, and I know of no flowering shrub which yields such generous dividends of colour and interest at that season. That superb variety, E. v. kevernensis (St. Keverne), with its enormous trusses of vivid rose blossoms, is one of the finest of all Heaths, and since the species has been further enriched by the addition of the varieties Mrs. D. F. Maxwell, and Lyonesse, in rich cerise and pure white respectively, the Cornish Heath has become one of the most valuable our gardens possess.

Among the numerous forms of Calluna vulgaris, the Common Ling, it is not surprising to find some a good deal later than others. That splendid pure white variety, C. v. Serlei, is one of these, and this and others have given rise to several seedling forms with the same vigour of growth and pleasing habit, but with the long flower spikes in various shades of pink or rosy-purple. In this section, one of my favourite kinds is C. v. flore pleno, a plant which will grow to about two feet, and whose elegantly tapered racemes are crowded with perfectly double blossoms of a very charming soft rosy-pink. This variety is one of the last of its kind to cease flowering, which means that it is often full of colour in October.

E. Tetralix mollis, a compact grower of considerably less stature than the foregoing, will also carry-on well into autumn, despite the fact that it is one of the earliest of the summer Heaths. Its silvery foliage is always fascinating and the terminal clusters of flowers are white, but there are others in a delicate shell-pink, which is singularly lovely in combination with the glaucous leafage. E. ciliaris, the Dorset Heath, is essentially an autumn flowering species, and a beautiful plant it is, its long, slender, trailing branches being furnished with bright green leaves, fringed with silky hairs, above which the large, rosy-red blooms are borne in whorls on six-inch racemes. But, good as it undoubtedly is, E. ciliaris is, I think, eclipsed by E. c. Maweana, a Portuguese form of the same species. This plant has rather a more rigid and upright habit, the foliage is a deeper green and the blooms are even ampler and bigger, being quite half-an-inch long. I have had E. c. Maweana in full flower even in November. It is as hardy as the type, but like the latter, does best with a little shelter from cutting winds.

There is a family resemblance to the Dorset Heath in all the E. ciliaris × E. Tetralix hybrids. Of these, the old E. Watsoni is still one of the best and most free blossoming throughout the later summer and autumn. Of this set, E. × H. Maxwell and E. × Dawn are two varieties which are distinctive enough to claim a place in any collection. E. c. hybrida is also a very charming Heath with flowers of a pleasing rose-pink and a neat, compact habit—a good rock garden variety.

The whole of the above are very easy to grow in any non-calcareous, well-drained loam, the position being open and sunny. E. ciliaris, E. Tetralix, and their hybrids enjoy fairly cool soil, but the others often do wonderfully well on the poorest of dry banks. Bountiful masses of colour during these shortening days are very precious, and the Heaths do not only grant us these, but their hues blend most harmoniously with the tints of autumn. *A. T. Johnson, Ro Wen.*

HEDYSARUM MULTIJUGUM.

It was with gratification that I read the excellent note on Hedysarum multijugum in your issue of September 1, p. 166. This is a plant which I grew for about ten years before I sold the house and the garden where I cultivated it. It was planted on a rock bank with a north-east aspect, and in a position where it received a little sun in the early morning, but afterwards was in shade. Here it grew well and flowered regularly. Its habit was rather ungainly, as your correspondent has said about his specimen, and I endeavoured to correct this and to limit the space it occupied with its spreading branches, so I adopted the habit of cutting it hard back after flowering. This had the desired result. It was a capital late-flowering shrub and of considerable value, and I left it behind very reluctantly. From my experience with it in south-east Kirkcudbrightshire, a good distance from the sea, I fancy it would thrive even if in a little shade in the south. *S. Arnott.*

TAMARISKS.

Tamarisks in the Beach House Gardens, Worthing, are of much interest, and give a striking proof of the ornamental value of these subjects when growing under suitable conditions. One specimen has a girth of four feet, with branches extending over forty feet, the height being approximately forty feet. The position is sheltered and the trees are surrounded by Ilex and Euonymus, some of the latter having exceptionally large trunks. Should future alterations be carried out, it is hoped that the Tamarisks may be preserved, as such trees are rare. Cleared of some of the surrounding shrubs, the trunk and branches would be seen to better advantage.

When planting Tamarisks, "nurse plants" are often used, but these latter should be removed before causing obstruction to the natural development of the former. Although frequently seen near the sea, Tamarisks are not always a success as ornamental subjects, for they are often much damaged by gales and become stunted. They thrive in warm, sheltered positions on the south coast, where they are largely used for hedges, screens, or as isolated specimens. *Colin Ruse.*

FLOWER GARDEN.

ERYTHRONIUM CALIFORNICUM.

The nomenclature of the American Erythroniums is somewhat confused, and this species is sometimes erroneously termed E. giganteum, from which species, however, it may be distinguished in having no greenish tint in the flowers, while it is also found in a different locality—only in northern California, in light soil on wooded slopes. It is also sometimes referred to as E. grandiflorum, from which species again, it is quite distinct.

E. californicum is sometimes rather shy in flowering under cultivation in this country, but it is nevertheless well worthy of a place in the woodland, on the rock garden, or in other sunny or slightly shaded positions, for it is not the least attractive of these early spring-flowering North American subjects. Its leaves are often richly mottled, while the flowers, which are produced in March and April—sometimes singly, in clusters of two and three, or often a dozen or so, on graceful, slender stems—are cream-coloured, flushed with orange in the centre, and often having a maroon-coloured zone at the base of the corolla segments. As is typical of the genus, when the flowers are fully developed or when exposed to bright sunshine, these segments curl back, disclosing the divided, club-shaped style, widespread, which provides another distinguishing feature of the species. *M. W.*

PERPETUAL-FLOWERING CARNATIONS.

Perhaps some reader has had an experience similar to mine; if so, I and others would like an opinion. Briefly stated, a batch of Carnation cuttings was struck during the month of October, 1927, and later potted into small sixties; subsequently they were placed in five-inch pots, and by the end of May were ready for the final seven-inch pots. Up to this period the plants appeared to be in excellent condition. The soil prepared for the final potting consisted, of course predominantly of a good fibrous loam, with the addition of a fair amount of lime-rubble, and bone-meal in proportion of one five-inch potful to every barrowful of compost; a scattering of wood-ash, and a small quantity of soot. The plants were potted firmly into their final pots, placed in a cold frame until they showed signs of vigorous root-action, and were then removed into the open, where they were fully exposed to all the weather conditions that ensued.

Towards the middle of July the plants slowly lost their healthy appearance and assumed a stiff, stunted growth, the points of the growths became yellowish-brown. In some cases they ceased to grow, and in others a brownish scar appeared midway in an otherwise healthy growth, causing it to turn a sickly grey, to stiffen and to curl inwards towards the scar, finally becoming useless and necessitating removal. The peculiarities I have mentioned were not evident in every plant, but were sufficiently evident in the batch as a whole to cause serious perturbation. The compost prepared for the plants was, I think, suitable; I can vouch for judicious watering; and, therefore, my conclusion is that the intense sun-heat of July was too powerful for the fully-exposed plants. What do other growers think?

I may add that since the plants have been housed they show signs of rapid recovery. *C. J., Reading.*

BULB GARDEN.

COLCHICUM SPECIOSUM ALBUM.

It is generally admitted that of the several species of Colchicum, familiarly known as the Autumn Crocuses, or Meadow Saffrons, C. speciosum, a species of large form and striking appearance, from the Caucasus, is the most beautiful.

But, although the type form, which bears its large, globose, rosy-purple flowers to a height of nearly one foot from the ground, is so imposing, even more so are some of its varieties, most notable among which is the subject of this note *i.e.*, C. s. album. This lovely form is as free-flowering, when happily situated, as the type, and it is blossoming exceptionally well this season, producing its pure white chalices, although so white, yet warm and beautiful to look upon, most freely, and it is no exaggeration to state that few bulbous plants, no matter how brilliant or soft their colouring, possess the charm and allure of this lovely Colchicum, which, with its congeners, announces the passing of yet another season of plant life. This form originated, so we are told, at the nurseries of Messrs. Backhouse (York), Limited, and it is stated that the first roots of it were sold at five guineas each.

Another exceedingly fine variety is C. s. rubrum, with large, glowing, ruby-coloured flowers, which, like those of the type and the white form, and any other varieties which are thought to be worthy of a place, may be planted in grass-land, borders or open woodland or in groups on the rock garden, in deeply cultivated, moderately rich soil, to produce very charming effects during September and October. They may be left undisturbed for a number of years, although an occasional top-dressing of good soil should be of benefit to them. *M. W.*

COLCHICUM BORNMULLERI VAR. MAGNIFICUM.

I have flowered this form of the fine Colchicum Bornmulleri for the first time this year, and am greatly pleased with it. It is much superior to the type in size and colour, and creates quite a favourable impression upon all who see it. I am not partial to the use of such terms as "magnificum" and "superbum," as applied to varieties of good plants, but in this case the term "magnificum" is fully justified. The flowers have the fine form of the typical C. Bornmulleri but are considerably larger, and the colour, described as "mauve-violet," is quite brilliant and effective. Of the newer Colchicums in my garden, where I have several, I consider this the finest. It originated in the nurseries of Messrs. C. G. Van Tubergen, Ltd., of Zwanenburg, Haarlem, and was, I believe, offered last year for the first time. *S. A.*

ALPINE GARDEN.

SILENE ZAWADSZKII.

My note on this plant in your issue of September 8 (p 188) has brought me a courteous and kind letter from Dr. Lemperg, of Hatzendorf, in which he states that the flowers of this Silene are of a "nice pure white, slightly tinged with purple." Dr. Lemperg also kindly sent me a piece of his plant, together with a flower. Unfortunately, the flower was too withered to enable me to determine its colour, but I am quite prepared to accept Dr. Lemperg's statement, and to await the blossoming of the plant he has so kindly sent, in the hope that the flowers may rehabilitate the plant in my eyes, although Dr. Lemperg does not consider it a plant of outstanding merit. I see that Farrer states that the "stems, of four or five inches, unfurl in late summer, one above the other, three or four quite uninteresting, greeny-white flowers sometimes a little tinged with pink." Either the climate is responsible for the dull flowers which the late Mr. Farrer described, and which I have had, or the forms were inferior, for Dr. Lemperg's form seems to be superior in point of colour.

VERONICA SATUREIOIDES.

Capital for trailing over large stones and veiling them with its good-sized foliage, produced in a spreading mat, Veronica satureioides has some claims upon the grower of alpine flowers. It comes earlier into bloom than do most of its relatives, and although one may consider the flowers rather dull in their shading of blue, it is nevertheless a good plant. It is said to come from Dalmatia, and as it is a mountain plant there, it is quite hardy here with us.

Although it has been confused with V. saxatilis, it is wholly different, lying down in large masses with the "shoots beset by bigger, leatherier, darker, rounder, more obviously scalloped leafage." But no one who has ever grown V. saxatilis should make the mistake of confusing the two under whatever names supplied. In height, V. satureioides is only about two inches; it not only blooms earlier than V. saxatilis, but is later in going out of flower. It grows with perfect comfort in the ordinary soil given to the majority of rock garden plants, and is satisfied with sun or shade, while it may be increased by seeds, division, or cuttings.

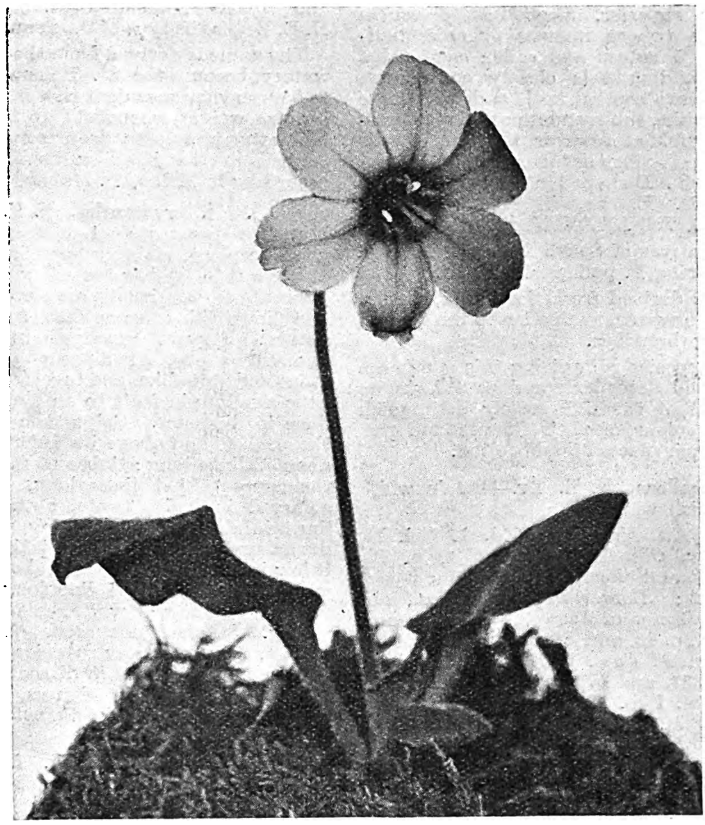

FIG. 125.—OMPHALOGRAMMA (PRIMULA) ELEGANS.

R.H.S. Award of Merit, September 27. Flowers deep purplish-blue. Shown by Messrs. Oliver and Hunter.

(see p. 274.)

ANDROSACE LANUGINOSA.

Many of our most attractive alpine flowers present us with problems of cultivation in our climate, but there are others, again, of the greatest charm which respond to our slight efforts with ungrudging rewards. Of such is, certainly, the lovely Androsace lanuginosa, one of our very finest rock plants, without which no rock garden can be said to be complete. Of all those who have written of it in our gardens, not one, so far as I can recollect, has ever ventured to depreciate its beauty or to offer disparaging remarks regarding so exquisite a plant. Its cultivation presents no special difficulty, the only reservation being made by those who experience trying winters or rapid and spasmodic changes from mildness to severe frost; snow to hail, and rain succeeded speedily by severe frost. These have recommended a glass covering in winter, but it is only in exceptional cases that this is required, and for the most part, A. lanuginosa, although a native of comparatively low elevations in the Himalayas, calls for no protection. Its needs are a well-drained, open soil and a sunny place, if available, a rock over which to trail, or the surface of a moraine where its lovely silky leaves and heads of the most exquisite rose-lilac flowers look so enchanting. No words can convey their beauty, and even the finest colour printing is deficient in power to portray the charming features of this Androsace.

The variety A. l. Leichtlinii is also very beautiful, with its whitish blooms emphasising the yellow or crimson eyes which lend additional beauty to the flowers. It must be many years since this form came to this country, but I can remember, as if it were yesterday, seeing it in the garden of a long departed friend possessed of ample means, who made his garden a home for new or rare alpines so soon as he heard of them. His plant was a good one, and A. l. Leichtlinii has since made its way to many gardens. A great advantage of both A. lanuginosa and its variety is that they bloom for so long. As this is written on September 27, I have both in flower, and they give promise of bloom for a long time to come, unless unusually severe weather should intervene. I may add that both of these Androsaces may be propagated by cuttings or layers. *S. Arnott.*

POTENTILLA DAVURICA.

This is a delightful shrub for a close-up position in the rock garden, and one that should make a very charming inmate of an old stone sink or pig-trough. It differs from its relatives of the P. fruticosa set by having glabrous leaves. These are composed of five stalkless leaflets, each about half-an-inch across. The flowers are white, one inch across, and usually produced singly. In its habit of growth, P. davurica is also distinct from any of its nearer allies, for it makes a dense, compact mound. This is said to attain the height of one foot, but it is more often seen at about half that stature. It is a deciduous species, and appears to have been introduced from its native Siberia so long ago as 1822. Syn. P. glabra. *J.*

MESEMBRYANTHEMUM.

(*Continued from p.* 254.)

18.—PRENIA, N. E. Br.

Succulent perennials, papillate, either with short branching main stems bearing tufts of crowded leaves at their ends, from which decumbent flowering branches arise, or with long, prostrate stems having distinct internodes. Leaves opposite, sessile, several times longer than broad, linear-lanceolate, flat or channelled above and keeled or rounded on the back. Flowers in terminal, lax, few-flowered cymes or occasionally solitary. Calyx produced above its union with the ovary into a short tube, 4–5- lobed above. Petals numerous, in 2–3 series, united at the base into a short tube, arising just above the union of the calyx with the ovary. Stamens numerous, arising from the tube of the corolla, erect; staminodes none. Stigmas 5, filiform and as long as the stamens. Ovary partly superior, 5-celled; placentas axile. Capsule (where known) obconic, half-superior, with 5 valves and cells; each valve with the expanding-keels closely contiguous, forming one acute central keel, and with large marginal, wing-like, sub-membranous flaps standing erect or infolded towards the keel; cells open, without cell-wings or tubercles. Seeds compressed, somewhat D-shaped in outline, minutely tuberculate.—N. E. Br. in *The Gardeners' Chronicle*, 1925, Vol. LXXVIII, pp. 412 and 433.

Species 2, natives of South Africa; the type of the genus being P. pallens, N. E. Br.

The name is derived from the Greek, *prenes*, prone or bent forwards, in allusion to the decumbent flowering branches.

As the two species comprising this genus are well figured and described, and as I have no living material of them, I merely distinguish them by the colour of their flowers and give references to their places of publication.

1. P. pallens, N. E. Br.—Petals white or pale yellowish white.

M. pallens, Ait. *Hort. Kew.* Ed. 1, Vol. II, p. 182; Haw. *Obs.* 197, *Misc. Nat.*, p. 52, *Synop.* p. 250, and *Rev.* p. 168; Salm Dyck, *Mes.* §63, f. 2; Berger, *Mes. und Port.*, pp. 45 and 46, f. 6, not of Jacquin. M. lanceum, Thunb., *Prodr.*, p. 89, and *Fl. Cap.*, ed. Schultes, p. 417; Sond. in *Fl. Cap.*, Vol. II, p. 455; Haw. *Misc. Nat.* p. 54, and *Rev.*, p. 170; N. E. Br. in *Bothalia*, Vol. I, p. 157. M. loratum, Haw. *Rev.* p. 168. M. expansum, Dl., *Pl. Grass*, t. 47, not of Linné. Platythyra pallens, L. Bol. in *S. Afr. Gard.* 1927, pp. 326 and 327, f. 11, F.

Cape Division: Near Maitland, Wolley Dod, 2131! Pappendorp, Pappe! and Clanwilliam Division, Leipoldt 353! Introduced into cultivation by Masson in 1774.

Sonder, in the *Flora Capensis* above quoted, refers specimens from Zwartkops River, Bothasberg, Fish River and Kat Berg to this species, but I believe that they are wrongly named, and that possibly they may belong to P. relaxata. On what ground Mrs. Bolus refers this plant to the very different genus Platythyra is unexplained.

2. P. relaxata, N. E. Br.—Petals bright carmine-magenta.

M. relaxatum, Willd., *Enum. Pl. Hort. Berol, Suppl.* p. 36; Haw. *Suppl.* p. 93, and *Rev.* 169; Salm Dyck, *Mes.* §63, f. 1; Berger, *Mes. und Port.*, p. 45.

South Africa: Locality unknown, only known to me from cultivated specimens.

19.—HYDRODEA, N. E. Br.

Annuals, extremely succulent and watery, minutely papulose. Stems and branches prostrate, with distinct internodes, very stout. Leaves opposite at the base, alternate or occasionally opposite on the stems, sessile, stout, cylindric or oblong, obtuse. Flowers sessile, alternate. Calyx produced above its union with the ovary into a short tube, subequally or unequally 5-lobed above. Corolla small, not exceeding the calyx-lobes, arising from around the top of the ovary; petals united at the basal part into a tube. Stamens numerous, arising from the corolla tube, erect; filaments not bearded. Stigmas 5, erect, slenderly subulate, flattish; no style. Ovary half-superior (not inferior as figured), 5-celled; placentas axile. Capsule half or more than half-superior, really 5-valved, but as each valve separates into two segments it falsely appears to be 10-valved; the valves separate and stand erect, because the expanding-keels, instead of being hygroscopic so as to cause the valves to spread out flat, are converted into stiff, thin plates of parchment-like texture, that are contiguous at the lower part but separate above, and have inflexed acute points, and the valves have membranous marginal wings, infolded and united in pairs between the valves and connecting them together. Seeds very small, ovoid, smooth.—N. E. Br. in *The Gardeners' Chronicle*, 1925, Vol. LXXXVIII, p. 412.

Species 2, natives of the Island of St. Helena and Great Namaqualand. H. cryptantha, N. E. Br., is the type of the genus.

The name is derived from the Greek, *hydrodes*, watery, because the St. Helena plant is stated to be "so very succulent that it will not support its own weight when held up from the ground, and water is seen to drop from it when simply carried in the hand without any pressure," according to Mellis, *St. Helena*, p. 241.

1. H. cryptantha, N. E. Br.—Annual; branches prostrate, 4–6 lines thick, terete, very succulent, glabrous, papillate, bright green, changing to yellow as it gets old. Leaves alternate or occasionally opposite, ¾–2 inches long, 3–6 lines thick, somewhat fusiform-cylindric, obtuse. Flowers arranged in an irregularly cymose manner. Pedicels about 6 lines long, stout and stem-like, and together with the calyx-tube swelling in fruit to an ovoid form up to 9 lines in diameter. Calyx-tube continuous with the pedicel, and above its union with the ovary about 2 lines long; lobes at first (according to the figures) 1½–4 lines long, becoming much enlarged in fruit, terete, obtuse. Corolla 3–4 lines in diameter (according to the figures); petals apparently about 3–3½ lines long, united below into a distinct tube about 2 lines long, white. Stamens 1–1¼ line long (only 2 seen), filaments filiform, white, anthers apparently yellow. Stigmas not seen, all destroyed by insects. Ovary nearly superior, conically ovoid. Fruit about 7–8 lines in diameter on the living plant according to the figures, the actual dried capsule being 4 lines in diameter. Seeds ½-line long, ovoid, brown.—

M. cryptanthum, Hook. f., *Icon. Plant.*, Vol. II, p. 25, t. 1034 (1868); Mellis, *St. Helena*, p. 241, t. 26, excluding the dissections from both plates! Berger, *Mes. und Port.* p. 42.

Island of St. Helena: On a plain at Prosperous Bay, Burchell 115! "It grows on the hottest parts, in the most barren, arid. rocky soil near the sea, in the neighbourhood of Sandy Bay beach and Turk's Cap Bay, and is to be met with generally on the southern and eastern outskirts of the island." (Mellis.)

Of this very remarkable plant only a single specimen (which was collected by Burchell) exists in the Kew Herbarium. From this specimen the artist (W. Fitch) made the dissections which appear upon the plates quoted, the originals of the drawings being made upon the sheet containing the specimen. I have carefully examined the dissected flowers from which Fitch made those analyses, and also two flowers upon the specimen without damaging them, and find to my surprise that all his drawings of the flower-structure are absolutely wrong! For the sepals are not free to the base nor gibbose on the back as represented; the petals are not free to the base; the stamens do not arise from the top of the ovary around the thickened base of a style; there appears to be no style at all, so far as I can discover, but the stigmas, free parts of the petals and the stamens seem to have been eaten by mites in the flowers examined; the ovary is not inferior and is only 5-celled, not 8-celled, as represented in the dissections. I believe Mr. Fitch's drawings were partly concocted from the descriptions given in books on the structure of the genus Mesembryanthemum. They certainly do not represent the floral structure of M. cryptantha.

This genus differs from all others not only in its vegetative character, but also by the valves of the capsule being distinctly bifid, and the thin, stiff keels on the valves are not hygrometric, a character that also occurs in Conicosia.

2. H. Hampdenii, N. E. Br. in *Journ. of Bot.*, 1928, p. 106. Annual, with stout cylindric "stems creeping along the ground and covering a good deal of space." Basal leaves opposite, united at the base, apparently oblong, obtuse, flattish, but very thick and pulpy; those on the flowering stems alternate, the lower being apparently more or less cylindric or clavate or ellipsoid, as thick as broad, very obtuse, papulose and very pulpy or watery, becoming smaller, less pulpy, and bract-like towards the ends of the branches, glabrous, green. Flowers sessile, alternate along the branches. Calyx Pear-shaped or obovoid, papulose, pulpy, glabrous, green, produced above its union with the ovary into a tube 1½ line long, subequally 5-lobed above; lobes erect, 2–3 lines long and as much in breadth, orbicular, rounded at the apex, some with thin or membranous margins. Corolla small and apparently about 4–5 lines in diameter; petals numerous, not or scarcely exceeding the calyx-lobes, about 5 lines long, filiform-linear, acute, united below into a tube 3½–4 lines long, white. Stamens numerous, arising from the corolla-tube, 2–2½ lines long; filaments not bearded, white; anthers yellow. Stigma 5, erect, 2½–3 lines long, exceeding the stamens, flattish-subulate, acute, pallid. Ovary half-superior, dome-shaped and minutely papulose on the top, pale green, 5-celled, with axile placentas. Fruit not seen.

Great Namaqualand: Near Luderitz, Hampden!

Described from living material sent to the British Museum by the Rev. Hobart Hampden in February, 1928.

Although this plant has neither beauty nor grace to recommend it to notice, yet it is of very great interest to those who study the distribution of animals and plants, because it affords another link in the slight chain of evidence that exists showing some connection between the mid-ocean island of St. Helena and South Africa, for the only other known species of Hydrodea is a native of St. Helena. Other examples of this peculiar distribution are found in the genera Pelargonium, Phylica and Tripteris, of which there is one species of each in St. Helena, the remainder being mostly South African. *N. E. Brown.*

(*To be continued.*)

THE GENUS PRIMULA.

(*Continued from p.* 254).

ELATIOR (Jacq.). The Bardfield Oxlip.
(Vernales.)

A tufted, deciduous perennial, more or less covered with very fine hairs, with the exception of the blossoms. Leaves three to six inches long, oblong or broadly lance-shaped, blunt, or slightly pointed, tapering gradually to a narrowly-winged stalk, margins finely toothed. Flower stem four to seven inches tall, erect, rather stout, bearing five to eight pale yellow, primrose, or pale buff coloured flowers. Corolla concave, half- to three-quarters-of-an-inch across, segments rounded, shallowly notched at the tip and without the folds in the mouth seen in the Primrose, Cowslip, and their hybrid the false Oxlip, which this species closely resembles and is frequently mistaken for.

The plant is found in thin woods in many parts of central Europe and is confined in this country to a few localities in the eastern counties.

Culture: Plant it in good, fairly-heavy loam and leaf-soil in a damp, half-shady spot.

Var. carpathica (Fuss.). Leaves oblong or oval, contracted into a short, more or less winged stalk, surface rugose, margin crenulate; calyx inflated. Mountains of Austria and Hungary.

Var. cordifolia (Rupr.). Leaves rounded, oval, heart-shaped at the base, tapering to a more or less narrowly winged stalk, surfaces nearly smooth. Calyx narrowly cylindric, with narrow, recurved lobes. Caucasus and Armenia, at 4,000 to 6,500 feet above sea-level.

Var. intricata (Godr. et Gren.). Leaves oval-elliptic, tapering to a stalk, green above and slightly rugose. Calyx cylindric, lobes triangular. Mountains of southern Europe at 4,500 to 6,500 feet.

Var. Pallasii (Lehm.). Leaves oblong or elliptic, tapering to a distinct stalk, surfaces nearly smooth, at times slightly rugose. Calyx narrowly cylindric, lobes narrow, recurved. Mountains of north-eastern and southern Russia, Armenia and northern Persia.

ELLIPTICA (Royle). Elliptic-leaved P.
(Farinosae.)

A distinct and beautiful species of tufted habit, with elliptic-oval, or oval-oblong, sharply-toothed, somewhat thin leaves, from half-an-inch to one inch long, smooth above and glaucous below, both surfaces being quite free from meal. Flower stem two to five inches tall, somewhat flexuose, bearing a loose, nodding umbel of from three to ten rose-purple blossoms. Corolla three-eighths to half-an-inch across, divided into five broadly egg-shaped, flat, deeply cleft lobes; tube cylindrical, with a ring at the mouth. Flowers in August.

This plant is found in open alpine meadows and on the margins of glaciers in Kashmir, Kumoan and western Tibet, reaching in its most elevated habitats over 16,000 feet above sea-level. *Wight* 2c, t. 2,000, as P. denticulata.

Culture: As for P. denticulata.

ELLISIAE (Polld.). Ellis's P.
(Nivales).

This pretty perennial is probably but a microform of P. Rusbyi. It has a somewhat stout rootstock bearing a tuft of oblong-spathulate leaves tapering to a scaly margined stalk, in all about three inches long; margins of upper half of blade furnished with small, irregular, sharp teeth; both surfaces clothed with minute scales. Flower stem two to four inches tall, bearing a dense umbel of rose-violet blossoms shading to vinous rose toward the centre, with a large, pale greenish-yellow eye. Corolla about five-eighths-of-an-inch across, divided into five truncate, retuse, very deeply-cleft lobes; tube cylindrical, slightly longer than the calyx, which is densely coated with meal. Flowers in April.

Grows in open places among short herbage on the Sandia Mountains in New Mexico, U.S.A.

Culture: Loam, leaf-soil and sand in a damp, open spot, are suggested.

ELONGATA (Watt). Long-stemmed P.
(Nivales.)

A very handsome deciduous perennial species whose resting buds are usually mealy. The leaves are produced in a close tuft and have oval, or lance-shaped blades, broad and blunt at the tip, tapering to a very long stalk, in all three to five inches long; margins coarsely toothed; upper surface smooth, underside frequently mealy. Flower stem slender, six to nine inches tall, bearing an umbel of from five to eight yellow, almost stemless flowers. Corolla about one inch across, divided into five broadly heart-shaped, toothed lobes; tube funnel-shaped, about one-and-a-quarter-inch long.

The species is found in damp, half-shady places in the Zemu Valley, Sikkim, at 12,000 to 13,000 feet above sea-level, and is remarkable for the great length of its corolla tube. It is probably a microform of P. obtusifolia.

Culture: Plant it in good, somewhat heavy loam, with limestone chippings, in a damp spot.

EPILOSA (Craib). Hairless P.
(Petiolares.)

This beautiful, perennial species has a somewhat thick, woody rootstock, clothed at the apex with brown, toothed, deciduous scales. The leaves are produced in a tuft, and have oblong or elliptic blades, blunt at the tip, heart-shaped at the base, stalkless, or with a very short, winged stalk, in all one inch to two inches long, coarsely toothed or scalloped, lobes again finely toothed; both surfaces practically smooth and free from meal. Flower stem obsolete or short, flower stalks one-and-a-half inch to two inches long, slender, slightly mealy upwards. Corolla purple, about one-and-a-half inch across, divided into five broadly heart-shaped, bilobed segments; tube cylindric, about five-eighths-of-an-inch long. This species is closely allied to P. Davidii, and is included in the sub-section Davidii of the Petiolares group.

Grows on wet rocks in Yunnan, western China, at about 6,000 feet above sea-level.

Culture: Plant it in peat, loam and limestone chippings, kept saturated during the growing season, with protection in winter.

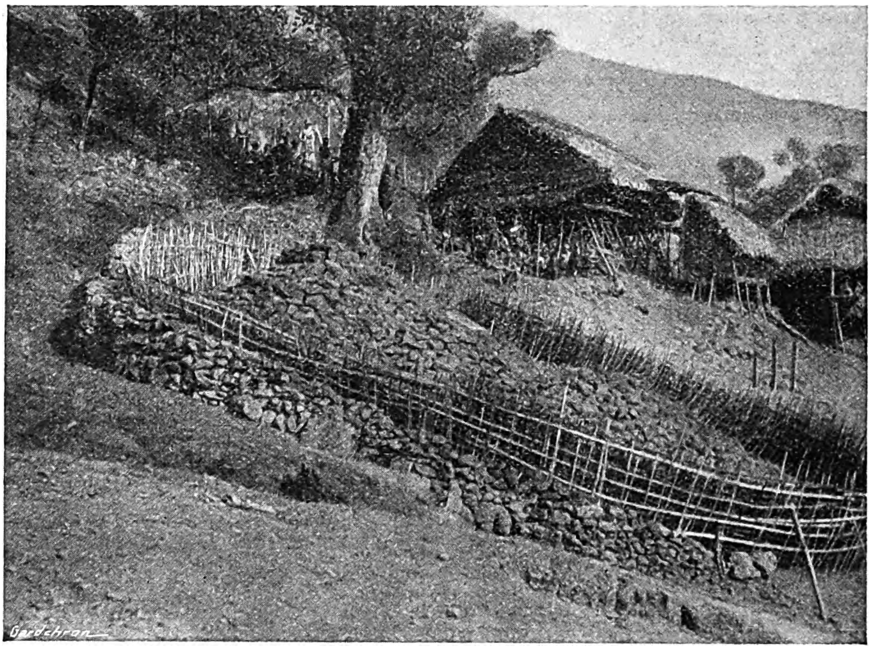

FIG. 126.—NOEL WILLIAMSON'S GRAVE AT KOMSING.
(see p. 270.)

EROSA (Wall.). Bitten P.
(Denticulata.)

A deciduous perennial with occasionally slightly mealy resting buds. The leaves are from three to eighteen inches long, with broadly spathulate or broadly lance-shaped blades, thin in texture and covered with netted veins; margins sharply and irregularly toothed; both surfaces smooth or very finely hairy and quite free from meal. Flower stem slender, six to twelve inches tall, bearing a many-flowered umbel of purple or violet blossoms. Corolla half- to five-eighths-of-an-inch across, flat, lobes broadly heart-shaped, notched, tube cylindric with an obscure ring at the throat. Flowers in May.

This species is found in damp soil in the central Himalayas from Kumaon to Bhutan, up to 9,500 feet above sea-level. *Gartenflora* II, t. 51, under P. denticulata var. erosa.

Culture: As for P. denticulata.

EROSIOIDES (Balf. f. et. W. W. Sm.). Jagged-leaved P.
(Denticulata.)

This species was formerly considered to be a form of P. denticulata, but is now deemed sufficiently distinct from that plant to be raised to specific rank by most botanists. It produces a tuft of non-mealy, somewhat thin leaves, two to three inches long, with lance-shaped elliptic or narrowly oblong, pointed or rather blunt blades narrowed into a distinct, winged stalk; margins irregularly toothed as though gnawed by insects. Flower stem stout, four to nine inches tall, bearing a dense head of lilac or purple blossoms. Corolla concave, half- to five-eighths-of-an-inch across, divided into five broadly heart-shaped, cleft lobes; tube slightly ringed.

It grows in damp mountain meadows in Nepal and western Tibet.

Culture: As for P. denticulata.

ERYTHROCARPA (Craib). Purple-stemmed P.
(Denticulata.)

This is a sub-species of P. denticulata, but may be distinguished by its purple flower stem and foliage. Leaves two to five inches long, oblong-spathulate or oblong-elliptic, blunt, tapering to a more or less winged stalk sheathing at the base; margins furnished with sharp undulate teeth fringed with minute hairs; upper surface smooth, purplish-green, underside paler, with fine hairs on the veins. Flower stems stout, usually two or more in number, twelve to fifteen inches tall, sparsely sprinkled with white meal. Flowers in an umbel, numerous. Corolla purple, concave, about a quarter-of-an-inch across, divided into five oblong, wedge-shaped lobes, rounded at the tip.

Grows in damp pastures in Bhutan, central Himalayas. Introduced in 1917.

Culture: As for P. denticulata.

ESQUIROLII (Petitm.). Esquirol's P.
(Petiolares.)

A remarkable perennial species closely allied to P. Davidii. It produces a tuft of narrowly egg-shaped or ovate-oblong leaves, three to five inches long, narrowing into a winged stalk; margins of blade sinuately toothed; under surface strongly reticulated. Flower stem very short, bearing a solitary pale blue flower about one inch across. Corolla flat, divided into five broadly heart-shaped lobes; tube about as long as the calyx.

The plant grows on the sides of damp limestone caves at Gan-p-in, Kweichow, China, at about 4,000 feet above sea-level, probably in the same manner as P. Allionii.

Culture: Conditions as for the previous species would probably suit it, with protection from frost in winter. *A. W. Darnell.*

(*To be continued.*)

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MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

IX.—THE ABOR HILLS.

ALTHOUGH, as previously remarked, in the jungle no two trees in contact are alike, some species are much more common than others, and the commonest often occur with such frequency, over a limited area perhaps, as to constitute a large proportion of the forest. Up the Dihang, Terminalia myriocarpa was one such tree; Erythrina indica was another. In the foot hills one meets with trees which are familiar on the plains, many of these trees—at least those found along the foot of the mountains in what is called the Sub-Himalayan tract—ascending to 5,000 feet. The chief distinction between the plains jungle and the hill jungle seems to be the larger proportion of evergreen trees in the latter; many species common to both are evergreen, or nearly so in the hills, but on the plains they cast their leaves for a longer or shorter period during the hot weather. As one ascends, species and genera of a temperate type begin to appear, until at about 5,000 feet the hill jungle passes into the lower temperate rain forest. This also is evergreen.

In the hills there are conditions of shade and moisture—places which never under any circumstances catch a ray of sunshine—which on the plains are practically impossible; and here are found species, mostly herbaceous, peculiar to the hill jungle. On the plains, too, there are species, generally xerophytes, which are absent from the hill jungle. But on the whole there is not much change in the vegetation up to about 5,000 feet, all along the foot of the Himalayas. Of course, one cannot compare the forest flora of the markedly dry areas of the Indian plains with the hill jungle. The above remarks refer especially to Assam, where altitude, as such, has only a minor effect up to about 5,000 feet, humidity and rainfall being everywhere excessive.

Our third day's march from Pasighat was particularly pleasant, the path keeping close to the river the whole way, to Yembung, where there is a small fortified post. On a spur high above Yembung is the village of Rotung, the cause of all the trouble in 1911. On the way we passed a tubular suspension bridge across the Dihang, made entirely of cane. This remarkable structure was eight hundred feet long, and about one-hundred-and-fifty feet above the river (see p. 233, Fig. 110), although in the middle it sagged to within one hundred feet! An immense quantity of cane is used in its construction, and light as it must be, so great is the surface presented to the wind blowing through the narrow valley that it swings and sways in the most alarming manner. Of all the bridges made by the jungle tribes on the north-east frontier of India, the Abor tubular bridge is by far the most remarkable.

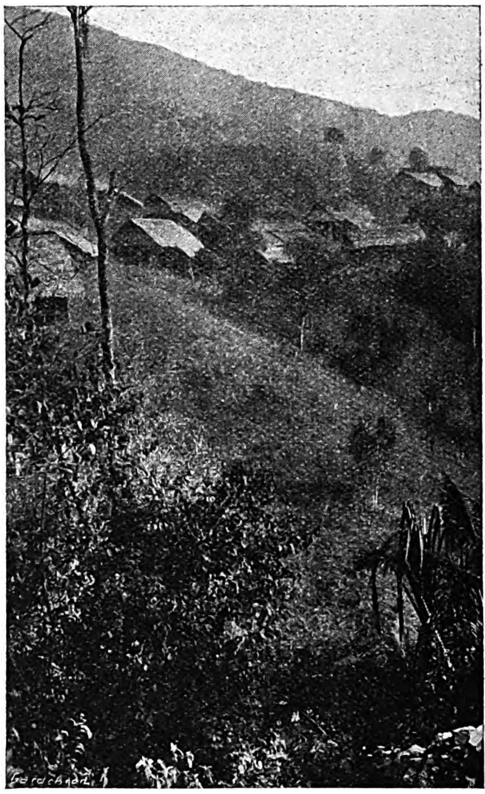

FIG. 127.—AN ABOR VILLAGE.

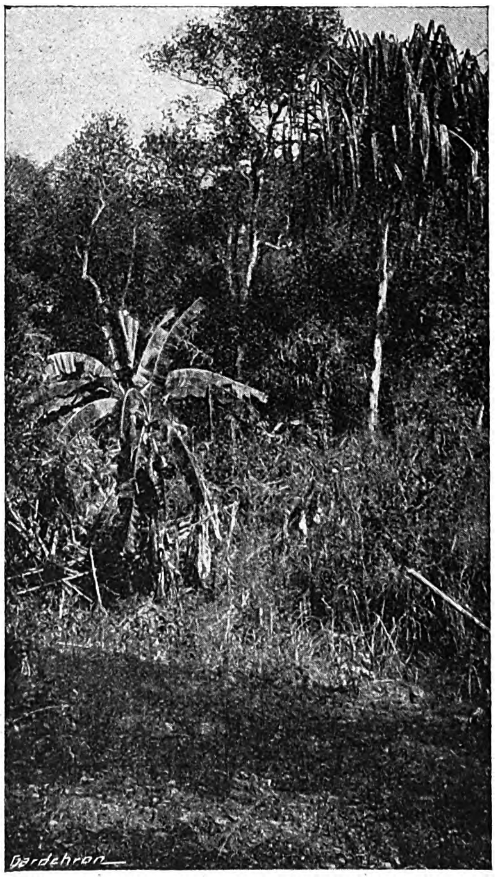

FIG. 128.—TYPICAL JUNGLE IN THE ABOR HILLS.

Pandanus, Musa, Bamboo, Jack-Fruit, etc.

On the cliffs grew a beautiful Chirita with violet flowers and long, silver-plush leaves; on the banks, another white-flowered Begonia with large leaves on long red stalks, coarsely hairy. Four species of Selaginella were also collected, from a large, erect plant eight or ten inches high, to a tiny creeping species not much larger than an ordinary moss. But the greatest prize of the day was a Vanda in full bloom, the outer petals dull green, mottled like serpentine, the lip white with violet spotting. Although abundant, a sheaf of spikes springing from the distichous leaf axils, the flowers were rather small, but so deliciously fragrant that one forgave them.

At Yembung there were Peach trees in bloom; and on a sand-bank just above normal high water, I found many flowers, including a small white Orchid, Violets, Potentilla, Strawberry, and a curiously hispid Myosotis, with tiny flowers. A little higher up the sand was held together by grass and a creeping Ficus, and back of that was the jungle.

In crevices of the cliff, where nothing else would grow, a Maidenhair Fern flourished exceedingly. Elsewhere along the rock-bound bank, scattered or massed shrubs—Coriaria, Buddleia, Skimmia—had established themselves.

At Yembung the river is crossed by a ferry, but no European is allowed to go beyond this point without an escort. Consequently, when we crossed next day, we had to regard ourselves as in enemy country, and a perimeter camp was built, with sentries on guard day and night. A few hundred yards above our camp, on the bank of the great river, was a monument built up of stones, with the following simple but significant inscription: 'Near this spot was murdered J. D. Gregorson, March 30, 1911.'

While exploring in the jungle here, I noticed a streamer of large, white, trumpet flowers caught up in a tree, and thought, for a moment that I was looking at a magnificent 'Maddeni' Rhododendron! However, investigation showed that it was a large climber, a species of Beaumontia, probably B. grandiflora, one of the tropical Periwinkles.

An hour before dawn next morning the camp was astir, and we marched at 7 a.m. The path was narrow and steep, so that we had to move in single file, the escort now marching with fixed bayonets. Also we had to keep closed up, and halts became frequent, signals between the rear guard and the 'point' being by whistle. Collecting under these conditions was difficult, but I gathered one interesting plant, a Skimmia of sorts, with handsome, fleshy leaves, the colour of beer-bottle glass, with a metallic lustre and amethyst lights inside. We came to vast cultivated slopes, high above the river, followed by dense secondary growth. And so up and down over the steep spurs, until we saw across a deep valley what looked like a motor road climbing the hill opposite; and at the top was Komsing.

Descending to the stream, and passing through a grove of 'elephant' Bamboo, we reached an open level space at the foot of the next hill; and here orders were given for the construction of a perimeter camp. A hundred men were soon at work clearing the scrub, running up shelters, and building a defensive perimeter. Meanwhile, the *gams* of Komsing, in their red coats, had assembled to pay their respects to the Political Officer, bringing presents of fowls and eggs; for although Komsing is beyond the administration line, our arm is not so short but it will reach thus far, and every few years the Political Officer visits Mr. Williamson's grave (Fig. 126) to see that it is being properly cared for by the village, and respected. Besides, the Minyong Abors were becoming involved in the local land war,

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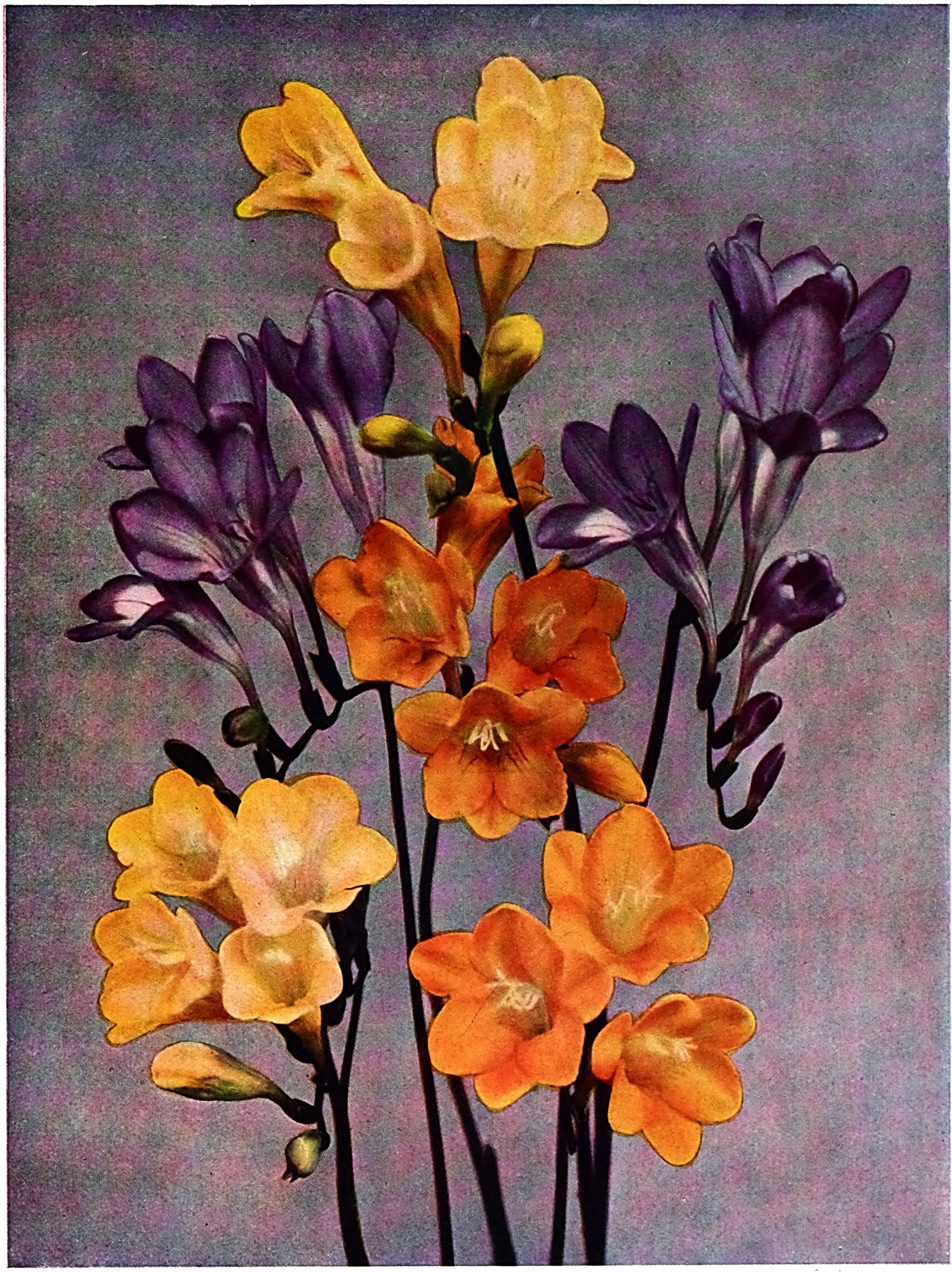
* Previous articles on Mr. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII, and July 7, 21; August 4, 25, and September 1 22 1928.



COLOURED FREESIAS.

and fantastically hoped for assistance from the British! Beyond Komsing, however, even the Political Officer himself is forbidden to go. Sanction for a further advance up the Dihang would have to be obtained, not from the Government of India merely, but from the Secretary of State; and it is certain that the minimum escort, in the unlikely event of our having to penetrate further into the Abor Hills, for some time to come would be two hundred rifles. And that, of course, means a big expedition. The Minyong clan at any rate are friendly enough.

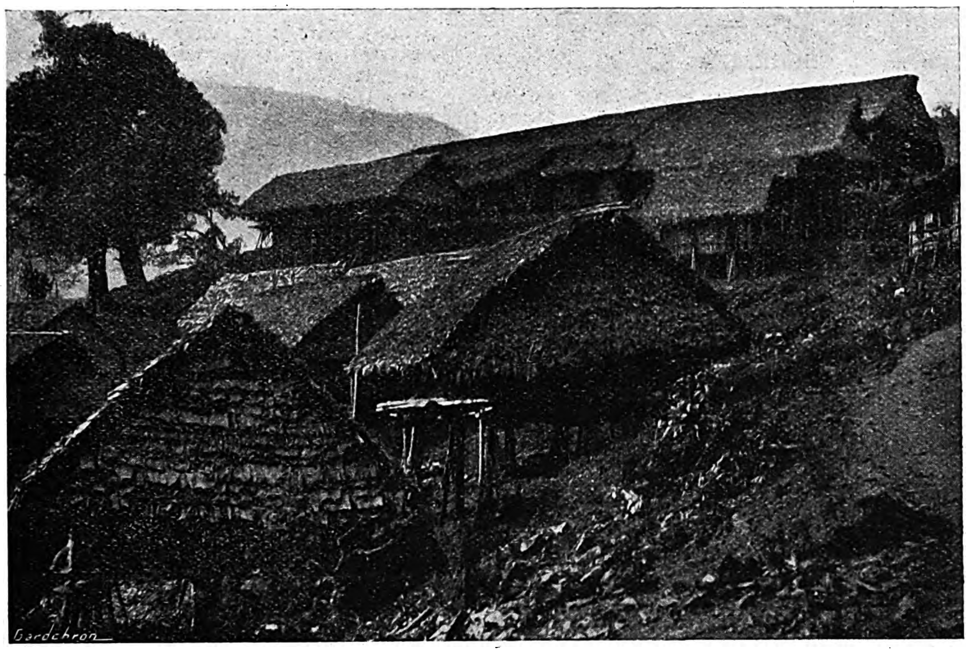


FIG. 129.—ABOR HUTS, BUILT ON "STILTS" AND THATCHED WITH PALM LEAVES.

After lunch we climbed up to the village, the apparent "motor road," although broad enough, proving to be almost precipitous and deeply scored. Komsing, which contains perhaps a hundred houses, stands on the slope, surrounded by Bamboo clumps, Pandanus, and Jack trees. The huts, which are in clusters, are small, raised on a forest of short piles (Fig. 129), and made of boards or Bamboo matting, with Palm leaf thatch. Under a spreading tree, hard by Mr. Williamson's grave, the Political Officer held a *kebang* (Fig. 130) or council, attended by all the *gams* and Elder Statesmen, while women and children looked on, and *mithan* pried about. It was a fine sunny afternoon, hot and drowsy, and the village looked peculiarly peaceful. So, too, it may have looked on that March afternoon seventeen years before, when Mr. Williamson, eager to unravel the mystery of the Dihang, had been treacherously cut down from behind, in the open street, perhaps at this very spot.

After the *kebang* we returned to camp, where we remained two days. The hillsides, being everywhere cleared of jungle, were not so attractive to the botanist, but as the Abors were obviously friendly, we were able to wander about freely. However, there was little in flower, and not much effective collecting could be done so early in the season. I have referred to the epiphytic flora as mainly Monocotyledonous. The abundant liana flora of the forest is equally Dicotyledonous: Beaumontia grandiflora, Combretum chinense, with apple-red wings to the fruit; Sabia, Jasminum, Mucuna, Clematis, Thunbergia and Vitis were among the climbers collected or noted. The undergrowth is largely composed of vascula Cryptogams—Ferns in great variety, species of Selaginella and Lycopodium.

On February 17, we started on the return journey. For the last two days the weather had been bad, with thunderstorms and angry-looking skies; but although it still threatened and gloomed when we started, by the time we reached the hilltop overlooking the river, it cleared up, and we could see, away to the north, the snow glittering on the mysterious mountains where the dangerous Galongs live.

Crossing the Dihang once more, we were back in administered, or at least "controlled" country; whence three marches brought us to Pasighat on the 20th. Few plants were collected on the homeward journey, but a bush Clerodendron with milk-white flowers was seen, also three species of Impatiens, and a white-flowered Asystasia, the latter abundant on sunny banks along the roadside, with Begonias; two species of Violet, and a very hairy plant with winged petioles and pale flowers. Near Pasighat, Derris robusta had burst into clouds of scented, white blossom which the bees, in a battle of flowers, had strewn on the floor.

The heat in Pasighat, even thus early, was considerable, and gave a foretaste of what it must be in the hot weather; the roaring wind which blew in the middle of the day was worse than the disease it might be thought it was designed to cure. I saw here a number of dug-out canoes, some very large, the fashioning of which is an Abor industry. They are made from the trunk of Cedrela Toona, or Terminalia myriocarpa, or, best of all, Cinnamomum glandulifera, which retains its spicy smell for years; some of the larger canoes made from the last-named realise from three hundred to four hundred rupees at Dibrugarh, and are sold far down the Brahmaputra.

After two days in Pasighat we returned to Sadiya, by road and river, on February 23. Although I had not collected many specimens, it was a great experience to have seen the Dihang, and to have actually been into the Abor Hills; I believe Mr. A. Burkhill is the only other botanist who has been up the Dihang previously. At Komsing we must have been somewhere between two hundred and two-hundred-and-fifty miles below the point where I emerged from the Tsangpo gorge in 1924, measured along the river; and there can be no doubt that, could one only go back into the mountains east or west of the Dihang, at 8,000 to 10,000 feet, one would reap a rich harvest of novelties. For that is virgin territory in a prolific area.

On the evening of February 23 we were back in Sadiya. Mr. H. Clutterbuck, who was to accompany me up the Lohit, had just arrived from Calcutta. We now faced the major problem together. *F. Kingdon Ward.*

FALLEN FRUITS.

The subject of the rights and liabilities of the owners and occupiers of adjoining garden land with regard to trees which overhang the property of the one, being planted in the garden of the other, and fruits which has fallen from trees on one's property on to the property of the other, is one which is always giving rise to trouble, especially at this time of the year. In most instances, of course, the value of the fallen Apples, or whatever the fruits may be, is not very great, and so it is not often that the parties consider it worth their while to go to a Court of Law to obtain a ruling on the matter, with the result that the leading cases on the subject are not at all numerous.

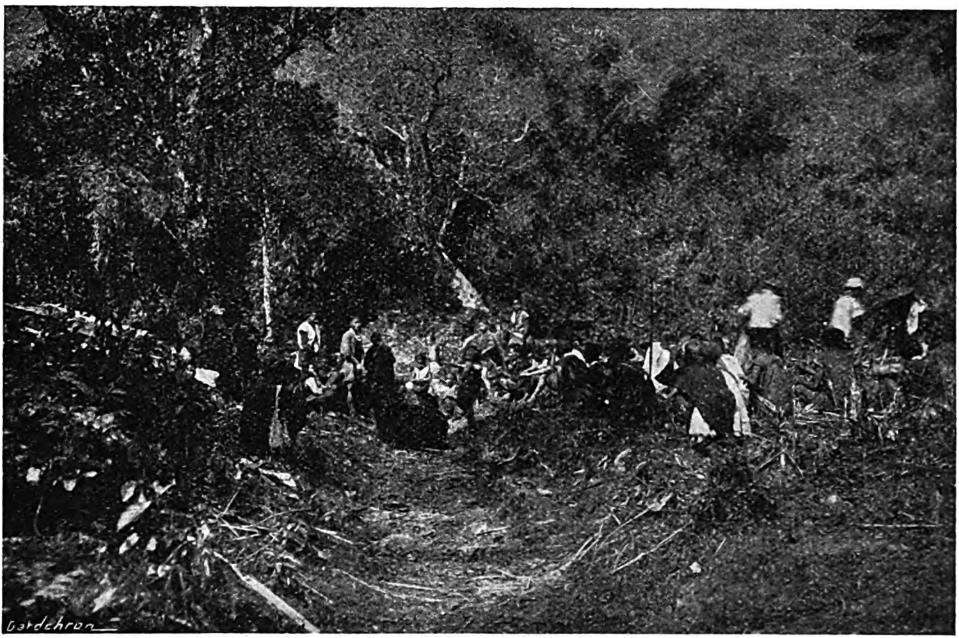


FIG. 130.—A KEBANG: ABORS DISCUSSING MATTERS WITH THE POLITICAL OFFICER AT KOMSING.

The subject of the overhanging branches has already been dealt with in these columns, so I will confine attention to the cases where fruits have fallen off a tree belonging to one man on to the garden land of his neighbour, and what he is to do if the neighbour refuses to let him come on to his property to gather it, or to return it to him.

In the case of "Mills versus Brooker," which was before the courts in 1919, the whole subject was gone into, and it will be useful to consider the facts of this case and the decision that the Court gave on them.

The question to be decided was whether the neighbour had any right to take the fruits from several Apple trees which belonged to the plaintiff, but overhung on to the defendant's premises? The defendant had, as a matter of fact, gathered several bushels of the Apples, some of which were Bramley's Seedling, and altogether were of considerable value, and sold them, and it was contended on his behalf that as the fruits were taken from branches which hung over his garden and which he was legally entitled to remove as constituting a nuisance, he had also the right to take the Apples off those branches.

The case started in the County Court, and the judge there held that by picking the Apples off the branches he had separated them from the branches legally as well as physically, and that the defendant was therefore liable, and damages were granted to the owner of the trees for the loss he had suffered, in this case estimated at £10.

This decision was appealed against, and it was then argued for the defendant that he would have been allowed to take the fruits if they had been blown by the wind on to his premises, and that he had a right to lop off the overhanging boughs with the fruits that were on them; that he had, in fact, acted entirely within his legal rights.

For the other side it was allowed that the defendant had done no wrong in removing the Apples, but it was after he had removed them and converted them to his own use that the wrong arose. On behalf of the owner of the trees a passage from Halsbury's *Laws of England* was also referred to which might well be repeated here. "Another kind of deposit is that in which a chattel (*i.e., goods or things*) through circumstances over which neither the owner nor recipient has any immediate control is deposited upon the land or premises of another. For example, timber carried by the tide in a navigable river and left at low water on the towing path, *fruit dropped from a neighbour's garden* . . . In such cases, so long as the involuntary depository does no overt act to the chattel thus deposited on his land, he incurs no responsibility to the true owner in respect thereof. But if he interferes with it an implied contract of bailment is created, with all the obligations and responsibilities, and if he not only interferes with it, but uses it for his own purposes, such user amounts to a conversion."

Thus Halsbury, in rather quaint language, clearly states that if fruits fall from one man's trees on to another man's land, the latter will be liable if he converts them to his own use.

We have seen the arguments for both sides; let us now consider the judgment of Mr. Justice Avory. He held that, although the defendant had a right to lop overhanging branches, this right gave him no claim to the Apples which were on them. It was, in fact, a right to abate a nuisance and in no way transferred the ownership in the Apples, and so soon as they were severed and the defendant converted them to his own use he committed a wrong, and therefore must compensate the owner of the trees for the loss he had suffered.

To sum up; although a man may lop the branches off his neighbour's trees so far as they hang over his land, he has no right to pick and sell the fruits which are on them, since they are the property of the neighbour and remain his, even after the branches have been cut off.

Whether the owner may go on to his neighbour's land and pick up the fallen Apples was not discussed in the above case, and the law on the subject does not seem too certain; some authorities point to the view that he may do so, while others state that he should first give notice of his intention to do it and this latter view certainly seems to be the most practicable. At any rate, he may always estimate their value, and sue the neighbours for their return or value. *H. A. S.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante. pp. 112-118.)

(*Continued from p.* 256).

ENGLAND, S.

Middlesex.—Crops generally are rather patchy, some trees, both of Apples and Pears, bearing good average crops, others being just the reverse. Plums are fairly plentiful and the same may be said of Cherries and soft fruits. Raspberries and Strawberries were very satisfactory, as also were Gooseberries. Peaches are much below the average; the trees produced plenty of flowers but they failed to set fruits owing, probably, to the cold spell of dull weather experienced last autumn, when bright sunshine was needed to ripen and harden the summer growths. Nuts are nil, for the male catkins were killed by the frosts. *H. Markham, Wrotham Park Gardens, Barnet.*

——So far, the season has been very remarkable for the variation of the weather; in the spring the wind was mainly from the north-west and cold, with frosts, those on April 15 and 16 being responsible for the loss of the Plum and Pear crop, for all the trees had a wonderful show of blossom. To-day, July 22, we are menaced, for there have been fourteen rainless days, consequently many crops are suffering. Apples are good, although far from being a full crop. Morello Cherries are plentiful, but there are very few Plums. Strawberries were a rather light crop and disappointing. Black and Red Currants have yielded better than was expected. As a result of heavy waterings given them during the drought, Raspberries gave a splendid crop of good-sized berries. The soil here is very heavy. *James A. Paice, Sunnyfields Gardens, Mill Hill.*

Surrey.—Fruit crops in this district are very patchy. Strawberries, although a total failure in these gardens, have been abundant in others not far away. I notice that some varieties of Apples which fruited heavily last year are again laden with fruits, but these are dropping badly owing to the prolonged drought. Part of the soil here is light, sandy heathland soil and the remainder is heavy loam, overlying clay. *Grigor Roy, Bevenden Gardens, Oxshott.*

——The display of fruit blossom this spring was a pleasant surprise after the wet and sunless season of 1927. Pears, Plums and Strawberries are our best crops, and all small fruits have been clean and good. Cox's Orange Pippin, Blenheim Pippin and Claygate Pearmain are the best among Apples, although many others are carrying good crops. At the present time the fruits are small and do not look very promising. Fruit trees in this district have made poor growth; they look scorched and unhealthy even where they have been kept clean. Much may be due to the cold nights and very hot days experienced; at present, they do not give much promise for next season. *F. Jordan, Ford Manor Gardens, Lingfield.*

——Apples set well after a grand display of flowers, and are causing considerable labour in thinning; pests of all kinds have been a source of worry, keeping the spraying machine constantly in use when the weather permits. Mildew has been, and is, more persistent this year than I have experienced for many years. Capsid bug, one of the most deadly enemies the Apple grower has to contend with, is also plentiful. Pears are carrying a clean, healthy crop, especially on the walls. The Plum blossom was very plentiful, but the sharp frosts from April 17 to April 24 spoiled the blooms of most of the trees in the open. All small fruits, especially Gooseberries, and Black and Red Currants bore heavy and clean crops. Peaches and Nectarines were especially good. Most of the soil here is of a light, sandy nature, over a subsoil of gravel. *G. Carpenter, West Hall Gardens, Byfleet.*

Surrey.—The fruit crops, on the whole, may be described as very satisfactory and above the average, so far as this garden is concerned. The cold nights which we experienced during May and the early part of June were not favourable to hardy fruit crops, which were retarded for a fortnight at least. Apples and Pears are again very plentiful and of good quality, but they are beginning to suffer from lack of rain. Plum trees on walls are rather thinly cropped, but standard orchard trees of Early Prolific and Victoria are carrying good crops. Damsons too, are exceptionally heavily laden. Small fruits have done very well, including Black, Red and White Currants, and Gooseberries. Raspberries and Strawberries have been first-rate and well over the average. It is seldom that Strawberries have been so good and highly flavoured. Royal Sovereign Strawberry has again been the best main crop variety. Medlars and Quinces are bearing well. Walnuts, Filberts and Cob Nuts are fairly abundant. The soil in these gardens is very light, overlying gravel and chalk for the most part. *John H. Shipley, Haling Park Gardens, South Croydon.*

——Apples here are a very good crop and promise to be of good quality, being assisted by the brilliant sunshine of the past few weeks. Pears, although a very light crop, promise to be of good size and quality, especially on old trees with roots capable of finding moisture during the present drought. Peaches, Apricots and Plums were caught by frosts during the flowering period, consequently they are a very light crop. The Raspberry canes were also damaged by frosts in April, but about one-quarter of the plantation, which escaped, fruited remarkably well. Black Currants were also affected by frosts when in bloom, so that the crop was poor. The soil here is a sandy loam, over gravel. *O. Maddock, Ham House Gardens, Richmond.*

(*To be continued*).

HOME CORRESPONDENCE.

Geranium sanguineum var. lancastriense.—Surely Mr. W. H. Stansfield (p. 208) has committed a "slip of the pen" in describing the colour of "true plants" of this delightful Cranesbill as "magenta." I have always considered the absence of the family magenta to be one of the most distinguishing features of this little plant, and would describe the latter's colour as a soft clear rose, with veinings of carmine. One cannot conceive so good a judge of plants as Mr. Stansfield making an error in identification, but in common fairness to a very lovely Geranium, I feel constrained to utter a protest against what I take to be an error in description. *A. T. J.*

Mimulus Bartonianus.—This plant, which was referred to on p. 206 of *The Gardeners' Chronicle*, was raised from M. Lewisii some years ago by Mr. H. D. M. Barton, of The Bush, Antrim, in his wonderful garden, where many plants, including some difficult ones, luxuriate in a remarkable manner. A most profuse and perpetual-flowering subject, covered with bright rose-coloured flowers from early June to October, M. Bartonianus should never be staked, but allowed to sprawl, thereby forming mounds fifteen to eighteen inches high. As a bold edging plant it is unsurpassed. Three years ago it sported here, a shoot or two bearing glowing coppery-scarlet flowers. This has been fixed and named M. Sunset; it has the same good qualities as M. Bartonianus, but has flowers of a much brighter and more striking colour. So far, I have not found any fertile seeds on either plants, but as they strike quite easily from cuttings, there is no trouble about their propagation. *G. N. Smith, Daisy Hill Nursery, Newry.*

[The flowering growths of M. Sunset, which Mr. Smith forwarded to us, certainly indicate a remarkably free-flowering, striking, and distinct Mimulus.—Eds.]

ROYAL HORTICULTURAL SOCIETY.

GREAT AUTUMN EXHIBITION AT WESTMINSTER.

September 27 and 28.

It is so easy to criticise systems and organisation, yet few of the many who are so profuse with their criticisms are able to offer suggestions of fundamental value, so that we, upon this first occasion on which the Royal Horticultural Society held its great autumn exhibition in its own premises, have nothing but praise to bestow, upon the show, for the magnificence and quality of the exhibits left very little to be desired. Naturally, there were weaknesses in the organisation, which of necessity was of an experimental nature, and we look forward to future great shows in the Society's halls when these difficulties will have been overcome and systems devised whereby all who visit them may leave with the knowledge that they have seen all that there is to be seen, without the feeling of having been crushed and almost trampled upon. The attendance of visitors was, on the first day especially, exceptionally high, and from the time that the show was opened until the doors were closed, there was a steady flow of people through the turnstiles of the new hall. The Committees had an extremely busy time with new plants put up for awards. The Orchid Committee awarded one First Class Certificate and five Awards of Merit, while the Floral Committees gave eight Awards of Merit, besides recommending numerous Dahlias, perennial Asters, and other subjects for trial at Wisley. The Fruit and Vegetable Committee recommended a new Blackberry to be included in the Commercial fruit trials now being conducted at Wisley, while there were numerous fruits placed before this Committee for identification. Both the halls were packed to their fullest capacity with exhibits those of trees and shrubs, Dahlias and indoor plants in the new hall, and of Roses in the old one, being worthy of special praise, if such may be given where all were of fine quality.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Mr. Gurney Wilson (Hon. Sec.), Mr. E. R. Ashton, Mr. Stuart H. Low, Mr. R. G. Thwaites, Mr. J. C. Cowan, Mr. Robert Paterson, Mr. T. Armstrong, Mr. A. McBean, Mr. W. H. Hatcher, Mr. Charles H. Curtis, Mr. J. Shill, Mr. H. G. Alexander, Mr. Fred K. Sander, Mr. A. Dye, Col. Stephenson Clark, Mr. Frederick J. Hanbury and Mr. S. W. Flory.

First Class Certificate.

Brasso-Cattleya Mithra, Dell Park var. (*B.-C. Safrano × B.-C. Amber*).—A very beautiful hybrid with flowers of good size, fine form and excellent substance (Fig. 123). The sepals and petals are widespread, opening out well, and are of a rich shade of yellow, forming a fine setting for the yellow and brownish orange lip. This latter organ is exquisitely frilled and has a curious contraction just below the side lobes. Shown by **Baron Bruno Schröder** (gr. Mr. J. Shill), Dell Park, Englefield Green.

Awards of Merit.

Cattleya Acaenas, The Node var. (*C. Dowiana aurea × C. Venus*).—A handsome form, with large flowers of soft yellow, lightly shaded with brownish-orange; lip red, with golden veins at the base. Shown by Mrs. **Carl Holmes** (gr. Mr. W. J. Penton), The Node, Welwyn.

Dendrobium sanguinolentum sulphureum.—A charming variety with sulphur-yellow flowers, with a brown spot on the shovel-shaped lip. This Orchid was shown as D. s. album, but the Committee considered sulphureum a more appropriately descriptive title. Shown by Sir **Jeremiah Colman**, Bt. (gr. Mr. J. Collier), Gatton Park, Reigate.

Laelio-Cattleya Canberra, Brockhurst var. (*C. Venus × L.-C. Litania*).—The broad sepals and petals of this variety are orange-yellow, the colour being deeper towards the margins. The lip is deep ruby-red. Shown by **Fred. J. Hanbury**, Esq. (gr. Mr. S. Farnes), Brockhurst, East Grinstead.

Cypripedium Eton.—The parentage of this variety was called in question, and many members of the Committee considered it to be a form of C. Zouave. It has a good deal of the general appearance of certain forms of C. Hera. The dorsal sepal is purple on a white ground, with brown shading at the base; petals rich brown and green; lip pale purplish-brown and green. Shown by **E. Phillips**, Esq., Tamworth, Stoke Bishop, Bristol.

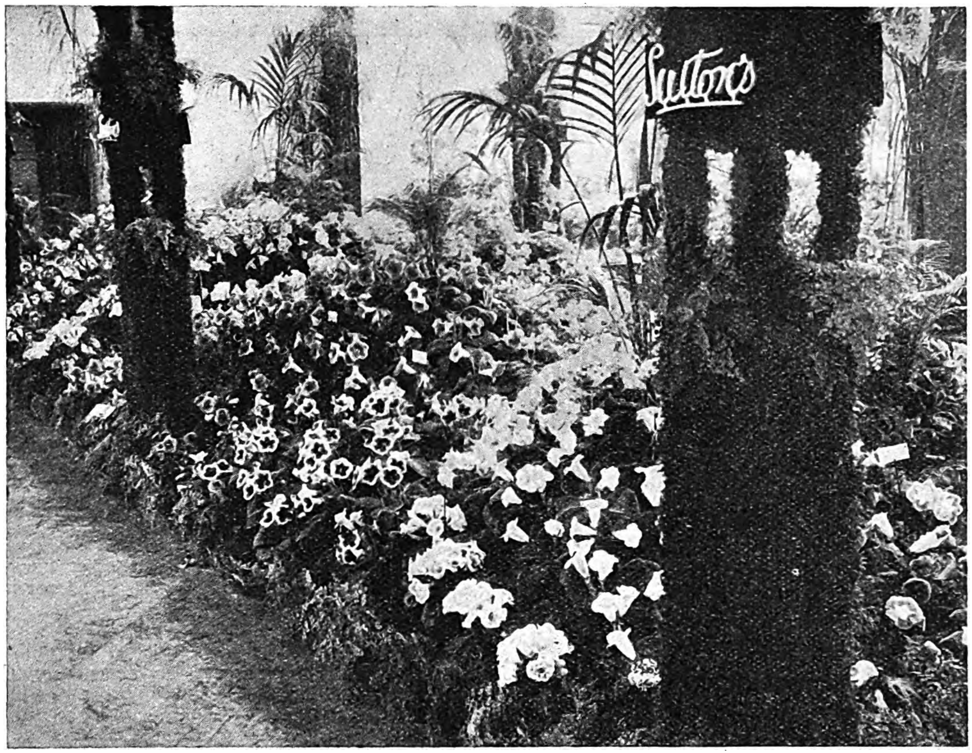


FIG. 131.—R.H.S. AUTUMN SHOW: PART OF MESSRS. SUTTON AND SONS' EXHIBIT OF GLOXINIAS.

Brasso-Laelio-Cattleya Golden Queen (*B.-L.-C. Golden Crown × C. Miguelito*).—A very effective Orchid with light bronzy-yellow sepals and petals, faintly suffused with carmine. The big lip is ruby and gold, very like the lip of C. Hardyana. Shown by **Robert Paterson**, Esq. (gr. Mr. Merry), Stonehurst, Ardingly, Sussex.

Cattleya Hardyana var. King Emperor.—A gorgeous variety of this grand old natural hybrid. The handsome lip has a very large, clear yellow area with a purple margin, and an intense Tyrian-purple apex. Shown by Messrs. **Stuart Low and Co.**

Groups.

Five excellent groups of Orchids were forthcoming on this occasion and, together, they made a very bright, attractive, and interesting display.

Messrs. **Stuart Low and Co.** elevated their back row plants more than the other exhibitors and this made their group more imposing, especially as these plants were of Oncidium varicosum Rogersii, carrying fine, branched spikes of golden flowers. Below these were fine examples of Cattleya Hardyana alba, the brilliant C. Hardyana var. King Emperor, the handsome Brasso-Laelio-Cattleya Shinzik, and the yellow B.-L.-C. Amber. Laelio-Cattleyas were represented by L.-C. Illustrious, L.-C. Royal Standard, L.-C. Queen Mary, L.-C. Rosemary and L.-C. St. George. Angraecum Ellisii, Oncidium Lanceanum, and the pretty little Laelia monophylla were also included in this group.

Messrs. **Charlesworth and Co.** arranged a display in which Odontoglossums and Odontiodas figured extensively, together with Odontonia Nubia, Oncidium varicosum Rogersii and Vuylstekeara Melba var. atro-purpurea. Cattleya Adule, C. Helga, C. Woltersiana and C. Lorna were very attractive, while the large flowers of Brasso-Laelio-Cattleya xanthina and Brasso-Cattleya Penelope stood out prominently.

Messrs. **Sanders'** group was a bright one and contained a large variety of subjects. Brassia brachiata var. giganteum was prominent and Cyrtopodium punctatum arrested attention, while Vanda coerulea, Dendrobium Phalaenopsis and Oncidiums added grace and colour. In the centre of the display a group of the white Cattleya Alcimeda alba arrested attention, and near-by we noticed Cattleya Hardyana alba, the quaint Lycaste longiscapa, and the pretty but small Stenoglottis longifolia. Two large plants of Angraecum Ellisii were placed at the ends of the group.

Cattleyas were well shown in a very prettily-arranged group from Messrs. **Black and Flory**, their leading kinds being C. Lorna, C. Eleanore alba, C. Bridesmaid, C. Royal Purple C. Adula and C. Sylvia, with Brasso-Cattleya Carmencita, and a fine example of Miltonia vexillaria var. Queen Alexandra.

Messrs. **Cowan and Co.** displayed good Cypripediums to advantage, their set including

C. Elatior and C. leyburnense magnifica. Odontoglossum Everest was very fine and Cattleya amabilis alba was well represented. Other good things included Cattleya Aeneas, C. Princess Royal, Laelio-Cattleya Camilla and L.-C. Canberra in variety.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. J. F. McLeod, Mrs. Helen Lindsay Smith, Mr. Arthur Turner, Mr. J. B. Riding, Mr. J. T. West, Mr. C. F. Langdon, Major George Churcher, Mr. William Howe, Mr. E. R. Janes, Mr. M. C. Allwood, Mr. R. Findlay, Mr. Hugh Dickson, Mr. D. Ingamells, Mr. Donald Allan, Mr. J. M. Bridgeford, Mr. D. B. Crane, Mr. H. R. Darlington, Mr. A. E. Vasey. Mr. Charles E. Pearson, Mr. G. W. Leak, Mr. W. B. Gingell and Mr. W. D. Cartwright, Secretary.

Section B.—Mr. W. J. Bean (in the chair), Mr. G. Reuthe, Mr. F. G. Preston, Mr. T. Hay, Mr. A. Bedford, Mr. W. B. Cranfield, Mr. G. Yeld, Mr. L. R. Russell, Mr. R. C. Notcutt, Lady Beatrix Stanley, Mr. Charles T. Musgrave, and the Hon. Henry D. McLaren.

AWARDS OF MERIT.

Chrysanthemum Ophelia.—As there already is a Chrysanthemum Ophelia, and of similar type, this new variety should be renamed. It is a graceful flower of bright mauve-pink colour and has a lemon-coloured reverse which shows in the centre of the bloom. It is recommended as an indoor variety. Shown by Mr. H. Shoesmith, Junr.

Colchicum Glory of Heemstede.—The large flowers are tessellated and barred with bright purple—although not so regularly as in C. Parkinsoni—on white ground, except at the throat. This, and the two following varieties was shown by Mr. G. C. van Meewven.

Colchicum Premier.—This is another tessellated variety on white ground, with a white throat, but the colour of the bars is a pale purple.

Colchicum Water Lily.—A very pretty double variety made up of narrow, bright mauve segments.

Manihot utilissima var. variegata.—An illustration of a two-stemmed variegated Manihot growing in Java appeared in *The Gardeners' Chronicle* of July 7, last, and in an accompanying note Mr. F. N. Howes drew attention to its great decorative value as a stove plant. The specimen which received the award was an especially well-grown, single-stemmed plant, furnished with large, palmate leaves which showed the characteristic distinctly yellow variegation, which contrasts finely with the bright red petioles. The whole of the stem was coloured yellow, although this changes to brown with age. Shown by the Director, Royal Gardens, Kew.

Omphalogramma elegans. Forrest sp. 21,793.—This species was collected by Forrest in "moist pastures on the margins of and amongst dwarf scrub" in Tibet, in 1922. It is an exceedingly interesting and attractive little plant allied to the Primula. The small leaves, which apparently become fully developed after the flowers fade, are ovate-lanceolate, sage-green-coloured, and covered with fine hairs which give a greyish, woolly appearance. The plant bore one flower on an erect stalk about four inches in height. The flower stalk and small pointed calyx are clothed with fine white hairs. The corolla tube is coloured rich purple, while the six segments, which expand at right angles, are blue, each with indigo-purple staining along the centre, and a ciliate margin. At the mouth of the corolla tube a zone of indigo-purple gives place to pairs of primrose-coloured bars which extend from each segment to the base of the tube. Shown by Messrs. Oliver and Hunter.

Protea compacta.—An exceedingly well-grown plant, bearing four flowers and one bud, was shown. The leaves, which are small for the genus, are ovate, coriaceous and dull greyish-green. The flowers are bright rose-pink. Shown by the Hon. Mrs. Ryder, Durns, Beaulieu, Hampshire.

Sambucus glauca.—An interesting species of moderate vigour. The shining, pinnate, evenly serrated leaves are rich green. The branches bore clusters of small, white flowers and small, round, blue fruits which were thickly coated with white bloom. Shown by Lionel de Rothschild, Esq. (gr. Mr. A. Bedford), Exbury, Southampton.

Scolopendrium vulgare crispum sub-fimbriatum cristatum.—In spite of an unwieldy name which appears to be inseparable from a new hardy variety, this new Harts-tongue Fern is exceedingly attractive. The evenly-waved and lightly crested leaves are terminated by an almost "Cockscomb-like" cresting. The plant was vigorous and of rich green colour. Shown by Mr. Robert Bolton, Birdbrook, Halstead, Essex.

FOR TRIAL AT WISLEY.

The following plants were selected for trial at Wisley.—

Kniphofia Fire Flame.—A medium-sized spike of yellow colour, tipped with fiery orange which becomes deeper in colour with age.

Kniphofia Golden Ray.—A small, graceful spike of yellow colour. This and the above were shown by Messrs. W. Cutbush and Son. Ltd.

Aster Friharti Jungfrau.—A graceful variety bearing large, pale mauve flowers.

Aster Friharti Wonder of Etafla.—Of similar type to the above, but with flowers which have broader ray florets of brighter colour.

Aster Friharti Tiger.—A laxer variety with pale mauve rays which incurve at the tip.

Aster Friharti A. F. Monck.—A sturdier form of the above, bearing darker flowers. The above-named Michaelmas Daisies were shown by Sir William Lawrence, Bt., Burford, Dorking.

Aster Bright Eyes.—An attractive Novi-belgii variety bearing a compact head of blue flowers which have a small yellow disc. Shown by Mr. A. Ballard.

Chrysanthemum Pink Domino.—A useful early-flowering border variety. The shapely flowers are pink. Shown by Mr. A. W. Thorpe.

Nerine Cyril Mackworth Praed.—A good spike of soft pink flowers. Shown by Lt.-Col. R. Stephenson Clarke (gr. Mr. Fleming), Borde Hill, Cuckfield.

Solidago Goldstrahl.—A sturdy, compact Rod, bearing large heads of bright yellow Golden flowers. Shown by Mr. Amos Perry.

Phlox Hon. Mrs. Balfour.—The large flowers are of bright purple colour which pales towards the centre. Shown by Messrs. E. T. Fairbairn and Son.

NEW DAHLIAS.

The Joint Dahlia Committee considered the merits of a great number of new seedling Dahlias, and selected the following for trial at Wisley:—

Jane.—A rose-coloured miniature Paeony variety which has a carmine centre.

Hypferon.—A scarlet miniature Paeony variety.

Nina.—An orange-coloured small Decorative variety marked with carmine.

Aclea.—A deep salmon-pink miniature Paeony variety.

Leila.—A lilac miniature Paeony variety which has carmine rays at the base.

Stella.—A small Decorative variety of soft pink colour. The above varieties were shown by Messrs. J. Burrell and Co.

Annie Wood.—A miniature Paeony variety of [blush-mauve colour with a yellow centre. Shown by Mr. A. F. Tofield.

Mrs. J. B. Linford.—A shapely, small Decorative variety of intense scarlet colour. This and the following seven varieties were shown by Messrs. J. Cheal and Sons.

Mrs. David Ingamells.—A shapely medium-sized, white Decorative variety.

Southdown. — An orange-salmon miniature Paeony variety.

Mrs. D. Campbell.—A rose-coloured, small Decorative variety, shaded with ruby.

Golden Star.—A shapely yellow flower.

Mrs. J. F. McLeod.—A round, glowing scarlet Single Dahlia.

Esther.—A Collerette variety of mauve shaded with white quills.

Mrs. Charles Hay.—A small, old rose-coloured Decorative variety.

Erika.—An uncommon deep velvety-maroon Collerette variety with red-maroon quills tipped with white. Shown by Mr. Charles Turner.

Mrs. William Clark.—A golden-yellow Mignon Dahlia heavily flushed with deep rose. Shown by Mr. H. Woolman.

Tanglewood Charm.—A deep orange miniature Paeony variety. Shown by Messrs. Wm. Treseder, Ltd.

Mrs. A. F. Dutton.—An orange-coloured miniature Paeony variety.

Kitty Lloyd-Jones.—A small, pale orange-coloured variety flushed with scarlet. This and the above were shown by Mr. A. J. Cobb.

ROSES.

"Magnificent" is the only term than can do justice to the wonderful displays of Roses which lined the walls of the old hall, for not only were the numerous groups, with few if any exceptions, arranged in spectacular yet tasteful fashion, but the quality of the blooms, in general, was extremely good.

On the left side of the main entrance, Messrs. A. J. and C. Allen had a splendid collection, the blooms of such varieties as Mabel Morse, Charles P. Kilham, Golden Emblem and Mrs. Henry Bowles being of outstanding merit, while there were also good sprays of the dwarf Polyantha varieties Locarno, Golden Salmon and Mariposa.

Next to this exhibit was another well-arranged group by Messrs. Benjamin R. Cant and Sons, Ltd., with beautifully arranged baskets of wonderful blooms of Golden Emblem, Covent Garden, Elsie Poulsen, K. of K., Shot Silk and Ophelia, together with vases of Mrs. Beatty, Hilda, Rev. F. Page Roberts and Christine, to mention only the most noteworthy.

Messrs. Chaplin Bros., Ltd., arranged their Roses in a massive bank, with pillars rising here and there of such sorts as Windsor, Princess Elizabeth of Greece, Mrs. Henry Bowles, Waltham Cross and William Bowyer. There were large baskets packed with lovely blooms of W. E. Chaplin and Conqueror, while other notable varieties exhibited were W. F. Dreer, Betty Uprichard, Lady Inchiquin and Dame Edith Helen.

Large baskets of good blooms of Frau Karl Druschki, Golden Emblem and Mabel Morse, and a graceful arch of Etoile de Hollande, were attractive features of Messrs. Frank Cant and Co.'s exhibit, while the pillars of such varieties as W. F. Dreer, Ophelia and Los Angeles and the vases of Rev. F. Page Roberts, Lady Fairfax, Shot Silk and Lady Inchiquin, also attracted attention.

The tall bank of Roses staged by Messrs. Alex. Dickson and Sons, with a large basket in the centre of good blooms of Lucie Marie, was arranged very tastefully, the baskets of Shot Silk, Madame Butterfly and Betty Uprichard, and vases of Lady Inchiquin, Dame Edith Helen, Richard E. West and Irish Elegance, among many others, all contributing to a very excellent effect.

Equally as attractive was the representative Rose collection from the Dowty's Rosery, which contained excellent examples of Betty Uprichard, Mrs. Herbert Stevens, Madame E. Herriot, Mrs. Henry Morse and Red Letter Day, arranged in pillars; while other notable varieties were K. of K., and Hoosier Beauty, in baskets; Lady Inchiquin, Hortulanus Buddé, Mabel Morse, Angele Pernet and Padre.

Next to this collection was a tastefully arranged group by Messrs. Walter Easlea, which consisted of small pillars of Charles P. Kilham, Shot Silk, Betty Uprichard, Rev. F. Page Roberts, Hadley, Mrs. Beckworth and Lord Charlemont, rising above a groundwork which consisted of, among others, good examples of Dame Edith Helen, exceptionally fine; Independence Day, Mrs. Henry Morse, Covent

Garden, Clarice Goodacre and Mrs. Henry Bowles.

At the front corners of Mr. Elisha J. Hicks' charming group were tall pillars of Lady Inchiquin and Betty Uprichard, while other noteworthy sorts which he showed were Rev. F. Page Roberts, Mabel Morse, of really first-class quality; Shot Silk, Ophelia, Mrs. H. Stevens, Golden Emblem, Clovelly and Angele Pernet; in Mr. John Mattock's exhibit there were attractive pillars of Dainty Bess, Lady Inchiquin, Los Angeles, Lady Hillingdon and K. of K., together with good blooms of Dame Edith Helen, Lady Ashtown, Golden Emblem and Shot Silk.

Messrs. Samuel McGredy and Son excelled themselves in the arrangement of their charming display. The background and sides of the group consisted of tall pillars of wonderful blooms of Betty Uprichard, Los Angeles, Mrs. Charles Lamplough, Mrs. A. R. Barraclough and others; while in the centre there were baskets of magnificent blooms of Berkley and Norman Lambert, surrounded by smaller baskets and vases of such lovely sorts as Mrs. Talbot O'Farrell, Eva Eakins, Desmond Johnston, Emma Wright, Mabel Morse and Augustus Hartmann—a really grand display.

Mr. R. N. Rogers exhibited, in his attractively arranged group, good blooms of Etoile de Holland, Angele Pernet, Golden Emblem, Independence Day, Shot Silk, Eva Eakins and Ivy May; while Mr. Thomas Robinson had a heavy bank of Roses, with pyramids of Etoile de Hollande and Hortulanus Budde, and a central mass of good blooms of Sovereign and Mabel Morse. There were tall pillars of Shot Silk, Mrs. Herbert Stevens and Ophelia, while other varieties which were well represented were Captain Harvey Cant and Clarice Goodacre.

Messrs. D. Prior and Son had large baskets of Golden Emblem and Elsie Poulsen in the centre of their charming display, with other baskets of choice sorts, such as C. E. van Rossen, Shot Silk and Lady Hillingdon; while we also noticed good blooms of Mrs. Herbert Stevens, Los Angeles, Madame Butterfly and Madame E. Herriot. Mr. J. H. Pemberton had a huge decorative basket of Mrs. Henry Morse, at the back of which were pillars of Cornelia and Vanity, two hybrid Musk Roses. He also showed fine examples of Golden Emblem, Lord Charlemont, Bernice and The General.

Messrs. Thomas Smith and Son had large vases of Lady Inchiquin, Mabel Morse, and the beautiful white, sweetly-scented Margaret Ann Baxter, together with good examples of Angele Pernet, Captain Hayward and Christine; while the most striking sorts in Messrs. A. Warner and Sons' exhibit were Shot Silk, Etoile de Hollande, Lady Inchiquin, Rev. F. Page Roberts, Golden Emblem, Red Cross, Queen Alexandra and Betty Uprichard.

In Messrs. Waterer, Sons and Crisp, Ltd.'s exhibit there were wonderful sheaves of Mrs. Henry Morse, Shot Silk, Rev. F. Page Roberts, Ariel and Mrs. Henry Bowles, while there were also first-class blooms of Queen Alexandra, Hadley, Golden Emblem and Etoile de Hollande.

Messrs. Wheatcroft Bros. showed such good varieties as Etoile de Hollande, Princess Elizabeth, Shot Silk, Queen Alexandra, Independence Day and Madame Butterfly; Messrs. Wood and Ingram made special features of Angele Pernet, Dame Edith Helen and Mrs. Beatty, and they also showed good examples of White Ensign, Else Poulsen, Mabel Morse, Golden Emblem and Etoile de Hollando; and Mr. W. E. B. Archer and Daughter staged Dainty Bess and Joyous Cavalier very effectively, together with Isobel, Ophelia, Lady Hillingdon and Betty Uprichard.

Messrs. Laxton Bros. showed, among other good sorts, Dame Edith Helen, Shot Silk, Mrs. Henry Morse, Madame Abel Chatenay, Los Angeles and Lord Charlemont; while in the annexe were exhibits by Messrs. Henry Morse and Sons and Mr. David Long. The former had good blooms of Etoile de Hollande, Westfield Star, Dr. E. Deacon, Madame Butterfly, Mrs. Beatty and Golden Emblem; while Mr. Long showed Madame E. Herriot, Golden Ophelia, Shot Silk, Betty Uprichard, Mrs. Henry Bowles and Rev. F. Page Roberts.

Mr. Thomas Hancock showed sprays and specimen blooms of the Rose Charming Princess.

CARNATIONS.

Carnations were not displayed very extensively, although the groups set up in the new hall attracted very considerable attention.

Messrs. Allwood Bros. arranged two groups. The first was of perpetual-flowering sorts, among which the most attractive were Topsy, White Pearl, Spectrum, Maine Sunshine, Laddie, Maud Allwood and Edward Allwood; while their other exhibit was an attractive arrangement of Dianthus Allwoodii and varieties of Dianthus Allwoodii alpinus, such as the free-flowering Puck, Oberon, Titania and Wendy.

In Messrs. C. Engelmann, Ltd.'s well-arranged group we noticed excellent blooms of Master Michael Stoop, Rouge, Canadian Pink, Saffron, Topsy, Laddie, Red Laddie, Katja and Circe Improved; while at the back of the exhibit was a central mass of wonderful blooms of Blanche, pure white; surmounted by the rich, scarlet-flowered Brilliant.

Messrs. Stuart Low and Co. had magnificent sheaves of Eileen Low, White Pearl and W. Ives Improved, and a large basket in the centre of the display of choice blooms of Thomas Ives, a rich, glowing rosy-pink novelty; there were also fine examples of Daphne, Countess of Harewood, another novelty; Melchet Court, Happidais and Topsy.

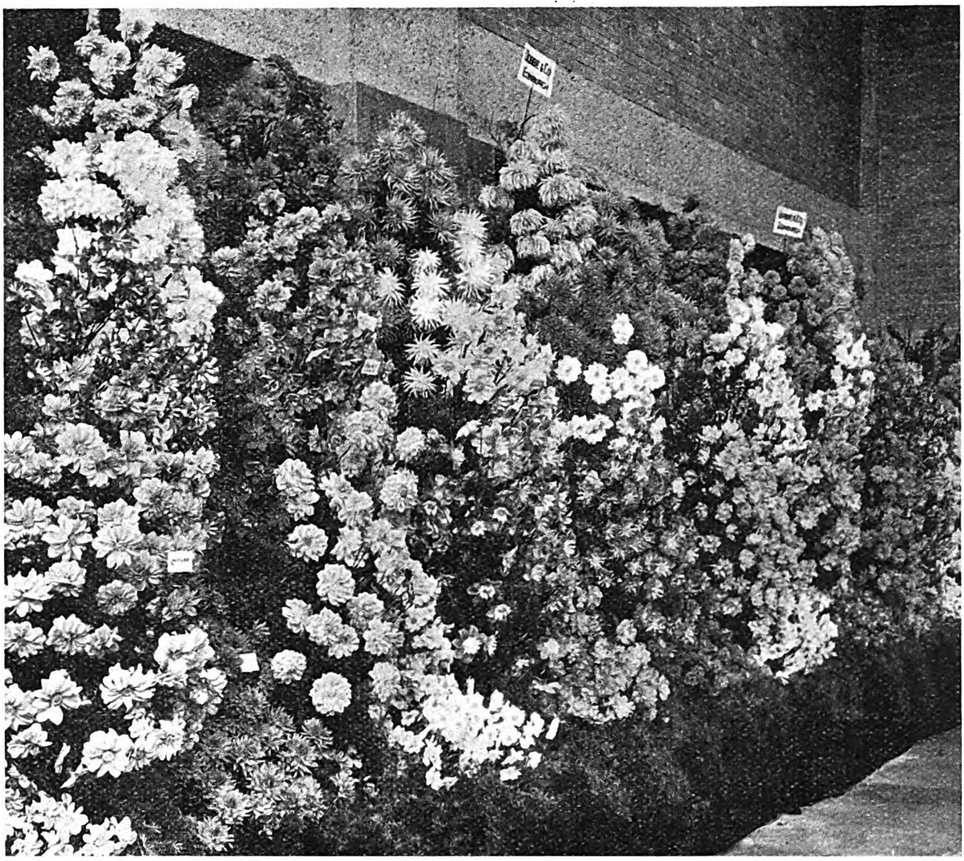


FIG. 132.—R.H.S. AUTUMN SHOW: MESSRS. DOBBIE & CO'S EXHIBIT OF DAHLIAS.

CHRYSANTHEMUMS.

The promise of the first meeting this season of the Floral Committee of the National Chrysanthemum Society, when, as we recorded, an unusually large number of new seedlings was submitted, was fulfilled at the Autumn Show where, again, the exhibits were more extensive than before. A large stretch of tabling was filled by Mr. J. W. Forsyth, who had an admirable collection of early-flowering varieties. These were chiefly as disbudded blooms of the type valued for the best class of market sale, and included September Glory, Bronze Delight, Shirley Pride, Brightness, Sanctity, Hollicot Yellow, Almirante and Silver Queen.

The very attractive collection arranged by Messrs. Keith Luxford and Co. included graceful vases of Ronnie, Phoenix, E. C. Cooper, J. Bannister, Autumn Beauty, Elsenham White, Mrs. Phil Page and Cranford. A considerable corner space was well filled by Mr. H. Yandell, who showed many varieties both as disbudded flowers and in sprays. His principal sorts were Red Almirante, Cranford, Silver Queen, Phoenix, September Glory, Harvester, Gloria, Mrs. Phil Page and Pink Perfection.

DAHLIAS.

The gorgeous displays of Dahlias in the new hall were one of the chief features of the show. The groups were so numerous that all the wall space of one side of the hall was not sufficient to accommodate them. As at the recent annual show of the National Dahlia Society, Messrs. Dobbie and Co., Ltd., had an extensive collection of excellent flowers of various types arranged with great skill and taste (Fig. 132). The Collerette Dahlias were conspicuous, and these included such varieties as Rona, Linnet, Glen Garry, Scarlet Queen, Sannot, Tuscar and Lochnagar. Among the many miniature Paeony-flowered varieties were Lilian C. Page, Ben More and Verona, while the garden Cactus varieties were equally well represented.

A gracefully arranged collection was set up by Messrs. Dickson and Robinson, who had magnificent stands of Jessie, Trentonian and Yellow Perfection, of the large Decorative type, and Snow Bunting, Mary Murray, Eclipse, Masterpiece and Harry Strutt of the Cactus Dahlias. Mr. J. B. Riding displayed excellent blooms of such large Decorative sorts as Purple King, Marmion, Jersey Beacon, Talisman, W. D. Cartwright and Adler; while the small Decorative sorts were represented by such varieties as Charmer, Shining Sun and Mrs. Scrimgeour.

Large Decorative sorts were also prominently shown by Mr. H. J. Jones, who staged big stands of Mabel Lawrence, Yellow King, Jersey Beauty, Macdonald and Glory of Aalsmeer and also had good representative varieties of the other types. In their collection, the King's

Acre Nurseries Co. gave special places to large stands of two or more varieties which illustrated colour schemes, and, as foils, also had stands of Harpagon, Prothos, Rose Supreme and various Collerette and Cactus varieties.

A good representative collection, arranged by Messrs. Carter Page and Co., included Crimson Flag and Ecarde of the small Decorative sorts; Noble and Emma Groot (large Dcorative); Golden Rod, Canary and Goethe, Cactus varieties. Mr. H. Woolman displayed exceedingly fine flowers of the large Decorative type in such varieties as W. D. Cartwright, Fort Washington, Grace Curling and Canberra. He also showed good Pompon and Collerette varieties.

Mr. Charles Turner included all types in his collection; the dainty Pompons were particularly attractive, and these included Queen of Whites, Hecla, Orpheus, Glow and Cyril.

Mr. J. T. West had particularly good stands of Berengaria and Lady Godfrey Faucett, large Decorative sorts; Mrs. Donald Allan, small Decorative; Beaver, Sunrise, Yellow Boy and Laughter, miniature Paeony-flowered varieties. Very imposing stands of Cactus varieties, displayed by Messrs. Jarman and Co., included J. Emberson, Edgar S. Jackson, A. E. Amos and other excellent exhibition varieties, while the large Decorative class was represented by Trentonian, Nancy, Jack Hobbs and Amun Ra. In the old hall, Mr. H. Clarke set up admirable vases of Mabel Lawrence, Sheila Ward, Jack Hobbs and Amun Ra, together with various Pompon and Cactus varieties. Messrs. H. Langridge and Co. and Mr. S. J. Goudliffe had attractive collections in the Tea Annexe.

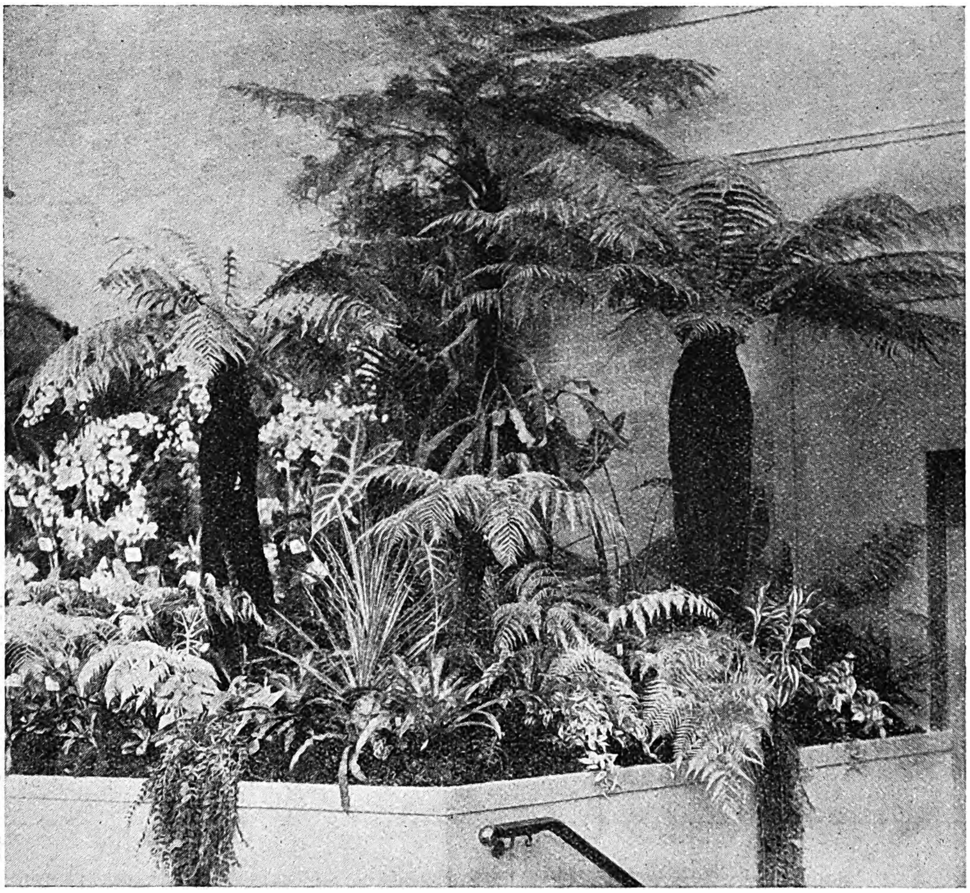


FIG. 133.—R.H.S. AUTUMN SHOW: ONE OF MESSRS. L. R. RUSSELL AND CO.'S EXHIBITS OF TREE FERNS AND OTHER FOLIAGE PLANTS.

Stove and Greenhouse Plants.

Immediately on entering the new hall, the visitor could not fail to be impressed by the excellence of the large group of Codiaeums (Crotons) exhibited by A. P. Brandt, Esq. (gr. Mr. W. J. Barks), Bletchingley Castle, Bletchingley. Not only was every plant in the large collection a perfect specimen, illustrating first-rate cultural skill, but the arrangement was also deserving of high praise. The varieties of yellow colouring included Fred Sander, Yellow Reidii, Countess and Aneitumensis, while the chief of the varieties with red colouring were Juliet Russell, Mrs. Iceton, Souvenir de Thomas Rochford, Pucciniana and B. Comte.

On the sides of the exit, Messrs. L. R. Russell, Ltd., arranged tall specimens of Dicksonia antarctica and various Cordylines (Dracaenas) above more lowly plants. These graceful displays (Fig. 133) included plants of Alocasia Micholitzeana, Cryptanthus acaulis zebrina, Coleus Sunshine and Columnea gloriosa.

A large floor group, exhibited by Messrs. John Peed and Son, was also well worthy of the occasion. This included very well-grown plants of Codiaeum, Cordyline, Humea elegans, and Hydrangea rising above a groundwork of Maidenhair Ferns, Primula obconica, and Caladiums in variety, bordered with Ficus repens variegata.

On the dais, Messrs. Sutton and Sons arranged a large group of admirably grown Gloxinias in pleasant undulations, relieved by perfect specimens of Cocos Weddelliana and Cocos flexuosa (Fig. 131. The Gloxinias, which were set out amongst Maidenhair Ferns, included Azure Blue, Monarch, edged with rich rose-pink; Firefly, of intense colour; King George V., deep rose; Her Majesty, pure white; Beacon, velvety crimson; Meteor, scarlet-edged; Royal Crimson, Pink Beauty, and Duke of York, scarlet, margined with white.

Messrs. Blackmore and Langdon have made the tuberous-rooted Begonia particularly their own and the excellence of the plants they grow is well-known to the large show-attending public, who must marvel at the superb quality of the plants and at the skill in packing which ensures that, at the end of the long journey from Bath, the flowers are in the pink of perfection. Both of these things, which would be impossible to the ordinary person, seem an everyday occurrence to Messrs. Blackmore and Langdon, and they set out a large array of most magnificent double-flowered varieties of immense size, and exceeding purity and delicacy of colouring. Of the many varieties, we selected as the very best, Mary Newman, rich yellow; Lady Cory, salmon-rose; Mona, white; Mrs. Bantock, waved pink; Queen of the Belgians, soft pink; Albatross, white; Mabel Langdon, pink; Mrs. Blackmore, yellow; and Lady Ann, soft pink.

An interesting collection of Nerines, mostly seedlings, was shown by Lady Aberconway (gr. Mr. F. C. Puddle), Bodnant, North Wales. Mr. R. J. Case set up many trusses of double-flowered and single Zonal Pelargoniums of good varieties, and Mr. T. M. Endean showed many succulent plants in small pots.

Hardy Flowers.

As one would expect, hardy herbaceous flowers especially perennial Asters, formed an important feature of the show, and many of the exhibits were exceptionally fine.

Perennial Asters were used, in conjunction with the giant-flowered golden Helianthus Monarch, by Mr. H. J. Jones, to produce a very charming effect. Barr's Pink was certainly the most striking variety, while other good sorts were Snowdrift, Freedom, Gloriosa, Margaret Ballard and October Dawn.

Messrs. Wm. Cutbush and Son, staged a very attractively arranged group of perennial Asters, in conjunction with such Dahlias as David, La France, Polar Bear, a good white Decorative sort; Robert Trent, Jersey Beauty, and many other first-class varieties. Aster Amellus varieties were well represented by Beauty of Ronsdorf, Emma Bedeau, the star-like Stella, Well's Favourite, a good pink; and the popular King George; while among the taller sorts we noticed Little Boy Blue, Snowdrift, Aldenham Pink, and Royal Blue.

In the centre of the new hall, Messrs. James Carter and Co. had a circular group consisting of a central column of Delphiniums, surrounded by large-flowered Zinnias and Colchicums and edged with turf (Fig. 134).

A good mixed collection of hardy flowers was arranged by Messrs. Wm. Wood and Son, Ltd., consisting of sheaves of Helianthus sparsifolius; tall-growing Asters, such as Lavender, Barr's Pink and Snowdrift; fine spikes of Verbascum Gainsborough; Pyrethrums, Delphiniums and Aster Amellus varieties.

Next to this group was a collection of Delphiniums, set up by Messrs. T. Carlile, in which we noticed good inflorescences of George Cochrane, Lady Prince, Dorothy Richardson and Mrs. H. Kays; while near-by, Messrs. Barr and Sons, Ltd., had a pyramid of Michaelmas Daisies, the dominant variety being Barr's Pink. There were also good vases of Aster Amellus King George, Scabiosa caucasica alba, and the lovely Gaillardia Tangerine.

Messrs. B. Ladhams, Ltd., staged an extensive collection of herbaceous and other subjects. Coreopsis auriculata superba formed a prominent feature of the group, and Lobelias, such as the vivid scarlet B. Ladhams, Carmineus, Mrs. Humbert, Blue Bird, and the popular Purple Emperor, were exceptionally fine. Sidalceas in variety were displayed in this collection, and Aconitum Fischeri was also good, while other notable subjects were Phygelius capensis, Polygonum affine and Chelone Unique.

A fine bank of Michaelmas Daisies, in great variety, was arranged in spectacular fashion by Messrs. Wells, Junr., the most striking sorts among the tall-growing forms being Barr's Pink, Maid of Athens, Walkden's Pink, Empress of Colwall and Little Boy Blue; while of the Amellus varieties, which lined the base of the group, were Lavanda, Advance and King George

Messrs. M. Prichard and Sons, Ltd., exhibited Kniphofias Nelsonii, Royal Standard, Corallina and erecta; together with Heleniums in variety; various forms of Anemone japonica, such as Richard Ahrens and Louise Uhink; Montbretias Henry VIII, Pocohontas, Sunshine, Carminea and Queen Alexandra; and a host of perennial Asters, of which the most striking were Sunset, Snowdrift and Little Boy Blue.

A great variety of plants was exhibited in

Messrs. Bowell and Skarratt's group, including perennial Asters, Chrysanthemums in several sorts, Liliums, Gaillardias, Delphiniums and Helianthuses; while Mr. Gavin Jones displayed Heleniums in variety, several herbaceous Phloxes, Aconitum Wilsonii, the large-flowered Gaillardia Mrs. McKellar, Achilleas, Kniphofias and Liatris.

Phloxes, in splendid condition, were staged in admirable fashion by Messrs. E. F. Fairbairn and Sons. There were pillars of such good sorts as Mrs. J. C. Maude, Sir Douglas Haig, The King, Hon. Mrs. Balfour, Joan Fairbairn and others, and beneath these were vases of the lovely Excelsa, Mrs. Bell-Irving, Glory of Edentown, Border Gem, and several good unnamed novelties.

Perennial Asters, in good condition and great variety, were staged excellently by Messrs. G. Bunyard and Co. Among the Amellus varieties we noticed exceptionally good blooms of King George, General Pershing and Hermann Lons; while of the taller varieties, the most striking were Barr's Pink, Grey Lady, Snowdrift, Little Boy Blue and Royal Blue. At the end of the Aster collection, they showed fine examples of Physalis Bunyardii, Phygelius capensis, and Aconitum Wilsoni.

Michaelmas Daisies were also shown extensively by Mr. T. Bones, who included several good Ericoides sorts, together with Amellus varieties such as Queen Mary and King George, and several seedlings; and taller varieties, notable among which were Barr's Pink, Maid of Athens, Empress of Colwall, Snowdrift and George Monro.

A magnificent display of giant spikes of the brilliantly-coloured Kniphofia Mount Etna, together with wonderful blooms of such choice varieties of Scabiosa caucasica, as Mary Witchell, Diamond, Kennedy Bell, Miss Hughes and Miss Willmott, all in delicate shades; and also the lovely Scabiosa anthemifolia rosea, was staged by Messrs. Isaac House and Son; while Kniphofias in variety, perennial Asters, Delphiniums and Sidalceas, Phloxes and Astilbes, all in excellent condition, formed the bulk of Messrs. Baker's very tastefully arranged group.

Mr. G. Reuthe had a small, mixed collection of hardy flowers which included Eupatorium purpureum, Hedychium Gardnerianum, Zauschneria californica, Kniphofia Uvaria grandiflora, and several choice perennial Asters; while next to this was another exhibit by Messrs. T. Carlile, consisting of Gaillardias in variety; Heleniums, perennial Asters, Sidalceas in several good sorts, Coreopsis, Lupins and Artemisia lactiflora.

Pyrethrums and Gladioli, among the latter being the richly-coloured varieties Velocity, Kelway's Masterpiece, Sir M. N. Beach, Negro, Lord Reah and King of the Gladioli, formed an attractive display by Messrs. J. Kelway and Son, Ltd.; while the varieties Mrs. Grenander, Mrs. G. McBeth, W. J. Marlow, Sarabande and September Glow, were outstanding in the collection of perennial Phloxes set up by Messrs. John Forbes (Hawick), Ltd.

The premier display of perennial Asters was that set up by Mr. Ernest Ballard. This consisted of numerous choice varieties, tastefully arranged and in excellent condition. Silver Spray, of the Cordifolius section, occupied a prominent position in the centre of the exhibit; while prominence was also given to Little Boy Blue, Mrs. George Monro, Anita Ballard, Blue Eyes, Royal Blue and October Dawn, all of which were very striking.

Herbaceous flowers in variety were arranged in an attractive manner by Messrs. John Waterer, Sons and Crisp. Choice Michaelmas Daisies, Delphiniums and Phloxes, intermixed with large vases of Kniphofias Royal Standard and Star of Baden-Baden, and Helianthus sparsifolius, blended well with richly-coloured Pyrethrums, Heleniums and other subjects to produce a very telling effect, rich in colour and charming in arrangement.

One of the finest displays in the show was the magnificent bank of Gladioli which occupied half the wall space of the dais of the new hall, arranged in splendid fashion by Messrs. R. H. Bath, Ltd. There were huge sheaves of splendid spikes of Romance, Scarlano, Louis, Fire, Pride of Haarlem, White City, Corry, Byron L. Smith and Evelyn Kirtland; while the groundwork was composed of masses of such sorts as Willy Wigman, Orange Queen, A. B. Kunderd, Dr. F. B. Bennett, Victor, King Pearl, Alice Tiplady and Trudel Grotz. Altogether, a magnificent effort.

A very fine bed of Liliums and other subjects was arranged with natural effect by Mr. Amos Perry, the margin of the bed being lined with rocks, over which were planted choice alpine plants in variety. Among the Liliums we noticed a good specimen of L. ochracea, while there were masses of fine plants of L. speciosum Imperator, L. Henryi and L. tigrinum Fortunei. There were several attractive ornamental grasses, well-flowered plants of Scabiosa caucasica, perennial Asters in variety, and giant spikes of Liatris pycnostachya; while one end of the bed was occupied by the very striking, free-flowering Erigeron Mrs. Amos Perry. Among the alpine plants we noticed beds of Primula Forbesii, Thymus Silver Queen, Polygonum vaccinifolium, Cyclamen hederaefolium, Omphalodes Luciliae and Gentiana sino-ornata.

In the old hall there were also several very effective groups of hardy flowers. Messrs. Rich and Cooling, Ltd., staged a mixed collection of hardy herbaceous subjects, such as perennial Asters, Helianthuses, Phloxes, Pyrethrums and Gaillardias; while in the Orchid Annexe, Messrs. Daniels Bros., Ltd., arranged an attractive display of the beautiful Montbretia His Majesty, and the equally attractive Gaillardia Tangerine.

Mr. Stephen Sims had a collection of Michaelmas Daisies, Scabiosas, and other herbaceous subjects, together with Conifers and Heaths, and miniature table gardens, while the Little Munden Nurseries were represented by a choice collection of perennial Asters, prominent among which were Ethel Ballard, October Dawn, Blue Gem, Barr's Pink, Countess, Royal Blue and Mrs. J. F. Rayner.

Messrs. Reamsbottom and Co., showed St. Brigid Anemones in variety, together with well-flowered sprays of the dainty, dwarf Delphinium sinensis; while Mr. Baldwin Pinney showed Violets, including such varieties as Rosine, a new, free-flowering, sweetly-scented pink sort; Amiral Avellan, and the old English white Violet. Messrs. Harkness and Sons staged a small collection of herbaceous subjects, among which Kniphofias were prominent, such varieties as Rocket and Royal Standard being exceptionally good, while Scabiosa caucasica, Lupins, Gaillardias, Asters and Heleniums were also well represented.

Messrs. J. Robinson and Son's exhibit consisted of both herbaceous and alpine subjects. Of the former there were perennial Asters, Heleniums, Achillea Cerise Queen and others; while among alpine subjects we noted Mimulus Flame of Fire, Sedums, good plants of Androsace lanuginosa, Violas, and Campanulas. Messrs. W. H. Simpson and Sons made special features of such Michaelmas Daisies as Royal Blue, Duchess, Margaret Ballard, Grey Lady and King George, together with Montbretias His Majesty and Star of the East; while Messrs. W. Keep and Co. showed perennial Asters in variety, Coreopsis, Lobelias, Heleniums and Sidalceas.

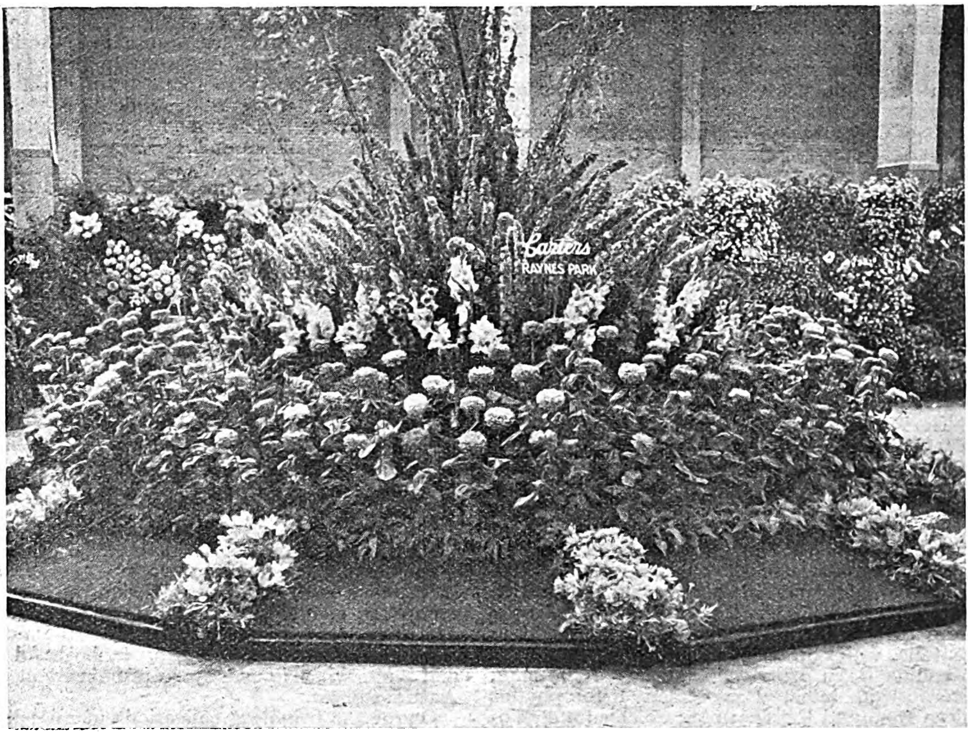


FIG. 134.—R.H.S. AUTUMN SHOW: MESSRS. J. CARTER AND CO.'S EXHIBIT OF DELPHINIUMS, ZINNIAS AND COLCHICUMS.

An extremely tastefully arranged group was displayed by Messrs. Oliver and Hunter, the chief features being very attractive vases of numerous first-class varieties of Montbretia, among which we noted Lady Wilson, Una, Promethius, His Majesty, Kathleen and Ernest Davidson, as but a few of the best. They also had a grand display of Kniphofia erecta, together with good plants of Gentiana sino-ornata and G. Farreri; sprays of Berberis sp. (Farrer 355); inflorescences of Primula Florindae, and a specimen plant of Meconopsis integrifolia.

Messrs. E. T. Redgrove and Son showed perennial Asters in variety, Kniphofias, Gaillardias and Heleniums; while Messrs. Wm. Cutbush and Son, had a grand collection of Kniphofias, among which the most striking were Orange King, Fireflame, Yellow Prince, Prince of Orange, Canary and The Favourite.

The group of Delphiniums set up by Messrs. Hewitt and Co., Ltd., contained some exceptionally fine blooms of such varieties as Rose Marie, Chelsea and Hewitt's Superb; Messrs. Lowe and Gibson, Ltd., had a small collection of choice Gladioli, Delphiniums and Montbretias; and in the Tea Annexe, Mr. Amos Perry had an interesting collection of moisture-loving plants, among which were several ornamental grasses and Reeds; Ferns, Aponogeton distachyon, Nelumbium G. Ludwig; the quaint Eichornea crassipes major, and Water Lilies in variety; together with several inverted bell-glasses containing gold fish.

In the same annexe, Mr. F. Rich had a display of perennial Asters, notably such varieties as Snowdrift, George Monro, Heather Glow, Dick Ballard, Barr's Pink, October Dawn and Margaret Ballard.

Rock Gardens and Alpine Plants.

The exhibits of rock gardens on tabling, and collections of alpine plants, were confined to the old hall. They were more numerous than might have been expected at this season of the year, and some of the rock gardens were very tastefully laid out and furnished.

Mr. George G. Whitelegg had a very pretty arrangement in which dwarf Junipers and other Conifers were used with skill to lend height to the well arranged rockwork. They had small beds of such charming alpine subjects as Geum Borisii, Oenothera speciosa rosea, various forms of Viola gracilis, Dianthus Napoleon III, Erigeron hybridus roseus, and the brilliant Verbena chamaedyfolia; while there were well-flowered clumps of Gentiana sino-ornata and Achillea × Lewisii, and good specimens of Meconopsis cambrica fl. pl., Androsace lanuginosa and Armeria Vindictive.

In the miniature rock garden from the Hemsley's Nurseries, special features were made of Origanum pulchellum, Gentiana Farreri, and Aethionema pulchellum, together with Anaphalis nubigena, Achillea argentea, and the attractive, dwarf Dianthus Prince of Wales; while they also had charming little flowering specimens of Rosa Roulettii. Arabis aubrietioides and Verbena chamaedyfolia were used with effect, while among the shrubs suitable for the small alpine garden we noticed Potentilla fruticosa, several Cotoneasters, Euonymus Silver Queen, and the lovely Grevillea alpina, which is, unfortunately, seldom able to survive our winters in the open garden, but is, however, a charming subject for the alpine house.

The Misses K. and E. Hopkins showed alpine plants, such as Viola gracilis lutea and others; Gentiana sino-ornata and Linum perenne, together with herbaceous subjects; while Messrs. Casburn and Welsh had a very attractive miniature alpine garden, wherein were groups of the tiny Campanula Zoysii; the lovely, large-flowered Dianthus Roysii, Achillea × Lewisii, Gentiana sino-ornata and G. Farreri, and Violas in variety. Draping one of the rocks were several plants of the dainty Hypericum reptans, while other good alpine subjects were Mimulus Bee's Dazzler, Dianthus Atkinsonii, Sternbergia lutea, Pentstemon heterophyllus True Blue, and the charming Colchicum speciosum album; here and there were well-placed dwarf Conifers and other shrubs.

In Messrs. M. Prichard and Sons' rock garden were beds of Callunas, together with such popular alpine plants as Geum Borisii, Androsace lanuginosa and A. Leitchlinii; Achillea × Lewisii, Viola cornuta alba, dwarf Hypericums in variety, including H. aegypticum; Malvastrum Munroanum, Oenothera speciosa rosea, Asperula suberosa, Stachys corsica and Campanula garganica erinus; while Mr. Ernest Dixon had a charming alpine meadow scene, devoid of flowers, yet made attractive with dwarf shrubs judiciously placed.

The outstanding feature of Messrs. Geroge E. P. Wood's miniature rock garden was the large bed of the exquisite Gentiana sino-ornata, which was simply a mass of blooms, while they also had smaller beds of Dianthus deltoides Brilliant, Geum Borisii and the wonderful Ceratostigma plumbaginioides. There were clusters of various autumn Crocuses, good plants of Rosa pumila, and several rock garden shrubs, including a heavily-fruited specimen of Cotoneaster horizontalis, while in conjunction with this exhibit, as a background, they had a mixed collection of herbaceous flowering subjects.

Messrs. Maxwell and Beale employed various Ericas to produce a very charming effect upon their small rock garden, together with dwarf Conifers and well-fruited Cotoneasters; while among the rock plants with which the beds and rocks were well furnished we noted Chrysogonum virginianum, Potentilla ambigua, Hypericum olympicum sulphureum, Geum Borisii, Spiraea filipendula plena, and the brilliant Delphinium sinensis.

In conjunction with their exhibit of herbaceous subjects, the Central Garden Supplies had an attractive small garden containing dwarf Conifers, Pernettyas heavily laden with fruits, Potentilla fruticosa, Ericas in variety, and alpine plants, such as Chrysogonum virginianum, Gentiana sino-ornata, Violas and Solidago brachystachys. In Mr. W. E. Th. Ingwersen's miniature rock garden the rocks were extremely well arranged, while the beds, which were surfaced with moss, contained Colchicums in variety, Sternbergia lutea, exceptionally floriferous specimens of Gentiana sino-ornata, and the brilliant Geum Borisii; while here and there were well-placed dwarf Conifers.

Messrs. W. H. Rogers and Son, Ltd., had a small rock garden in which we noticed Origanum Dictamnus, several Sedums, Gentiana sino-ornata, fruiting specimens of Fuchsia procumbens, Potentillas, Linaria alpina and several dwarf Conifers.

One of the most attractive rock gardens on tabling in the show was that arranged by Messrs. Backhouse (York), Ltd. It was irregular in contour, with specimen Conifers carefully placed to add character to the general scheme, together with clumps of Fuchsias and Ericas. There were lovely drifts of Colchicum speciosum and its lovely variety album, Violas, Campanulas and Cyclamens, together with beds of Hypericum empetrifolium, Dryas octopetala minor, Sternbergia lutea, and Geum Borisii, to mention but a few of the outstanding subjects.

Near the main entrance of the hall, Mr. Clarence Elliott had an attractive rock garden; the rocks were rather large but not too plentiful and very well disposed. There were dwarf Junipers and Pines, clumps of Crocus zonatus, various Colchicums, and Sternbergia lutea, with charming drifts and beds of such useful subjects as Gentiana sino-ornata, Cyclamen neapolitanum album, Dianthus Roysii, Gentiana acaulis, Geum Borisii and Solidago brachystachys. A very picturesque effort.

Hardy Trees and Shrubs.

While most of the exhibits of hardy trees and shrubs were set out in the new hall, there was a fair quota among the various collections in the old hall. With a few exceptions, the groups presented rather a dull appearance—one missed the brightening effect of the many examples of autumn colouring in both foliage and fruits which is usually so prominent at the Autumn Show.

One of the brightest collections of miscellaneous trees and shrubs was arranged by Messrs. Hillier and Sons, who had large specimens of Prunus Sargentii, Quercus coccinea splendens, Vitis amurensis, V. himalayensis, V. Coignetiae and Acer japonicum laciniatum of gorgeous colour. This group also contained Potentilla fruticosa Vilmoriniana in full bloom, and heavily fruited examples of Pyrus Malus baccata and Cydonia Maulei. A neat group exhibited by the Orpington Nurseries included shapely Conifers, Cydonia japonica in fruit, Cotoneaster horizontalis studded with brilliant berries and various Barberries.

The Donard Nursery Co. arranged Eupatorium grandiflorum, Eucryphia cordata, Spiraea Wallief, various shrubby Veronicas and other flowering shrubs, with Berberis Stapfiana, Pittosporums and Lomatia ferruginea. Messrs. Hollamby's had a bright group of Vitis himalayensis, V. Veitchii, V. orientalis, Pernettya mucronata and Pyracantha Lalandii. In a bold and effective group, Messrs. J. Cheal and Sons, Ltd, included Acer rubrum fulgens, Acer palmatum atropurpureum, Acer japonicum laciniatum and Spiraea sorbifolia, in full glory of autumn colouring, with well-berried shrubs of Pyrus floribunda purpurea, Pyrus punctata, and Pyrus Malus edulis. Their flowering shrubs included Robinia hispida, Potentilla Purdomii, P. Farreri, Clematis grata and Diervilla (Weigelia) Van Houttei.

The interesting group of Messrs. Arthur Charlton and Sons was lightened by tall, graceful plants of Eucalyptus coccifera, Acacia polyantha, Acacia longifolia and Pomaderris apetala, which rose above good banks of Berberis in variety, Ceanothuses, Pernettyas and Buddleia Forrestii. Shapely Conifers, and especially a collection of Cupressus Lawsoniana Fletcheri of various sizes, were the principal features of the group displayed by Messrs. Fletcher Bros., who also included Golden Yews and a number of fruiting bushes of Cotoneaster applanata.

A large, oblong space was well filled by Messrs. R. Wallace and Co. with a miscellaneous collection of trees and shrubs and many Liliums. In the middle of the group there were Bamboos and richly coloured specimens of Acer japonicum laciniatum, surrounded with Lilium Fortunei gigantea and Lilium speciosum varieties. The body of the large group was filled with Rosa Moyesii, Hamamelis japonica Zuccariniana of brilliant colour, Hippophae rhamnoides, Barberries and many Conifers. A large group arranged by Mr. G. Reuthe contained a great variety, among which were various Rhododendrons bearing large, luxuriant leaves, Cassia corymbosa, Magnolia grandiflora ferruginea, Berberidopsis corallina, Dacrydium cupressinum, Athrotaxis cupressoides, Libocedrus Doniana and other uncommon trees and shrubs.

A small group of branches of Roses bearing brightly coloured hips contributed by Mr. J. C. Allgrove attracted considerable attention. The chief sorts were Rosa Moyesii, Rosa rugosa, and Rosa setipoda. Such autumn-flowering shrubs as Hypericum patulum grandiflorum, Potentillas and shrubby Veronicas in variety, Buddleia Fallowiana and Desmodium penduliflorum were shown by Mr. R. C. Notcutt, who also had heavily berried bushes of Barberries, Pyruses and Viburnum Opulus.

Good collections of Clematises in relatively small pots were displayed by Messrs. George Jackman and Son and Messrs. L. R. Russell, Ltd. The former arranged such varieties as Crimson King, lanuginosa candida, Mrs. George Jackman, white; The President, dark blue; Grand Duchess, lavender; Ville de Lyon, crimson; and Betty Balfour, free-flowering, dark blue. The chief varieties of Messrs. L. R. Russell, Ltd., were King George, pink with rose-coloured bars; Mrs. George Jackman, Lady Northcliffe, blue; Crimson King, Comtesse de Bouchier, pink; The President, Duchess of Sutherland, pink; and Madame E. André, deep pink.

In the old hall, Messrs. D. Stewart and Son grouped Euonymus yedoensis, E. alatus and Berberis of bright colouring, with Juniperus pachyphlaea conspicua, Cupressus Lawsoniana Fletcheri, C. arizonica and other Conifers. Mr. T. Ames and Mr. W. J. Marchant had exhibits of shrubs in the Tea Annexe, and Mr. P. Gardner filled a table space with Ericas and dwarf Conifers. Messrs. Baggesens grouped a good selection of Conifers and Japanese Maples.

A very attractive little group of Ericas, Pernettyas and dwarf Barberries was arranged by Messrs. Maxwell and Beale. The Hemsleys' Nurseries associated Japanese Maples with Pittosporums, Ericas, Nandina domestica and Conifers.

Fruit and Vegetable Committee.

Present: Mr. A. H. Pearson (in the chair), Mr. J. Cheal, Mr. H. S. Rivers, Mr. P. C. M. Veitch, Mr. F. G. Treseder, Mr. A. Bullock, Mr. A. W. Metcalfe, Mr. R. H. Hall, Mr. W. F. Giles, Mr. J. Wilson, Mr. J. Basham, Mr. J. C. Allgrove, Mr. W. H. Divers, Mr. E. A. Bunyard, Sir William Lobjoit and Mr. A. N. Rawes, Secretary.

A hybrid Blackberry (Rubus rusticanus inermis × R. thyrsiger), exhibited by the John Innes Horticultural Institute, Merton, S.W.19, was recommended for inclusion in the commercial fruit trials now being held at Wisley. The fruits of this Blackberry were large and shapely, with an excellent flavour, and from the appearance of the spray of fruits shown, it would appear to be an excellent cropper. No other recommendations was made by this Committee, and there were no exhibits of fruits or vegetables in the show.

Awards of the Council.

Cups.

Wigan Cup.—Offered for the best exhibit of Roses.—To Messrs. S. McGredy and Son.

Silver Cups.—To Messrs. Stuart Low and Co., for Orchids; Mr. T. M. Endean, for Cacti and Mesembryanthemums; Mr. J. W. Forsyth, for Chrysanthemums; Messrs. Hillier and Sons, for trees, shrubs and Conifers; Messrs. L. R. Russell, Ltd., for stove and greenhouse plants; Messrs. Dickson and Robinson, for Dahlias; Messrs. Dobbie and Co., Ltd., for Dahlias; Mr. W. E. Chaplin, for Roses; Messrs. Alex. Dickson and Sons, Ltd., for Roses; and Mr. Thomas Robinson, for Roses.

Medals.

Gold Medals.—To Messrs. Blackmore and Langdon, for Begonias; and Messrs. S. McGredy and Son, for Roses.

Silver-gilt Flora Medals.—To Messrs. Charlesworth and Co., Ltd., for Orchids; Messrs. Sanders, for Orchids; Messrs. C. Engelmann, Ltd., for Carnations; Messrs. Sutton and Sons, for Gloxinias; Mr. W. E. T. Ingwerson, for rock garden plants and dwarf Conifers; Messrs. R. H. Bath, Ltd., for Gladioli; Mr. R. C. Notcutt, for shrubs; Mr. G. Reuthe, for shrubs; Messrs. Waterer, Sons and Crisp, Ltd., for trees and shrubs; Messrs. Jarman and Co., for Dahlias; Mr. H. Woolman, for Dahlias; Messrs. E. F. Fairbairn and Sons, for Phloxes; Messrs. B. Ladhams, Ltd., for Lobelias and hardy flowers; Messrs. A. and W. Perry, for mixed group of herbaceous and bulbous plants; Messrs. M. Prichard and Sons, for herbaceous plants; Messrs. R. Wallace and Co., Ltd., for shrubs, bulbous and herbaceous plants; Messrs. Waterer, Sons and Crisp, Ltd., for herbaceous plants; Messrs. Oliver and Hunter, for Montbretias, Gentians, etc.; Messrs. A. and W. Perry, for herbaceous and aquatic plants; Mr. Elisha J. Hicks, for Roses; and to Messrs. Wheatcroft Bros., for Roses.

Silver-gilt Banksian Medals.—To Messrs. Black and Flory, for Orchids; Messrs. Cowan and Co., for Orchids; Messrs. Allwood Bros., for Carnations; A. P. Brandt, Esq. (gr. Mr. J. W. Barks), for stove and greenhouse plants; Messrs. Stuart Low and Co., for Carnations; Mr. Clarence Elliott, Ltd., for rock garden plants; Messrs. Maxwell and Beale, for alpines; Mr. Ernest Ballard, for Michaelmas Daisies; Messrs. K. Luxford and Co., for Chrysanthemums; Messrs. J. Cheal and Sons, Ltd., for shrubs; Messrs. L. R. Russell, Ltd., for Clematises and climbing plants; Mr. H. J. Jones, for Dahlias; Messrs. Wm. Treseder, Ltd. for Dahlias; Mr. J. T. West, for Dahlias; Mr. J. B. Riding, for Dahlias; Lady Aberconway and the Hon. H. D. McLaren, for Nerines; Messrs. Bakers, for hardy plants; Messrs. G. Bunyard and Co., Ltd., for herbaceous plants; Messrs. James Carter and Co., for flowering plants; Mr. A. Gavin Jones, for herbaceous plants; Mr. W. Wells, junr., for Michaelmas Daisies, etc.; Messrs. Hewitt and Co., for mixed group of Delphiniums and Asters; Messrs. W. H. Rogers and Sons, Ltd., for dwarf shrubs, rock garden and herbaceous plants; Mr. T. Smith, for shrubs and herbaceous plants; Messrs. A. J. and C. Allen, for Roses; Mr. John Mattock, for Roses; Mr. J. H. Pemberton, for Roses; Messrs. T. Smith and Son, for Roses; Messrs. Waterer, Sons and Crisp, Ltd., for Roses; and to Messrs. Frank Cant and Co., Ltd., for Roses.

Silver Flora Medals.—To Messrs. Backhouse Nurseries, Ltd., for rock garden plants; Messrs. Casburn and Welch, for alpines; Messrs. G. Gibson and Co., for dwarf shrubs and alpines; Messrs. M. Prichard and Sons, for rock garden plants; Mr. Wm. Yandell, for Chrysanthemums; The Donard Nursery Co., for trees and shrubs; Messrs. Carter Page and Co., Ltd., for Dahlias; The King's Acre Nurseries, for Dahlias; Messrs. I. House and Sons, for Kniphofias, Scabious and Montbretias; Messrs. J. Kelway and Son, for Gladioli and herbaceous plants; Messrs. W. Easlea and Sons, for Roses; Messrs. D. Prior and Son, Ltd., for Roses; and to Messrs. H. Morse and Sons, for Roses.

Silver Banksian Medals.—To Mr. S. Smith, for Cacti and Succulents; Mr. G. G. Whitelegg, for rock garden plants; Mr. T. Bones, for Michaelmas Daisies; Mr. H. J. Jones, for Michaelmas Daisies; Messrs. G. Jackman and Sons, for Clematises; Messrs. J. Stredwick and Son, for Dahlias; Messrs. H. Langridge and Co., for Dahlias; The Chalk Hill Nurseries, for hardy plants; Messrs. W. Cutbush and Son, Ltd., for Dahlias and Michaelmas Daisies; Messrs. Wm. Wood and Son, Ltd., for hardy plants; Messrs. Barr and Sons, for Michaelmas Daisies and herbaceous plants; Mr. James Macdonald, for a lawn garden; Mr. R. V. Roger, for Roses; Messrs. A. Warner and Son, for Roses; and to Messrs. Wood and Ingram, for Roses.

Flora Medals.—To Messrs. John Peed and Son, for stove and greenhouse plants; Mr. P. Gardner, for rock garden plants; Mr. W. J. Marchant, for trees and shrubs; Messrs. Hewitt and Co., for Dahlias; Messrs. J. Forbes, Ltd., for Phloxes, Pentstemons, etc.; Mr. Charles Turner, for Dahlias and shrubs; Messrs. W. Cutbush and Son, Ltd., for Kniphofias; Messrs. Daniels Bros., Ltd., for Montbretias and Gaillardias; Messrs. Harkness and Sons, for hardy flowers; Mr. H. Hemsley, for herbaceous and rock garden plants; Messrs. Ben. Cant and Sons, Ltd., for Roses; The Dowty's Rosery, for Roses; Messrs. Laxton Bros., for Roses; and to Mr. D. Long, for Roses.

Banksian Medals.—To Messrs. Allwood Bros., for hybrid Pinks; Messrs. A. Charlton and Sons, for trees and shrubs; Messrs. Bowell and Skarrett, for herbaceous plants; Mr. G. Reuthe, for hardy plants; Central Garden Supplies, for herbaceous plants, alpines and shrubs; Messrs. E. J. Redgrove and Son, for herbaceous plants; Mr. F. Rich, for Michaelmas Daisies; Messrs. Rich and Cooling, for Michaelmas Daisies, herbaceous plants and Dahlias; Messrs. W. H. Simpson and Sons, for Asters, Antirrhinums and Montbretias; Mr. G. E. P. Wood, for alpine and herbaceous plants; and to Mr. H. Clark, for Dahlias and Larkspurs.

TRADE NOTES.

A blue pencil is part of the equipment of most offices, and its use is certainly not confined to an editorial department. The trouble with most blue pencils is that the lead is soft, breaks easily when being sharpened or just when one is busy and needs it most; therefore a pencil that does not possess these failings is a pleasure to handle. Such an one is the new Hammer pencil distributed by Messrs. Hammer, Ltd., of High Holborn, and obtainable in blue, red, green, and red and blue.

Messrs. R. Wallace and Co., Ltd., of The Old Gardens, Tunbridge Wells, will hold their annual sale of nursery stock on Wednesday and Thursday, October 10 and 11. The event is growing in importance yearly, and the catalogue this season contains a greater variety of subjects than have previously been offered, including many new and rare Rhododendrons, Japanese Cherries, Eastern Lilies, new alpine plants, and also a collection of Irises. The nurseries are situated just off the Frant Road to the south of Tunbridge Wells, and are well worth a visit, especially when many of the shrubs are showing beautiful autumn tints. The sale will be conducted by Messrs. Protheroe and Morris, 67 and 68, Cheapside, E.C., who will be pleased to forward a catalogue on receipt of application.

Patents and Trade Marks.—Any of our readers requiring information and advice respecting Patents, Trade Marks or Designs, should apply to Messrs. Rayner and Co., Patent Agents, of 5, Chancery Lane, London, who will give free advice to readers mentioning *The Gardeners' Chronicle.*

ANSWERS TO CORRESPONDENTS.

Brussels Sprout Leaves Spotted.—*C. B., Devon.* The Brussels Sprout leaves are affected with leaf-spot (Mycosphaerella braccicola). This disease appears in autumn and increases in intensity during the winter months, and affects all kinds of Brassicas. Remedial measures are: (1) destroy badly infected plants; (2) remove infected leaves and burn them; (3) keep down Cruciferous weeds in the neighbourhood of the vegetable garden; and (4) spray young plants with Bordeaux mixture as a preventive against attack.

Gladiolus Corms Diseased.—*G. W. P.* The corms were too far decayed to enable us to determine whether parasitic eelworms were responsible for the damage. Many saprophytic eelworms were present. The white worms present were Enchytraeid worms, commonly known as Aster or Pot worms, but these are harmless, being saprophagous. The white grubs are larvae of a species of Sciara—one of the Midges. There were heavy infestations by Springtails (Collembola) which may be responsible for most of the damage. The numbers of this pest may be reduced by drainage and heavy applications of lime to the infested soil.

Grapes Unhealthy.—*J. K. C.* Your Grapes are suffering from mildew, and from the appearance of the leaves, they have also been burnt by some spray fluid.

Grapes Shanking.—*Nemo.* A very bad case of shanking. For cause and treatment see *The Gardeners' Chronicle* for September 22, p. 240.

Names of Plants.—*L. C.* Tecoma radicans. [Thanks for 1/- for R.G.O.F. Box.—Eds.]—*W. F. H.* Lycium chinense.—*T. L. G. St. L.* 1, Cornus sanguinea; 2, Cotoneaster sp. (not recognised); 4, Viburnum Tinus var. hirtum; 6, Portugal Laurel; 7, probably Arbutus Menziesii.—*R. J.* Mesembryanthemum edule.—*J. W.* We have done out best, but the tiny scraps sent were almost impossible to identify with accuracy. 1, send in flower; 2, Saxifraga sp.; 3, Juniperus communis; 4, Erica Tetralix var. rubra; 5 and 6, too small to identify; 7, Prunus Padus; 8, Crataegus Carrierei; 9, Ulmus campestris var. argenteo-variegata.—*T. S.* 1, Abies concolor; 2, Cupressus Lawsoniana; 3, Juniperus chinensis; 4, Thuya plicata; 5, Cupressus nootkatensis; 6, Picea orientalis.

Rust on Rose Leaves.—*C.* The Rose leaves are affected by rust (Phragidium subcorticum). Remedial measures include: (1) raking together and burning all fallen leaves from infected bushes; (2) periodical applications of Bordeaux mixture to both surfaces of the foliage from May onwards.

Saxe-blue Lathyrus.—*J. E.* It is quite true that Lathyrus sativus is a dangerous article of food, when used in any quantity as fodder for animals. The seeds were at one time ground into flour and made into bread in many parts of the continent during the eighteenth century, but produced great rigidity of the limbs of those who ate the bread for any length of time. At least three laws were made by the rulers of Wurtemburg forbidding the use of this bread as food. Geese were said to eat the seeds with impunity. Nothing can be said against the use of this blue-flowered Lathyrus in the garden. Messrs. Ryder and Son, St. Albans, in a recent catalogue, offered seeds of Lathyrus sativus, under the name of L. azureus, which is the same thing. We do not know any one offering seeds or plants of L. nervosus.

Communications received.—H. M.—T. W.—T. E.—W. S.—S. A.—W. W. P.—H. J.—J. M.—T. P.—A. F.—G. H. D.—Countess S.—J. A.—A. T. J.—W. T. S.—C. H.—R. E. A.—W A.—F. W. J.

NEW HORTICULTURAL INVENTIONS.

These particulars of New Patents, of interest to readers, have been selected from the Official *Journal of Patents*, and are published by permission of the Controller of H.M. Stationery Office.

Latest Patent Applications.

26,030.—Aitchison, H.—Garden planting-tool. September 11.
26,395.—I. G. Farbenindustrie Akt.-Ges.—Production of fertilisers. September 14.
26,370.—Nuttall, E.—Apparatus for electrically-heating glasshouses, etc. September 14.
25,629.—Blyth, M. W., and Newton Chambers and Co., Ltd.—Fungicides, etc. September 6.
25,832.—Foster, F. M.—Spades. September 8.

Specifications Published.

296,466.—Scarlett, R. L.—Seed-sowing tool or implement.
296,555.—Rosin M.—Agricultural motor-tractors.
296,583.—Papworth, C., and Jarvis E.—Flower vases or pots.
296,629.—Schadler, F. A.—Wheel-barrow.
296,637.—Imfield, K., and Maffei Akt.-Ges., J. A.—Driving-wheels for agricultural motor tractors and like vehicles.

Printed copies of the full Published Specifications may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at the uniform price of 1s. each.

Abstract Published.

Patent No. 294,646.—An effective plant-wash has been patented by E. von Ammon, of 6, Pal-Utca, Budapest, and K. Szombathy, of 25, Klara-Utca, Rakospalota, both in Hungary, and is described below.

Lupanin is used in place of nicotine as the active ingredient of plant washes; and preparations containing this substance, or nicotine, or mixtures thereof are rendered effective against caterpillars protected by a web by the addition of a water-soluble substance causing impregnation of the web, for instance, amyl, ethyl or methyl alcohol. According to examples (1) a wash consists of a 0·3 per cent water solution of lupanine together with the usual additions such as alkali and soap, and (2) a preparation to be dissolved in water for use consists of lupanine or nicotine, amyl alcohol, and caustic potash.

THE LATEST TRADE MARKS.

This list of Trade Marks, of interest to readers, has been selected from the Official *Trade Marks Journal*, and is published by permission of the Controller of H.M. Stationery Office.

NOPRASEN.

494,228.—Chemical substances used for agricultural and horticultural purposes.—Bayer Products, Limited, 31 to 34, Basinghall Street, London, E.C.2. September 19.

SULPHERICIN.

493,516.—Chemical substances used for agricultural and horticultural purposes.—Lewis Charles Wallach, 16, Finsbury Square, London, E.C.2. September 19.

BETA.

493,289.—Agricultural ploughs and parts thereof.—Ruston and Hornsby, Limited, Sheaf Ironworks, Waterside South, Lincoln. September 19.

PHEASANT.

492,684.—All goods in Class 12, which includes pruning knives, shears, etc.—Max Oppenheimer, trading as M. Oppenheimer, 23, Moor Lane, London, E.C.2. August 29.

MARKETS.

COVENT GARDEN, Tuesday, October 2, 1928.

Plants in Pot, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz. ...	10 0–12 0
—elegans	10 0–12 0
Aralia Sieboldii	8 0– 9 0
Araucarias, per doz. ...	30 0–40 0
Asparagus plumosus ...	12 0–18 0
—Sprengeri ...	12 0–18 0
Aspidistras, green ...	16 0–60 0
Aspleniums, doz.	12 0–18 0
—32's ...	24 0–30 0
—nidus ...	12 0–15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Chrysanthemums per doz. ...	12 0–18 0
—white, per doz.	15 0–18 0
—yellow, per doz.	12 0–18 0
—pink, per doz.	18 0–21 0
—bronze, per doz.	12 0–18 0
Crotons, per doz.	30 0–45 0

	s. d. s. d.
Cyrtomiums ...	10 0–12 0
Erica gracilis, per doz. ...	30 0–36 0
— — 60's, per doz.	15 0–18 0
— — 72's, per doz.	8 0—9 0
— nivalis, per doz.	30 0–36 0
— — 60's, per doz.	12 0–15 0
— — 72's, per doz.	8 0—9 0
Kochia, per doz.	15 0–18 0
—60's	9 0–12 0
Lilium longiflorum, 48/32's ...	15 0–21 0
Nephrolepis in variety ...	12 0–18 0
—32's ...	24 0–36 0
Palms, Kentia,	30 0–48 0
—60's ...	15 0–18 0
Pteris in variety	10 0–15 0
—large, 60's ...	5 0—6 0
—small ...	4 0—5 0
—72's, per tray of 15 ...	2 6—3 0
Solanum, per doz.	9 0–12 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	9 0–10 0
—cuneatum, per doz. bun. ...	6 0—8 0
Arums (Richardias), per doz. blooms ...	4 0—6 0
Asparagus, plumosus, per bun., long trails ...	2 6—3 0
—med. sprays	2 0—2 6
short ,,	— 1 0
—Sprengeri, bun. long sprays	2 0—2 6
med. ,, ...	1 0—1 6
short ,, ...	0 6—1 9
Asters, white, per doz. bun. ...	2 0—4 0
—pink, per doz. bun. ...	3 0—5 0
—single vars., per doz. bun. ...	2 6—3 0
Autumn foliage, various, per doz. bun. ...	6 0–12 0
Carnations, per doz. blooms	2 6—4 6
Chrysanthemums—	
—white, per doz. blooms ...	2 0—3 6
—yellow, per doz. blooms ...	2 6—5 0
—bronze, per doz. bunches ...	5 0—8 0
—bronze, per doz. blooms ...	2 0—4 0
—pink, per doz. bunches ...	8 0–12 0
—pink, per doz. blooms ...	3 0—6 0
Cornflowers, blue, per doz. bun.	2 6—3 0
Croton leaves, per doz. ...	1 9—2 6
Fern, French, per doz. bun.	10 0–12 0
Forget-me-nots, per doz. bun.	10 0–12 0
Gardenias, per doz. blooms ...	4 0—6 0
Gladioli, giant varieties, coloured, per doz. spikes ...	2 6—3 0
Heather, white, per doz. bun.	9 0–12 0
Lily-of-the-Valley, per doz. bun.	18 0–30 0

	s. d. s. d.
Lilium longiflorum, long, per bun.	3 6—4 0
— — short, per doz. blooms	3 6—4 0
—speciosum, long, per bun. ...	3 6—4 0
— — — short, per doz. blooms	3 6—4 6
— speciosum rubrum, long, per doz. ...	3 6—4 0
— — — short, per doz. ...	2 0—2 6
Marigolds, per doz. bun. ...	2 0—3 0
Michaelmas Daisies, per doz. bun.	6 0–10 0
Myrtle, green per doz. bun.	1 6—2 6
Orchids, per doz.	
—Cattleyas ...	36 0–60 0
—Cypripediums	10 0–15 0
Physalis, per doz. bun. ...	12 0–30 0
Roses, per doz. blooms—	
—Mme. Butterfly	2 0—4 6
—Columbia ...	2 6—3 6
—Golden Ophelia	2 6—3 6
—Richmond ...	3 0—3 6
—Aaron Ward	1 6—2 0
—Roselandia	2 6—3 6
—Hoosier Beauty	3 6—4 6
—Molly Crawford	2 6—4 0
Scabiosa caucasica, per doz. bun.	5 0—6 0
Smilax, per doz. rails ...	4 6—5 0
Statice sinuata, blue, per doz. bun. ...	4 0—6 0
— — white, per doz. bun. ...	4 0—6 0
— — pink, per doz. bun. ...	4 0—6 0
— — yellow, per doz. bun. ...	5 0—8 0
Stephanotis, 72 pips ...	2 6—3 0
Stocks, white, per doz. bun. ...	4 0–10 0
— mauve, per doz. bun. ...	6 0—8 0
Sweet Sultan, white, per doz. bun. ...	2 6—3 0
— — mauve, per doz. bun. ...	2 6—3 0
Violets, Prince of Wales, per doz. bun.	3 6—6 0

—Remarks.—Chrysanthemums, with the exception of good yellow blooms, are too numerous for present requirements, for even the best grades had to be disposed of at very low prices before the market closed on Saturday morning last. Carnations and Roses were firmer in price this morning. Lilium longiflorum blooms are also realising better prices. Weather conditions are now more suitable for single Violets which are arriving from Cornwall and Devonshire, and trade should improve for these blooms. Gladioli are now practically over for this season, only a limited quantity of white and scarlet blooms being recommendable. Gypsophila, Montbretia, Scabiosa, and Sweet Sultans are generally poor in quality. Some fine blooms of Gardenias are now on sale, and there is also a good supply of Stephanotis. Green and yellow Cypripediums are the most plentiful among Orchids.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples, English—	
—Cox's Orange Pippin ½-bushel	6 0–10 0
—Worcester Pearmain, case ...	14 0–18 0
—extra special, ½-case ...	7 0—9 0
—Lord Derby, per bushel ...	5 0—7 0
—James Grieve, ½-case ...	4 0—8 0
—Lanes ...	4 0—7 0
—Bramley's Seedling, case ...	— 10 0
—Warner's King	5 0—7 0
—Gravenstein, per barrel ...	22 0–28 0
—Newtown ...	12 0–13 0
Apples, Nova Scotian—	
—Cox's Orange Pippin, ½-barrel	30 0–35 0
Bananas, per bun. ...	13 0–25 0
Figs, hothouse, per doz. ...	3 0—6 0
Grapes, English—	
—Muscat of Alexandria, per lb.	2 0—5 0
—Alicante ...	1 3—2 0
—Canon Hall Muscat, per lb.	2 0—6 0
—Black Hamburgh, per lb. ...	1 0—2 0
Grape Fruits—	
—Porto Rico ...	30 0–37 6

	s. d. s. d.
Grapes, Guernsey—	
—Muscat of Alexandria ...	1 3—1 9
—Canon Hall Muscat ...	1 9—2 6
—Black Hamburgh ...	0 9—1 2
—Gros Colmar...	1 0—1 6
—Almeria, per barrel ...	20 0–24 0
Lemons, Messina and Palermo, per case ...	40 0–45 0
—Naples ...	40 0–65 0
Melons, hothouse, each...	1 0—4 0
—Cantaloupe, each ...	1 6—3 0
—Valencia, 24's and 36's ...	17 0–18 0
Oranges, Valencia Late	20 0–25 0
Peaches, hothouse, per doz.	6 0–24 0
Pears, Californian—	
—Beurré Hardy	19 0–21 0
—Bartlett ...	20 0–21 0
—Doyenné du Comice, ½-case	— 13 0
—Fertility ...	4 0—6 0
—Conference ...	4 0—7 0
Pineapples, each	2 0—5 0
Plums, English,	
—Damsons ...	— 12 0
—Prunes ...	— 10 0

Remarks.—Most sections of the market report a slackening in demand, and conditions all round may be termed slow. Hothouse fruits available, consisting mainly of Grapes, Peaches, Figs and Melons, have been a moderate trade. The English Apple market is quiet, even for best dessert varieties and large cookers, and the position is not improved by the arrival of Apples from North America, which, except for some good Cox's Orange Pippins from Nova Scotia, sell slowly. A sprinkling of Plums, including some Prunes from the Aylesbury district, and some from California, are meeting a good demand. The recent improvement in the Tomato trade has not held, probably the colder weather and the increased arrivals from Jersey, encouraged by better prices, have been responsible for the set-back. Cucumbers are a better market but supplies are much smaller than of late. There is an improvement in the inquiry for hothouse Beans from Guernsey, and outdoor Beans are arriving in smaller quantities. Mushrooms, although more are available, are selling at quite good prices. Green vegetables advanced in price during the week and are still keeping firm. The trade in Potatos is moderately good, with indications of improvement.

GLASGOW.

A better tone prevailed in the cut flower market during the past week, when blooms of the best quality were in good demand. Disbudded Chrysanthemums were sold at the following prices:—Mrs. Roots, 1s. 9d. to 2s. for 6's; Cranford Yellow, 1s. 6d. to 2s.; Debutante, 1s. 6d. to 1s. 9d.; Alcalde and Sanctity, 1s. to 1s. 6d.; and Harvester, 1s. to 1s. 3d. Nina Black, Well's White, Well's Pink, Yellow and Crimson Masse sold at 4d. to 6d. per bunch in sprays. Carnations made 2s. to 3s. per dozen; pink Roses, 2s. 6d. to 3s.; red and white Roses, 1s. to 2s.; Lily-of-the-Valley, 2s. 6d. per bunch; Richardias, 3s. 6d. to 4s.; Smilax, 1s. to 1s. 6d.; and Asparagus Fern, 6d. to 9d.

The fruit market was steady. Victoria Plums ranged in price from 4d. to 6d. per lb. for first quality, and 2d. to 3d. for second. Damsons, 9s. to 10s. per half-sieve. English cooking Apples were worth 14s. per keg, first grade; 8s. to 10s. second; Scotch Gros Colmar Grapes, 4s. to 4s. 6d. per lb.; Belgian Royal Grapes, 10d. to 1s.; Dutch, 7d. to 8d.; Almeria, 18s. to 24s. per barrel. Prices for American Apples were, for Gravenstein, 14s. 6d. to 15s. per case; York Imperials, 30s. to 35s. per barrel; while Beurré Hardy Pears sold at 10s. to 11s. per half-case; and Lemons, 30s. to 33s. per case.

In the vegetable market Scotch Tomatos were cheap at 3d. to 5d. per lb.; Jersey and Dutch, 1d. to 2d.; Lettuces, 1s. 6d. to 2s. per dozen; Cucumbers, 3s. to 4s.; Cauliflowers, 2s. to 3s.; and Onions, 11s. to 12s. per case.

ORCHIDS.
Clean, well-grown plants; also
STOVE AND GREENHOUSE PLANTS IN VARIETY
and HARDY HERBACEOUS PLANTS.
JAMES CYPHER & SONS
Exotic Nurseries, CHELTENHAM. Telephone 2237.
Special Loam for Orchids, used by leading Growers.

THE
Gardeners' Chronicle

No. 2181.—*SATURDAY, OCTOBER* 13, 1928.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 49·3°.

Actual Temperature—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, October 10, 10 a.m. Bar. 29·9. Temp. 57°. Weather, Cloudy.

Municipal Gardening.

The gratitude of mankind is more generally given to those who demand than to those who deserve it. Thus, in the smaller, yet nevertleless important, affairs, all urban dwellers owe a great and generally acknowledged debt of gratitude to that group of able gardeners who have in the last twenty years brought the floral displays of our parks to such a high pitch of perfection. Gone, as we may hope, for ever—or almost gone—are the old and worn devices of carpet-bedding, and even the floral clock no longer serves to mark time in gardening progress. A freer and better style has been introduced with such success that it is true to say that in no public parks throughout the world is better taste shown than in those of London and of our chief towns. Mr. W. W. Pettigrew, who discoursed recently on Municipal Gardens and Gardening before the members of the Royal Horticultural Society,* is far too modest either to draw attention to the good work which he himself has done in Municipal Gardens, or even to claim for his colleagues—as we think he might—that they have done a fine piece of educational work by showing how beautiful the parks of our towns may be made. One of the most interesting remarks made by Mr. Pettigrew in the course of his lecture had reference to the effect of love of games on garden design. As Caesar recognised long ago—if we are to credit Shakespeare's famous speech put into the mouth of Anthony—a garden is to provide a playground for citizens "to walk abroad and recreate themselves." Recreation now consists in spacious games—football, cricket, bowls, tennis, etc.—and, whereas in the old type of park numerous sinuous paths, flower beds and landscape effects were devised and laid out, now, when the maximum of space must be provided for games, the walks have perforce to be straight and set at right angles. We think that, speaking generally, this limitation has proved a blessing in disguise, for tortuousness in gardening, as in life in general, is a risky habit, and many a garden with paths of meandering meaninglessness would be improved by setting them straight. Another limitation which besets the municipal gardener in many of our cities is the impossibility of establishing permanent herbaceous borders owing to the lethal effects of smoke. The bedding-out must be practical. Nowadays, instead of the Geranium, Calceolaria and Lobelia (*pace* Buckingham Palace), the Antirrhinum, dwarf Dahlia, and many another good garden subject are made to do temporary duty in combination with groups of bush Roses. In yet other cases, whole beds are devoted to one floral subject, to the delight of ever-growing multitudes that this horticultural effort and knowledge have educated. The enterprising municipal gardener has proved, moreover, that notwithstanding the impurities of the atmosphere of many of our towns, flowering trees and shrubs may be made to thrive in municipal gardens, and thereby to add vastly to their beauty and variety. For example, at Manchester, in Wythenshawe Park, there is an excellent collection of Rhododendrons, and in other parts may be found fine specimens of Magnolia, Berberis, flowering Cherries, and the like. Then, too, when skilfully planned, the park may, and often does, contain a specimen of the old English garden which Mr. Pettigrew well describes as a medley of plants arranged in orderly disorder—typical of the national character and pleasing to us all. It is meet when we have enjoyed, as all may, the beauty of our municipal gardens, to express our gratitude and admiration for the skill and enterprise which has during recent years so abundantly characterised the fine gardeners in whose charge are our municipal gardens.

Linnean Society's Meetings, 1928-29.—The meetings of the Linnean Society of London for the ensuing session will be held at Burlington House, Piccadilly, W., on November 1, 15 and 29; December 13; January (1929) 3, 17 and 31; February 14 and 28; March 14; April 4 and 18; and May 2 and 24, the last date being the anniversary meeting. The meetings commence at 5 p.m.

Grants to Kew Herbarium and the Natural History Museum.—The recently issued second report of the Empire Marketing Board states that a grant of sufficient magnitude has been awarded to the Royal Botanic Gardens, Kew, to allow of the classification of 300,000 herbarium specimens which have yet to be dealt with. It is also announced that a grant has been given to the Imperial Bureau of Mycology, to enable it to be housed in a new building on a site in close connection to the Royal Botanic Gardens, Kew. A capital sum of £30,000 has also been granted to the Natural History Museum, to enable the provision of adequate accommodation for its entomological library and collection of some 5,000,000 insects.

Patents for Flowers and Plants.—Following our recent reference to the "patenting" of a Rose in Canada, it is of interest to learn that during a recent discussion in Paris on "Horticultural Novelties," M. Blot, of Messrs. Vilmorin-Andrieux and Co., stated that the patenting or protecting of horticultural novelties appeared likely to be settled satisfactorily in France. He pointed out that a measure before the French Parliament, and already approved by the Senate, concerned all patents for new industrial inventions and contained a clause (Art. 66) that made the measure applicable to horticulture and agriculture. A copy of the Parliamentary Report was exhibited, and from this it was quite clear that this clause could be so applied, with, perhaps, some slight modification. M. Blot urged the horticultural organisations in France to do all in their power to secure the passing of this Act, and pointed out that similar measures had been adopted in several other countries. We learn further that the proposed Act in question, concerning "Brevets d'Invention." was passed by the French Senate on March 6 of this year and is now receiving the consideration of a Committee of the Chamber of Deputies, and will become law if it is approved by the Chamber.

R.H.S. Examinations, 1929.—The Examinations conducted by the Royal Horticultural Society will be held in 1929 as follows:—*Written Examinations*: General Examination (Seniors and Juniors), Wednesday, March 20; entries close January 14, 1929. Teachers' (Preliminary and Advanced), Saturday, March 23; entries close January 14, 1929. National Diploma (Preliminary and Final), Saturday, May 4; entries close February 11, 1929.—*Practical Examinations*: Teachers' Advanced, Friday, June 14; National Diploma (Preliminary), Tuesday and Wednesday, June 18 and 19; National Diploma (Final), Thursday and Friday, June 20 and 21. All entries, except those for the National Diploma, should be made on the form in the syllabus, obtainable from The Secretary, Royal Horticultural Society, Vincent Square, Westminster, S.W.1.

Birmingham Chrysanthemum Society.—The Floral Committee of the Birmingham Chrysanthemum Society met at the Chamber of Commerce on October 8, and awarded a First Class Certificate to Pink Domino, an early-flowering Chrysanthemum, shown by Mr. A. W. Thorpe; and to Worcestershire, crimson bronze, Japanese, from Mr. H. Woolman. An Award of Merit was granted to Bronze Seedling Bedder, from Mr. H. J. Milner; and to Jack Palmer, an early-flowering, shell-pink variety, from Mr. H. Woolman.

Cocktails from Cabbages.—We are not at all sure whether one of our American horticultural contemporaries is joking, or not, but it published the following in all apparent seriousness:—"And now the sauer kraut juice cocktail! Formerly drained off into the kitchen sink, sauer kraut juice is now put up and sold in fancy-labelled cans, advertised as an appetite stimulant and digestion promoter, rich in at least one of the vitamins needed for perfect health; one enthusiastic purveyor claiming in his advertisement that 'sauer kraut juice contains an alcoholic content dangerously near the Volstead dead line,' which claim reflects probably more of business sagacity than scientific fact."

Special Grants for Research Works.—We learn that, upon the advice of the Development Commissioners' Advisory Committee on Agricultural Science, several special research grants for the academic year 1928-29, have been authorised by the Minister of Agriculture. Renewals of grants includes: To the East Malling Research Station for experimental work in connection with "Incidence and Control of Apple Scab and Mildew," by Mr. M. H. Moore; to Manchester University, for "Slug Control" research work; and to the South Eastern Agricultural College, Wye, for investigation of "Virus diseases of Hops." New applications which have received grants include:—By the South-eastern Agricultural College for investigation of the "Life History, distribution and control of Capsid Bug and Currant Capsid" by Mr. M. Austin; and from the same station for "Publication of Vol. III. of Prof. Theobald's book on British Aphides"; and the Rothamsted Experimental Station, for "Examination of data collected under the Ministry's meteorological scheme."

Eckersley Gardens, Bolstock, Wigan.—These Gardens, which are the gift of Lt.-Col. Eckersley to the town of Wigan, to commemorate his father, the late Mr. Nathaniel Eckersley, formerly Member of Parliament for the Wigan division, were recently opened to the public, with due ceremony, by the Mayor of Wigan, who also unveiled the memorial, erected in the gardens by the Wigan Corporation, to commemorate the services of the late Mr. Eckersley to his native town. The cost of constructing these gardens, which are enclosed by a low masonry wall bearing ornamental, wrought-iron railings, and which have been artistically laid-out by the Wigan Parks Superintendent, Mr. Irvine, was met by Lt.-Col. Eckersley, and the gardens were handed over to the Wigan Corporation complete in every detail.

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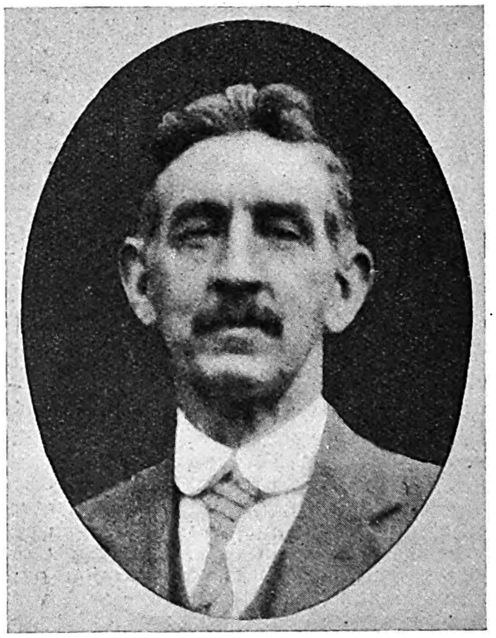
* "Municipal Gardens and Gardening," by W. W. Pettigrew, V.M.H.; *Journal of the Royal Horticultural Society*, Vol. LIII., Part 2, July, 1928.

Preservation of Longshaw Lodge Estate.—With a view to preserving the lovely tract of heath and woodland known under this name, situated only a few miles from Sheffield, efforts are being made to raise the sum of £14,000 to acquire seven-hundred-and-fifty acres of it from the Sheffield Corporation, so that it may remain an open space for the public for all time. Recently, the Sheffield Corporation purchased the adjoining moors of Benbage and Houndkirk, which embrace some of the most attractive of Derbyshire's scenery.

R.H.S. Orchid Show.—The Royal Horticultural Society's Orchid Show will be held in conjunction with the fortnightly meeting in the Society's New Hall on Tuesday and Wednesday, October 30 and 31. Amateurs and trade growers are specially invited to exhibit Orchids at this show, and the following cups and trophies are offered for award to exhibits staged by amateurs:—(1) The Schröder Challenge Cup, presented to the Society by Baron B. Schröder, and offered for award for the best exhibit of Orchids shown by an amateur. Groups entered for this cup must be distinct from those entered in competition for the Orchid Challenge Cup presented by the Orchid trade for groups of limited area. (2) A Challenge Cup presented by the Orchid trade for the best group of Orchids staged in a space not exceeding sixty square feet by an amateur who employs not more than three assistants in his Orchid houses, including the head gardener. (3) A Silver Trophy presented by the Orchid trade for the best twelve Orchids, not more than two of one genus, exhibited by an amateur who employs not more than two growers, including the head gardener, in his Orchid houses. (4) A Silver Trophy presented by the Orchid Trade for the best six Orchids exhibited by an amateur who employs not more than one Orchid grower or gardener. Entry forms may be obtained on application to the Secretary, Royal Horticultural Society, Vincent Square, Westminster, S.W.1, and all entries must reach him not later than first post on Wednesday, October 24.

"The New Flora and Silva."—Although vastly different from the sumptuous *Flora and Sylva* conducted by Mr. William Robinson, and first issued in 1903, *The New Flora and Silva*, edited by Mr. Euan H. M. Cox, is an interesting publication of the magazine type, rather than of newspaper style; indeed, it is about the same size as the *Botanical Magazine.* This new journal will, we are told, cater "for the keen gardener who is ambitious, for the gardener who is interested in particular groups of plants, for the gardener who wishes to enlarge his collections, and, above all, for the gardener who desires to learn about the best plants and the best methods of cultivation." Judged by these standards, we fail to see how the ambitious gardener is better served than heretofore—but then we do not know how the Editor defines "ambition" in this connection. For the gardener who is interested in particular groups of plants, the new issue provides articles on "Some Deciduous Azaleas," by Mr. W. J. Bean; "Candelabra Primulas in the Wild Garden"; "New Sweet Peas"; "Varieties of Delphiniums"; "The Newer Saxifrage Hybrids," and "Notes on Berberis," this last by Dr. Camillo Schneider. For the gardener who wishes to enlarge his collections, "a slight variation of the exchange club" is proposed, while in the matter of "the best methods of cultivation," we find little or nothing that has not been stated already. Apart from these standards, however—and time may bring kindlier judgment and appreciation—*The New Flora and Silva* contains extremely interesting general articles, such as "Garden Plants of Seventy Years Ago," in which Miss Jekyll indulges in delightful reminiscences; "Korean Plants in Gardens," by Mr. E. H. Wilson, about which none is better able to write than he; "Manavlins from my Garden," from the whimsical pen of Mr. Clarence Elliott; and "The Anatomy of Dessert," in which Mr. E. A. Bunyard writes with expert knowledge of The Cherry Succession. The printing, type, and paper are excellent, but we hope to see, in future, better illustrations than many of those in the first issue.

Mr. J. Winder.—Horticulturists in the Newcastle district hold Mr. J. Winder in very high esteem because of his skill as a gardener and his enthusiasm for his profession. He served his apprenticeship at Sedgwick Hall, Westmoreland, under Mr. G. Bethel. While at Sedgwick, and previously at school, he was associated with Mr. J. H. Bethell, second son of his chief; later, Mr. J. H. Bethell commenced business on his own account, became Mayor of East Ham, and was elected Member of Parliament for the Romford Division of Essex, received a Knighthood, and now sits in the House of Lords as Lord Bethell of Romford. The friendship formed in those early days has never been broken. During his apprenticeship, Mr. Winder had to walk two miles to Sedgwick, beginning work at 6 a.m., and walk two miles home after work ceased at 6 p.m. Scotland attracted the young man, so, after his apprenticeship, he went to Edinburgh, where he worked for a short period at Methven's Nurseries before passing on to Dunnikier Castle, near Kircaldy, Fifeshire, where the gardener, Mr. Dewar, encouraged him to study botany and British plants. From Fife he went to Lenmore Castle, Stirlingshire, where the late Mr. Findlay was an expert in the cultivation of florists' flowers. Mr. Winder's next move was northward to Gordon Castle, where he served under Mr. J. Webster (a Neill Prizeman), whose son, Mr. C. Webster—who was recently awarded the Neill Prize (*Gard. Chron.*, September 1)—was then general foreman. For two of the four years spent at Gordon Castle, Mr. Winder had charge of the floral decorations, and in those days the position of "decorator" was no sinecure. After spending two years as foreman at Stagshaw House, Northumberland, Mr. Winder was appointed gardener to Sir Charles Parsons, at Elvaston Hall, Durham, with whom he remained for four years before securing a similar appointment to Sir John Borwick at Ashbrooke Grange, Sunderland. Not long afterwards the late J. H. Straker, Esq., invited our friend to become his gardener at Howden Dene, Corbridge-on-Tyne—but the garden had to be made. Mr. Winder set about his work with an enthusiasm equal to that of his employer. Those who have seen Howden Dene know how great is the success that attended their efforts. For thirty-one years Mr. Winder has served the Straker family, and he looks fit enough for a further similar period if need be. He tells us that during his fifty years of gardening he has never lost a day's work through illness!



MR. J. WINDER.

Retirement of Mr. G. Knowles.—On October 1, Mr. George Knowles, gardener to the Duke of Connaught, at Bagshot Park, Surrey, retired after thirty years' service with the Duke, who upon parting with Mr. Knowles, presented him with an autographed photograph of himself.

The Late Sir Henry Wickham.—The romance of the Rubber industry in the east commenced in 1876 when Mr. H. A. Wickham collected seeds of Hevea brasiliensis in Brazil, on behalf of the Indian Government and through the agency of Kew. The seeds came to Kew, where seedlings were raised, and in due course these were distributed to Ceylon and Singapore. It is stated that the cost of introduction was £1,500, a very small amount as compared with the huge sums now invested in the plantation Rubber industry. The hero of the romance, Mr. Wickham, who eventually became Sir Henry Wickham, died recently at the advanced age of eighty-three years.

"Some Notes on the Bulb Mite."—Under this title, W. E. H. Hodson deals with this most important pest of Narcissus and Hyacinth bulbs, in Vol. XXXV of the *Journal* of the Ministry of Agriculture, October, 1928. He commences by commenting upon the commonness of the pest, rotted bulbs containing mites, both in the field and in the store, being frequently found by all bulb growers, and states that "their significance is a matter of keen controversy among both commercial growers and scientific observers." Previously, it was considered that the mites were primarily responsible for the decay of the bulbs infested, but a more recent opinion is that the presence of the mite is secondary, their attack being on bulbs previously made unsound by some other organism, by mechanical injury, or owing to having been subjected to uncongenial conditions; Mr. Hodson is of the opinion that recent experiments tend to confirm this latter view. Recent investigations at the Seale-Hayne Agricultural College, showed that of five hundred bulb samples which were examined in the laboratory, and which were received from commercial growers chiefly in Devon and Cornwall, but also in other parts of the British Isles, and in Holland, no fewer than ninety-five per cent. of the bulbs contained bulb mites. Mr. Hodson describes in detail the life history of the bulb mite (Rhizoglyphus echinopus), and then proceeds to explain how the mite has a natural enemy in the Gamasid, species of which apparently prey extensively on the bulb mites. Details of the experimental work at Seale-Hayne are given, while the importance of the mite from an economical point of view is discussed at length. The mites carry spores of injurious fungous diseases from one bulb to another, and for that reason alone they should be destroyed; they are capable of destroying bulbs originally damaged by some other means, which bulbs might often recover but for the mites, and it is therefore considered important that the mite population should be reduced to a minimum in bulb-growing districts. Among measures which may be adopted to attain this end are, in the first place, lifting the bulbs carefully so as not to damage them; all damaged or rotting bulbs should be destroyed; bulbs should be stored under healthy conditions and inspected periodically; hot-water treatment of bulbs should be practised, as it not only controls bulb eelworm and bulb-fly larvae, but also kills all mites in the bulbs; early treatment of eelworm-infested bulbs is essential if serious losses from subsequent mite attacks are to be avoided; and finally, it is stated that the fumigation of bulbs with para-dichlorbenzine is a safe method of destroying bulb mites. A suitable method of fumigation of the lesser bulb flies was given by Mr. Hodson in Vol. XVII, Part 4, of the *Bull. Ent. Research*, p. 382, June, 1927, and the instructions then given with regard to dosages should serve for the destruction of bulb mites.

Royal Horticultural Society's Scholarships, 1928.—Mr. F. S. Bryant, of 20, Mount Road, Tiverton Hill, Bath, has been granted the vacant scholarship at the Royal Horticultural Society's Gardens at Wisley. This scholarship is tenable for two years, and carries remission of fees and a maintenance grant. The Royal Horticultural Society's General Scholarship, of £50 a year for two years, has been awarded to Mr. R. E. Hardwick of the R.H.S. Gardens, Wisley, and the Knott Scholarship of £30 a year for two years has been awarded to Mr. W. Peters, also of the R.H.S. Gardens, Wisley. These two Scholarships are awarded on the results of a special examination designed to test the candidate's ability to profit by a course of instruction in horticulture.

Anthracnose of the Plane in Paris.—The Paris municipal authorities are disturbed at the prevalence, especially in the present year, of Anthracnose among the ornamental Plane trees which add so greatly to the amenities of the city, and of which, in the beginning of the present century, there were no fewer than 25,000. The disease—known as Glaeosporium nervisequum—was particularly noticeable during the last half of the month of May, when the temperature, hitherto abnormally low, rose considerably; and it was observed that it was especially severe among the trees in the suburbs, those in the heart of Paris being little attacked, if at all. This is the more remarkable as it is not possible to establish any line of demarcation between the conditions of humidity, warmth, or any other climatic conditions between Paris and its suburbs which could not be equally well drawn between the different parts of the city itself, or between different suburbs. As regards pollution of the atmosphere, however, the case is rather different, and it might have been expected that, contrary to experience in this instance, those trees which are exposed to atmospheric pollution would be less, not more, able to withstand the attacks of disease. This may actually be the case with the Horse Chestnuts, as the shrivelling of the foliage by which they have lately been attacked is more prevalent in the city than in the suburbs, and it usually occurs in dry summers.

International Exhibition of Garden Design.—The Exhibition of Garden Design and Conference on Garden Planning, organised by the Royal Horticultural Society, will continue from Wednesday, October 17, until Wednesday, October 24. The opening ceremony will be performed by the Earl of Crawford and Balcarres, K.T., at 11.30 a.m., on October 17. In the New Hall there will be a retrospective historical section, consisting of books, tapestries, pictures and photographs, arranged by Mr. Avray Tipping; a section devoted to sculpture for gardens, organised by Mr. Reynolds Stevens; a display of plans, designs and photographs of gardens from leading designers in Great Britain, Canada, Australia, South Africa, America, France, Germany, Holland and Sweden; while various Corporations and Councils will exhibit plans and illustrations of public parks and gardens. Garden furniture will be exhibited in the old hall. The Conference programme is as follows:—Thursday, October 18: 12 noon, "The Garden of Pleasure in England from Plantagenet to Victorian Times," by Mr. H. Avray Tipping; 3 p.m., "French Gardens," by Monsieur Duchene; 4 p.m., "Recent Development in Garden Design," by Mr. G. H. Jenkins, F.R.I.B.A.; "Colour in Garden Planning," by Miss Gertrude Jekyll, V.M.H. Friday, October 19: 12 noon, "Fountains and Garden Sculpture," by Mr. Gilbert Bayes, F.R.B.S.; 3 p.m., "A Modern Park, more particularly the park of Graf. E. Silva Tarouca, at Pruhonice, near Prague," by Dr. Camillo Schneider; 4 p.m., "American Gardens," by Mr. Leonard Barron. Monday, October 22: 12 noon, "Small English Gardens," by Mr. G. Dillistone; 3 p.m., "Dutch Gardens," by Mr. J. R. Koning; 4 p.m., "Garden Ornaments," by Mr. Christopher Hussey. Tuesday, October 23: 12 noon, "Modern Tendencies in the Design and Equipment of Public Parks," by Mr. E. P. Mawson, F.R.I.B.A.; 3 p.m., Lantern Demonstration of Public Parks, by Mr. W. W. Pettigrew, V.M.H.

Appointments for the Ensuing Week.—Tuesday, October 16: Winchester Horticultural Society meets. Wednesday, October 17: International Exhibition of Garden Design and Conference (seven days). Thursday, October 18: Ipswich Gardeners' Association meets. Saturday, October 20: British Mycological Society's Autumn Foray for London Students at Wimbledon Common; Carnwath Chrysanthemum Show; Brussels Chrysanthemum Show (three days).

"Gardeners' Chronicle" Seventy-five Years Ago.—*The Potato Disease, its Origin and Cure.*—W. M. Clark.—Under this ambitious title, Mr. J. Stratton, "formerly in the employ of His Grace the Duke of Athol, and Flower Gardener to Vice-Admiral Sir Adam Drummond, of Megginch," has favoured the world with his *practical* opinion respecting that which no one has yet been able to explain. Mr. J. Stratton thinks that "our scientific horticulturists" deserve censure because of their "sleepy indolence and inattention" to divers schemes and "obscure manifestations"; and this has forced upon him the duty of explaining what they should have explained long ago. Therefore, he has written a pamphlet, in which, for the modest sum of sixpence, he teaches the world how plants have perception—how there is a Holy Ghost plant, native of North America—how, "to the best of his knowledge," it belongs to the same class and order as the "Columbine" —how its flowers resemble those of Snapdragons —how it is a *hybridous* plant, whose flowers snap up all sorts of unfortunate insects—and how it may be seen in the Royal Botanic Garden at Edinburgh. The learned author further assures the world that the antenna of an insect is a sucker—that many poisonous plants are in bloom during the time the Potato fields are in flower—that the original Potato came from Santa Fé—that the Larch is a native of North America—that the universal Potato disease broke out in 1835—that there is "a rank *high-tasted* Potato, generally termed yams, an esculent root that grows spontaneously throughout the wilds of North America, especially in low marshy swamps, and also in abundance in the South Sea Islands"—that the pollen of the Bistort resembles swarms of lizards—that of Horseradish fiery balls—that of Monk's-hood blue worms. In short, there is no end of the edifying discourse in which Mr. J. Stratton indulges. Is there no kind friend who will take the necessary means to have him placed in a lunatic asylum?

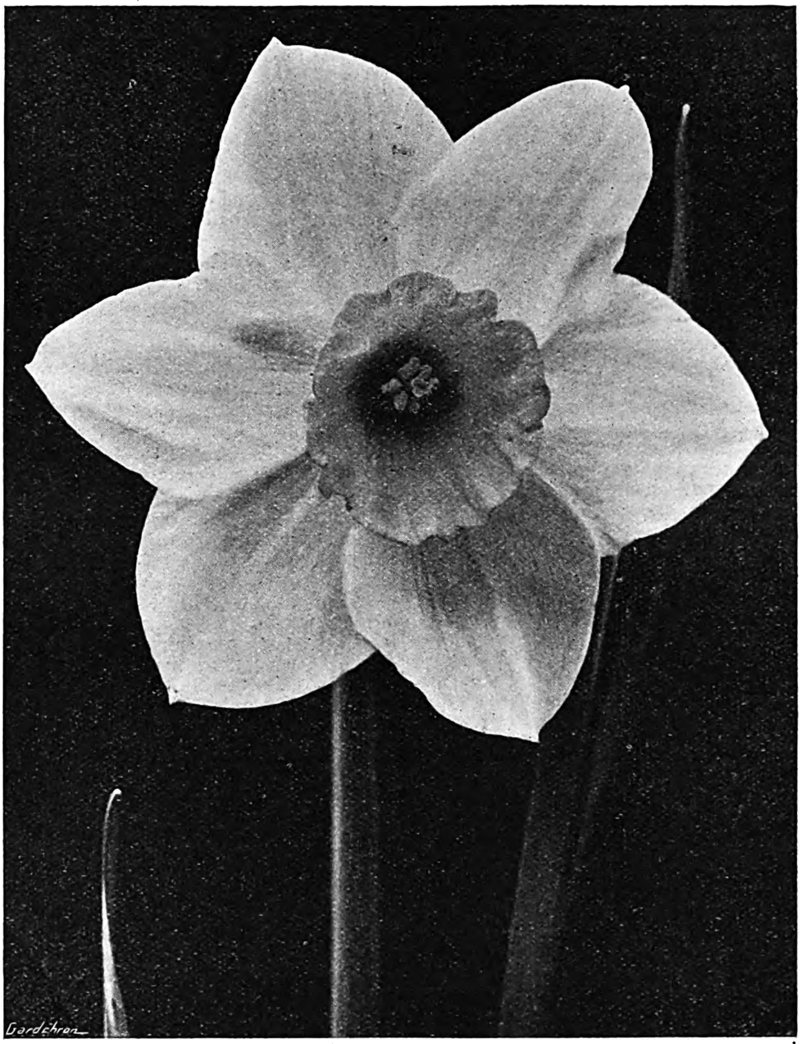


FIG. 135.—NARCISSUS COPPER BOWL.

R.H.S. Award of Merit, April 17, 1928. An Incomparabilis variety with rich yellow perianth and deep, coppery-orange cup. Shown by Mr. Guy L. Wilson.

Publications Received.—*Flora of Trinidad and Tobago*, Vol. I, Part 1, *Ranales* by R. O. Williams; Vol. II, Part 1, *Rubiales*, by R. O. Williams; Government Printing Office, Port-of-Spain, Trinidad. — *The Book of Garden Animals*, by E. Fitch Daglish; Chapman and Hall, 11, Henrietta Street, Covent Garden, London, W.C.2.; 7/6 net.—*A Survey of the Cultures of Oenothera Lamarckiana at Lunteren*, by Hugo de Vries and R. R. Gates. Reprinted from the *Zeitschrift für Induktive Abstammungs und Vererbungslehre*, 1928, *Bd. XLVII*, Heft 4, Gebrüder Borntraeger, Berlin, W. 35.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

Miltonia vexillaria.—If this Miltonia and the numerous hybrids derived from it, have been growing in the cool house during the summer months, the plants should now be removed to the cool end of the intermediate house, where they may remain during the winter and early spring months. Careful attention should be given to watering and damping as the shorter days arrive, and a buoyant atmosphere, with a free circulation of air on all favourable occasions, should be maintained. Saturation at the roots or of the atmosphere should be avoided at this season, or the foliage may quickly become spotted. Thrips should be sought for and destroyed, and the house should be fumigated at intervals to keep these and other insect pests in check.

Dendrobiums.—The graceful flower spikes of the charming Dendrobium Phalaenopsis are now developing near the apices of the new growths, and the plants require all the available light, in a position near the roof-glass, in the warmest house. An ample supply of moisture at the roots is still required, allowing the compost to become dry between each application, but after the flowers are removed, less water is needed and should only be applied at long intervals, as the plants require a long season of rest, but they should not be removed to cooler quarters. Near large towns and in manufacturing districts, the flower buds are susceptible to damage during heavy fogs, but the expanded blooms withstand the fogs very well if the atmosphere of the house is kept on the dry side. Similar cultural treatment should also be afforded the large white-flowered D. formosum, the blooms of which are now opening and should remain attractive for several weeks. The bulbs of this Dendrobium require to be well ripened in an exposed position in a warm house to keep the plants in vigorous health. The large-growing D. chrysanthum is also opening its racemes of bright, orange-yellow flowers on the new growths. These should keep longer if the plants are removed to drier and cooler quarters. The evergreen kinds, such as D. densiflorum and its varieties, also D. Farmeri, etc., are now completing their growth and only sufficient water is needed at the roots to keep them in a normal state. A fairly dry position in the intermediate house is suitable for this section during the winter months. As the semi-deciduous Dendrobiums, including D. nobile and its varieties, D. Lady Colman, and many others, which are ripening their growths under the conditions advised last month, should now have a mellow appearance and may be safely removed to much cooler quarters, where they require only small quantities of water at long intervals to keep the bulbs in a plump condition until the flower buds commence to grow in the early spring.

THE KITCHEN GARDEN.

By Allan Falconer, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Taking Notes.—Like the flower gardener, the kitchen gardener may be well advised to make notes at this time of the year, when the results of the various crops are still fresh in his memory, especially should he be an exhibitor, as everything depends on the ability to time the various kinds of vegetables for certain dates. Much, of course, depends on the weather, and certain allowances must be made for the kind of weather usually experienced. It is, however, a decided advantage to make a special effort to draw up the plans for the next season so soon as possible. By making a plan of the whole garden, and marking off the areas for next season's crops, much useful work may be accomplished during the long evenings before Christmas, when more attention and forethought are possible than if the matter left until the rush of work compels hasty decisions. A note worth recording, respecting Carrots on heavy land in this district, is that early-sown Carrots are practically a failure for storing purposes, but those sown in June, on the next piece of ground, produce really good roots, and the Carrot-fly does not bother them to the same extent, the early-sown beds being affected in spite of the repeated use of antidotes. Therefore, I have definitely decided that maincrop Carrots, in my particular district, are best sown during June. Some districts are notoriously bad for certain kinds of vegetables, as also is the land, but I am firmly convinced that by special observation and attention to detail much may be accomplished which would otherwise appear to be impossible. The weather conditions are so divergent in different parts of the country that no hard and fast rule may be employed, and it is the observant man and the one who can suit himself to the conditions which prevail, who succeeds in any part of the country. At the time of writing, October 1, many gardeners will be deploring the fact that early frosts have made a sad mess of Peas, Beans, Marrows, etc., which last year went on fruiting until early November, and where provision was not made for a succession in pits and frames and also by covering outside crops, there may be a dearth. I have recently returned from a visit to the west country, where, in spite of excessive frost during last March, when crops were cut to the ground, and after a very dry summer, where deep cultivation had been practised, everything was looking exceptionally well, which again proves the value of detail in all garden operations. I am pleased to report having seen a magnificent crop of the Onion Autumn Triumph, the variety which I recommended in some previous notes, and which, I am glad to say, has produced a fine stock of seeds, so that there should be no trouble to procure this valuable variety for next autumn sowing.

General.—Special attention should be given to covering any vegetable crop which requires it, against frosts, as often a few frosty nights spoil many things, which, if protected, and a spell of mild weather follows, would go on for several weeks. Continue to earth up Celery and complete the operation, if possible, before hard frosts occur. Sow seeds of a quick-hearting variety of Lettuce in boxes to provide seedlings for pricking out into houses or into a warm frame so soon as large enough. Take advantage of dry weather to hoe among growing crops and destroy as many weeds as possible before the heavy rains occur.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Cherries.—The cultivation of the Cherry under glass is very simple, provided the trees are kept free from insect pests, black aphis being the most troublesome of these. The Cherry should not be subjected to much artificial heat, but by closing the house early and trapping the sun-heat, Cherries may be obtained some time before those growing outside. Ordinary loam, with a quantity of mortar-rubble and burnt-earth added, should form a suitable compost for them. The following list comprises most of the best, and should ensure a succession of fruits :—Early Rivers', Bigarreau Jaboulay, Bigarreau Schrecken, Knight's Early Black, Governor Wood, Black Tartarian, Bigarreau Napoleon, Florence, and Late Duke.

Plums.—Perhaps the most suitable Plums to grow in a cool house, practically under the same conditions as recommended for Cherries, are Early Transparent Gage, Transparent Gage, Late Transparent, Kirke's, Jefferson, Bryanston, Reine Claude de Bavay, Coe's Golden Drop and Coe's Violet.

Root-pruning Late Peach Trees.—October is the most suitable month for root-lifting, and with trees that have vigorous growth and failed to crop satisfactorily through their roots being in uncongenial soil, the work of root-pruning should be carried out forthwith. Well-established trees, that crop freely each year, do not require this treatment; it is generally young trees that have been planted about two years that need it. Such trees are inclined to make excessive growth, and until this is checked they are not likely to develop much fruiting wood. When performing this operation, commence by taking out a trench four to five feet from the bole of the tree to the depth of two feet or more. This should give the operator plenty of room to comb out the remaining soil with the aid of a fork, with little damage to the roots that are to be retained, but whatever the amount of soil it may be found necessary to remove, it is important to work well under the ball of the tree, for there will probably be found the cause of the trouble. All roots that are found growing downwards into the subsoil should be severed with a sharp knife to cause young fibrous roots to be produced. If the soil that has been removed is in a lumpy condition it may be wise to procure a quantity of fresh soil, to which should be added some old mortar-rubble, but no manure. In the process of filling the trench make quite sure that the soil is made firm under the tree. Then fill the trench to within four or five inches of the surface, making it firm. The roots should then be carefully spread out and covered, making the whole quite firm by treading. When this work is completed give the roots a thorough watering to settle the soil and syringe the foliage twice daily for a short time. If the weather is unusually bright, afford light shading, but if the weather is dull this should not be necessary.

PLANTS UNDER GLASS.

By J. Coutts, Assistant Curator, Royal Gardens, Kew.

Irises.—Many of the small bulbous and tuberous-rooted Irises, when grown in pots or pans, are very attractive in the alpine or small unheated greenhouse, where their beauty may remain unspoiled during inclement weather. Among those most suitable for this purpose, mention may be made of Iris alata, I. Danfordiae, I. Heldreichii, I. Histrio, I. histrioides, I. orchioides, I. persica, I. reticulata, I. sindjarensis, I. sind-per and I. Vartanii. Iris tingitana is much larger than the foregoing species, and is a fine subject for producing a supply of cut flowers; unfortunately, it is often attacked by some virus diseases, which in bad cases spoil both foliage and flowers. I. Imperator, and the newer I. Wedgwood, are also very beautiful. The early Dutch and Spanish Irises may be used for furnishing supplies of cut flowers. If these are required in quantities, they are best grown in boxes. The Dutch sorts come into flower about two weeks in advance of the Spanish varieties; they require careful watering and should not be subjected to too much heat. Iris Susiana is very useful for growing in pots in the greenhouse, as also are all the hybrids of the Oncocyclus and Regalia groups, these hybrids proving much more amenable under cultivation than the species. As they are quite hardy they only require the shelter of a cold frame or cool greenhouse, and they thrive in well-drained pots in any good compost. Afford water carefully until they have made roots and are growing freely.

Lily-of-the-Valley.—If this subject is required for early forcing, strong crowns should be secured at once and potted up. From twelve to eighteen crowns may be placed in a five-inch pot, and for this purpose a portion of the roots may have to be trimmed off. When grown in pots, they are useful for filling bowls and such like receptacles indoors; where required in quantity for a supply of cut flowers, the crowns may be packed closely into boxes. Although imported Berlin crowns are generally regarded as the best, there is no reason why home-grown plants should not be used with just as good results. For this purpose a fresh plantation should be put down every year to maintain a rotation; in the second and third years, strong, first-class crowns may thus be obtained for forcing. Where it is desired to have plenty of foliage it is a good plan to lift the plants in turves and place them in boxes of suitable size. Lily-of-the-Valley is unusual among hardy plants, from the fact that it may be put directly into a high temperature without suffering in any way, for it will withstand a temperature of 80° in a close case. After being potted or boxed, the plants should be plunged in ashes, or stood in the open, with the crowns fully exposed, as after such exposure they force more readily.

Veronica speciosa.—There are many fine varieties of this Veronica which prove very useful for furnishing the conservatory and greenhouse during the autumn. If a batch of cuttings is rooted at this time fine plants may be secured for next year. Cuttings root readily in a close case and only require the shelter of a cold frame during the winter and spring; during the summer they should be plunged out-of-doors in an open, sunny position. They should be stopped several times to ensure nice bushy plants. A few of the best varieties are Eveline, Diament, La Marveilleuse, Purple Queen, La Seduisante and Veitchii.

HARDY FRUIT GARDEN.

By T. E. Tomalin, Gardener to the Earl of Bessborough, Stansted Park, Emsworth, Sussex.

Gooseberries.—Fruits of the best quality for dessert are only to be obtained from young and vigorous bushes. Old plants, which have perhaps exhausted the soil in which they may have been growing for many years, tend to produce fruits of small size and poor quality, and when this occurs it is usually more profitable to make a fresh start on a different plot of ground. The site should be thoroughly prepared, as previously advised, and the bushes should be ordered immediately, or better still, personally selected at the nursery, where some assurance should be sought that the stock is quite free from American mildew. The young bushes should be planted firmly, five feet apart each way, and it may be wise to retain the old plantation for another season at least, if only to furnish fruits in quantity for cooking and bottling. A selection of Gooseberries for general purposes and for exhibition, should include the red-fruited varieties, Whinham's Industry, Lancashire Lad, Red Champagne, Warrington, Crown Bob and London; the green-fruited Keepsake, Fearless and Stockwell, and the yellow-fruited Leveller, Trumpeter, Langley Beauty and Early Sulphur. Of white sorts the best are Whitesmith, Careless, Transparent and Langley Gage.

Gathering and Storing Fruits.—All except the very latest varieties of Apples and Pears should be ready for picking and storing now, and as the fruits picked now will probably not be required for use until several weeks hence, the greatest care should be exercised to ensure that none, except perfectly sound fruits, are included. The leading varieties of Apple, such as Bramley's Seedling, Lane's Prince Albert and Newton Wonder, which keep until after Christmas, may be piled several layers deep on the lower shelves of the fruit store. These should be disturbed so little as possible until they are required for use, hence the necessity for care in excluding all pecked or damaged fruits when storing them, for, as everyone knows, one pecked fruit, upon becoming decayed, contaminates all those in contact with it. The later Pears also may be stored in a similar manner, giving them the drier and warmer position in the store. Varieties which should be left a week or two longer on the trees include, among Apples, the cooking varieties, Alfriston, Northern Greening and Norfolk Beaufin, and the dessert varieties Court Pendu Plat, Sturmer Pippin, Lord Burghley and Brownlee's Russet. Pears which should be left to hang on the trees for a while yet include the dessert varieties Santa Claus, Olivier des Serres, Easter Beurré, Nec Plus Meuris and Winter Nelis; and the stewing varieties Catillac, Uvedale's St. Germain and Verulam.

Medlars.—These fruits are liable to become shrivelled before they are fit for use if they are picked prematurely. They will often hang on the trees after all the leaves have fallen, and they are all the better for this if due care is taken to store them when perfectly dry, and in a cool place. Medlars should be watched closely in the store so that they may be enjoyed when at their best.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to the Duke of Devonshire, Chatsworth, Bakewell, Derbyshire.

Renovating Herbaceous Borders.—As distinct from thoroughly overhauling and trenching existing herbaceous borders, it is almost certain that there are some alterations to be carried out this season, and where this is the case, no time is so good as the present month for carrying out such work. It may be that certain plants are disliked, or that additions in the shape of new varieties, are contemplated, and therefore room has to be made. By attending to this work while the height of the various plants may be noted, there is a much better chance of placing each one in the right position. Very much depends on the immediate background and surroundings. When planting, the ground should be deeply dug so far round as is possible, to ensure the new plants a good start. As a general rule, the wider the border, the more necessary it is to have good clumps rather than isolated plants, in order to secure a definite effect. If the border is to be thoroughly overhauled and trenched, it may be better to sacrifice any late-flowering subjects for this season, so that a start may be made before wet weather becomes general, as it is certain that the earlier this work may be taken in hand and completed, the better will be the chance for a good display next season.

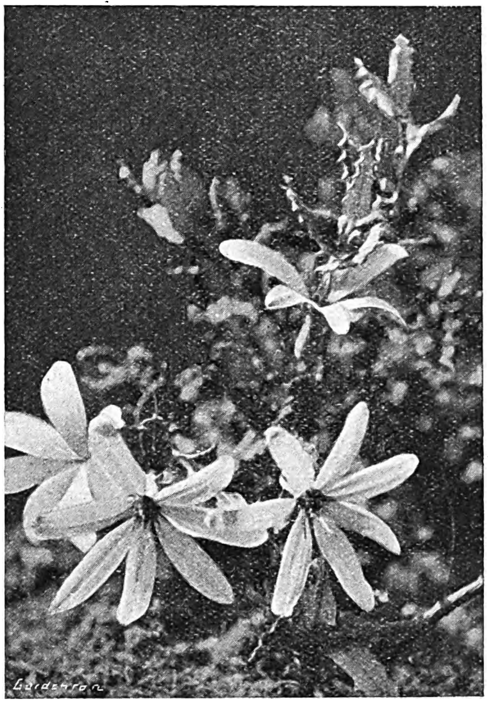


FIG. 136.—MUTISIA OLIGODON.
(see p. 289.)

Preparing for Spring Bedding.—When the summer bedding displays are finished the beds should be cleared in good time so that they may be well prepared for the various plants and bulbs used for the spring display. In any case where pyramidal or standard specimen plants have been used, these should be potted up and returned to their winter quarters without delay. Where any doubt exists as to the sufficiency of cuttings propagated for next year's demand, the old stools of bedding Pelargoniums should be potted up. These may either be grown on into large plants for use in vases or beds next season, or may be cut back to the firm growth and placed thickly in boxes. If placed in a warm and light house they should soon start into growth, and cuttings may then be taken early in the spring to supplement the autumn-rooted plants when bedding-out time comes round again. Where the beds are usually filled with spring-flowering plants, the soil should be well prepared, but whether they are to be trenched or deeply dug must be determined by the necessities of the case; but it should be remembered that many of the summer-flowering plants are gross feeders, consequently they take a lot out of the soil—and on the other hand, Polyanthus, Wallflowers and Myosotis require a lot of sustenance during the flowering period in late spring, so that it is very necessary to dig and manure according to what it is intended to plant in the beds. As a general rule, I think the beds should be trenched and well manured now, as in the press of work during the summer months a moderate digging and manuring has to suffice. Under any circumstances, the preparatory work should be pushed on, as all the spring-flowering plants should be in their permanent quarters so soon as possible so that they become fairly established before the advent of severe weather. If planted out while the ground still retains some summer heat, the plants should quickly re-establish themselves; whereas, if left until late in the autumn, the frost finds them very soft and unable to withstand severe weather, consequently the percentage of losses is very great.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener at Jordanhill Training Centre, Glasgow.

Alpines.—While most of the plants cultivated in the rock garden are hardy enough under natural conditions, many of them are short-lived when grown at an altitude lower than their natural one, and divisions or cuttings of any doubtful subjects should be taken indoors and potted up for the winter. A sunny, cold frame is an excellent place in which to keep many plants throughout the damp and fog of our early winter. The pots containing them should be plunged to the rims in ashes or sand, and a plentiful supply of air admitted at all times, even during frosty weather, by raising the sashes of the frame at both the top and bottom to a height of from two to three inches, so that a current of air is continually passing through the frame. Very little water is required by these plants when plunged in this manner, and should any of the occupants require watering it is best to lift them out and soak them in a tank, allowing the surplus water to drain away before replacing them in the frame. The Mesembryanthemum family, while only useful in our milder districts for planting out-of-doors on a large scale, might be found attractive if sheltered in the manner described and planted out in spring.

Lawns.—Now that games such as bowls, cricket and tennis, are over for the season, any repairs that are necessary to the lawns should be carried out at once, and where bare patches have to be made good, great care is necessary in securing suitable turf. Greens and lawns that are subjected to heavy rolling during the summer have a tendency, after a wet season especially, to become very firm on the surface, and consequently hold water during wet weather. These lawns may be greatly benefited by boring or piercing them at regular intervals with a tool for the purpose, which not only allows surface water to pass rapidly away, but also aerates the turf thoroughly. Feeding of the grass, so often neglected, should also be attended to now, and where Clover is not objected to, a dressing of basic slag is probably the cheapest and best form of artificial manure to use. On bowling greens, however, the presence of Clover is to be avoided at all costs, and dried blood manure and bone-meal are probably the best fertilisers to apply at this season. The finer grasses are also greatly benefited by a dressing of sand, which should be broadcasted over the surface after the artificial manures have been applied, and any slight irregularities of the surface made perfectly level by spreading the sand with a tool for the purpose.

ROSE GARDEN.

CHEAP CONTINENTAL ROSES.

Last October there was a swift demand for cheap Rose plants in a shop in Carlisle, so my curiosity and desire for experiment got the better of my discretion, and I went in and bought three plants, paying sixpence each for them. They were nicely packed, the roots being bound in damp moss, and each plant neatly labelled.

I should like to recommend the method of labelling to English Rose firms. The paper labels usually sent out with British-grown Roses soon perish. A batch of Roses may arrive at a time when it is not suitable to plant them; they are temporarily heeled in and if wet weather comes the chances are the labels are no longer legible when the time comes for putting them in their permanent quarters. The labels on these continental Roses are of wood, with the name printed on, and are attached to the stem by fine pliable wire, so that they are easily adjustable. They have lasting qualities, being almost as easily read now as on the day the Roses were bought. The best way, naturally, is to keep a plan of the Rose garden and so be independent of labels, but it is a convenience to have labels attached for a time to new varieties until one becomes familiar with them; and these Continental labels fulfil this purpose.

So far, so good. Now for the reverse side of the experiment. The choice of varieties was limited. I picked out three, one of which, named Wilhelm Kordes, especially attracted me, as I had seen this growing in a local nursery, and it so pleased me that I had ordered one for trial. To get another for sixpence seemed a find!

The other two selected were named, respectively, Independence Day and Daily Mail. *None of the three came true to name.* Wilhelm Kordes turned out to be Juliet (at the time of purchase I thought the appearance of the stem looked suspicious), Independence Day to be Lady Hillingdon, and Daily Mail to be Ophelia. How they came to be so wrongly labelled I cannot state, but I do not suppose my purchase was exceptional in this respect. Individuals who are not familiar with the character of Rose varieties and buy their Roses so, must acquire a curious notion of these and their experience be provocative of much argument. I can hear them say, "But they were labelled so," with the same assurance as people who say, "I saw it in the newspaper"! *J. P. Carlisle.*

TREES AND SHRUBS.

BERBERIDOPSIS CORALLINA.

Few late-flowering subjects in my garden attract so much attention as this climbing shrub, and it is a matter of no small consolation to realise that it came through last winter without injury. Berberidopsis corallina, once believed to be allied to the Berberises, belongs to the Bixaceae, and is said to be the only species of its genus, but its botanical place is, according to Mr. W. J. Bean (*Trees and Shrubs Hardy in the British Isles*) still rather doubtful. It is an evergreen of sparse, slender habit, with ovate, alternate leaves of a medium, rather glaucous green. These are armed with a few small spiny teeth at the margins, and they are glossy, with a hard, horny texture. The flowers, which appear in July and continue until late September, are produced in clusters at the axils of the leaves on the younger wood. They are globular, about half-an-inch across, and consist of a dozen or more concave, fleshy segments in a brilliant fuchsia-red, this colour also pervading the two-inch stalks upon which they hang with an elegant droop. A well-grown specimen of B. corallina is, therefore, a most arresting object, and that at a season when flowers generally are on the wane.

Like so many Chilian plants, this climber enjoys a north aspect with its cool root-run, but it does not seem particular regarding soil so long as this is well-drained. A little leaf-mould was given to my plant to afford it a start, but beyond that it has never had any special attention, and its roots must now be firmly established in the light, gritty loam of the border. Lime is said to be detrimental to B. corallina, but my own plant is close to rather a new wall, from which there is a more or less constant fall of limy flakes to the soil about its roots. This specimen is now about ten feet tall, but it will probably grow considerably higher.

B. corallina was introduced in 1862 by Richard Pearse, who discovered it in Valdivia, where it appears to be a forest climber. Propagation may be carried out by layers or cuttings. Whether indoor plants set seeds I do not know but those outside do not seem to do so.

COTONEASTER BULLATA.

Among the more tree-like Cotoneasters which ripen their fruits from the middle of August onwards, the subject of this note must be accorded a foremost place. A native of western China and Thibet, C. bullata was introduced about twenty-five years ago, but it is still far from common in gardens generally. It is a deciduous species growing to a dozen feet or more in height, with a somewhat lean and spare habit, which rather accentuates the beauty of the branches which arch gracefully while producing lateral branches at those curious angles which so many of the genus adopt. The oblong or ovate, pointed leaves, about the size of those of an Apple, are dark green, slightly hairy and "blistered" between the veins with those swellings which give the shrub its specific name. The rosy-white flowers are of little beauty and very fugitive, but they are followed by fruits of remarkable colour and size. These are borne in clusters, often two inches across, which crowd the short lateral growths in double rows, and they are yielded in extraordinary profusion and with unfailing regularity every year. Individually, the fruits are almost globular, fully one-third-of-an-inch across, and of a brilliant, glossy crimson.

Birds do not seem so fond of this crop as they are of that of many other Cotoneasters, the result being that I have often seen C. bullata carrying its fruits long after the leaves have fallen. The foliage sometimes takes on very striking autumnal tints, and the species is, of course, quite hardy anywhere. There are several varieties of this species, including a form with much larger leaves (var. macrophylla) and var. floribunda, which is said to be even finer in fruit than the type. *A. T. J.*

RIBES SPECIOSUM.

When one considers its value as a flowering shrub, and the fact that it was introduced one hundred years ago, it is rather surprising that Ribes speciosum should still be comparatively uncommon in gardens. A native of California, this is, perhaps, the most ornamental of the Gooseberries, and quite an easy shrub to grow in free soil with a sunny aspect. It is a deciduous species, absolutely hardy at Kew and in many colder localities, even with full exposure, and in some notoriously bleak districts it is grown as a wall shrub with success.

R. speciosum (syn. R. fuchsioides) makes an open-habited bush of six to eight feet in height, the somewhat horizontal branches being armed with spines whilst the tips of the younger wood are covered with crimson bristles. The leafage closely resembles that of the common Gooseberry, but the flowers, which are produced in clusters, are a vivid crimson with a remarkable superficial likeness to those of a Fuchsia. These blooms appear in early April and continue throughout the spring, and as the branches usually carry an abundant crop, their undersides being densely fringed with the tubular, long-stamened blossoms, a specimen of this shrub makes a remarkably showy object. Here, in the west, R. speciosum is always one of the first shrubs to break into leaf. Indeed, it is so precocious that I have seen its buds showing green in November, only a few weeks after the old leaves were shed. But, notwithstanding, the foliage is remarkably resistant to frost and such checks as it may receive never seem to have any detrimental effect upon the flowering. *J., N. Wales.*

FLOWER GARDEN.

THE OLYMPIAN MULLEIN.

The seven to eight feet, branched spikes of the giant Mullein, Verbascum olympicum, are most effective in a flower garden, especially when seen against a background of tall-growing shrubs or Bamboos. Ordinary unmanured ground suits the plant well, while such positions as open spaces between shrubs, or sunny sites in the woodland, offer happy stations for it. In addition to its noble inflorescence, this plant, in its young stage, has a handsome rosette of greyish-green leaves. As it often passes into the third year before flowering, seedlings should be encouraged to follow on regularly, in succession, to avoid gaps in the display. A good method of ensuring this is to let a plant or two ripen and disperse its seeds, afterwards transplanting the plants where required.

A near relative of this Mullein is Celsia cretica (the Cretan Mullein), also a splendid border or shrubbery plant, but Verbascum olympicum bears larger flowers of a deeper shade of yellow and produces an imposing branched inflorescence, as against the single spike, four feet or so in height, of Celsia cretica. *C. Turner.*

ALPINE GARDEN.

ANTIRRHINUM ASARINA.

The correct name of this species, according to the late Mr. Reginald Farrer, is Asarrhina Loebelii, but it is so well-known under the name of A. Asarina that it would be foolish, despite the law of priority, to name it otherwise. Its place in the rock garden is on a warm, sunny cliff, wedged into a crevice, so that the long, trailing growths may hang in festoons or ramble along the crevices uninterrupted. This subject seems seldom out of flower during the summer and autumn months, and the blooms are produced with exceptional profusion during hot weather, so that the past summer has been very congenial to it. Its fleshy stems, which are, however, rather brittle in texture, are furnished with attractive downy and slightly sticky leaves, which in themselves advertise the fact that fairly dry conditions are most appreciated by A. Asarina; the leaves are produced in pairs, and in their axils the typical Snapdragon flowers, of a pale creamy colour, are borne, so that when the plant is in good health it is an extremely charming subject.

Taking into consideration the texture of the plant in general, it is not surprising that it does not withstand the winter well, and even if it does survive, by the following spring it is usually very bedraggled and often more dead than alive, so that it is a good plan to raise plants annually from seeds, which are produced in sufficient quantity to satisfy the requirements of the largest rock garden and many more besides, and which germinate as easily as do those of Cress.

It is hardly necessary to state that this plant prefers soil of fairly light texture; under congenial conditions it will seed itself, plants springing naturally here and there, while it may also be used with effect for furnishing rock walls or sunny banks.

COREOPSIS ROSEA.

One does not usually associate the genus Coreopsis with the rock garden, yet there is one species—the subject of this note—which is well worth a place in the alpine garden. It is the dwarf of the family and in appearance, except for the shape of its flowers, it hardly suggests relationship to the beautiful Coreopsis grandiflora, so well-known and appreciated in English gardens. In stature, C. rosea seldom exceeds eight inches, its fragile growths, erect and clothed with narrow, delicate leaves, forming a little bushy clump of fairy-like daintiness, crowned during the latter part of summer with small, pale rosy-pink flowers.

C. rosea hails from America and should be planted in moist but well-drained soil, such as may be provided on the margins of the rock garden pool, or on the border of the bog garden. Some state that it grows best in semi-shade, but I have found that an open, sunny situation affords the best inducement for it to produce its flowers with any pretence of freedom; in fact, a plant which I have growing under rather dry conditions, in full sunshine, has this year practically flowered itself to death, although it has made provision against its ultimate decease by setting a fair quantity of seeds.

It is not a long-lived plant, although perennial, but it may be increased by division. It is best to place the small pieces in sixty-sized pots during early autumn, upon dividing the clumps, and to winter them in a cold frame, rather than wait until the spring before attempting to divide them. Cuttings may be secured and rooted early in the summer, and if these are grown on and not allowed to flower, they should be suitable for planting out in the following spring. *M. W.*

NOTES FROM A WELSH GARDEN.

WHETHER it was the abundant sunshine of July, following a soaking June, or some later influence, that has caused the Berberises to ripen their fruits so much earlier than usual, I do not know. But before the middle of September many bushes of the B. aggregata, B. polyantha and B. Wilsonae classes were showing plenty of that brilliant colour which in other seasons has often been delayed until autumn was well-nigh spent. That this is a gain of first importance will be realised by the many whose single complaint against these shrubs has often been that they only attain their full glory just in time to have it shattered by an autumnal frost.

On the other hand, the season's tints generally appear to be about normal as to date. The old Berberis Thunbergii is, of course, always among the first to surrender, and its leaf-colour is still, perhaps, the best among its kind. Azalea pontica (Rhododendron flavum), which is nearly as early, is another old-timer that yields such gorgeous hues in yellow, orange, scarlet, crimson, bronzy-purple and intermediate shades, that it need fear no rival. Moreover, the foliage of this admirable species is retained for several weeks after it has changed colour. How different is the case of Euonymus latifolius! The large leaves of this Spindle tree assume a vivid scarlet in the course of a couple of days, but they are shed with equal haste and the branches are naked long before the Azaleas are half through their leisurely mellowing.

Autumn colour comes to many herbs of the woodland undergrowth before the majority of trees and shrubs bear any evidence of the season's progress. One of these is Geranium Lowei, a biennial, which might well be taken for a greatly magnified Herb Robert, but in the splendour of its crimson and orange leaves it exceeds even that familiar native. G. Lowei naturalises freely and it, again, is remarkable for the fact that its wonderful colour will often be maintained for perhaps a couple of months. Another woodland plant that may be relied upon to illumine its shady retreat with a chequered carpet of rich yellow, crimson and bronze at this season is Cornus canadensis. Also in the leafy bottoms where the autumn Cyclamens are already putting forth their beautiful leaves, one notes the bright red with which the Shortias are flushed and the deep crimson and plum-purple which dapples the lustrous leafage of Galax aphylla. Little Rubus arcticus, covering a square yard, makes a brave show of colour for its two inches of height, and if in effect they are not striking, some of the Fumitories (Corydalis) are now very lovely as individual plants. C. ophiocarpa, for example, has foliage that is singularly elegant and finely-cut. Its delicate beauty is further enhanced by a sheen of opalescent blue which to-day melts into a shell-pink of exquisite delicacy of tone.

A large clump of Kirengeshoma palmata has been a striking object for several weeks, and its handsome foliage and graceful sprays of creamy-yellow flowers will persist until the first frost, when the whole of the growth will suddenly expire. The deep blue of a selected form of Gentian asclepiadea is especially pleasing in conjunction with K. palmata's pale yellow, and it is rather surprising that the great merits of this fine Gentian are not more generally appreciated. There are doubtless many inferior forms about and this, perhaps, has led to disappointment. Another plant which may be used with telling effect as a background to this Gentian is the large-flowered form of that fine old subject, the Evening Primrose.

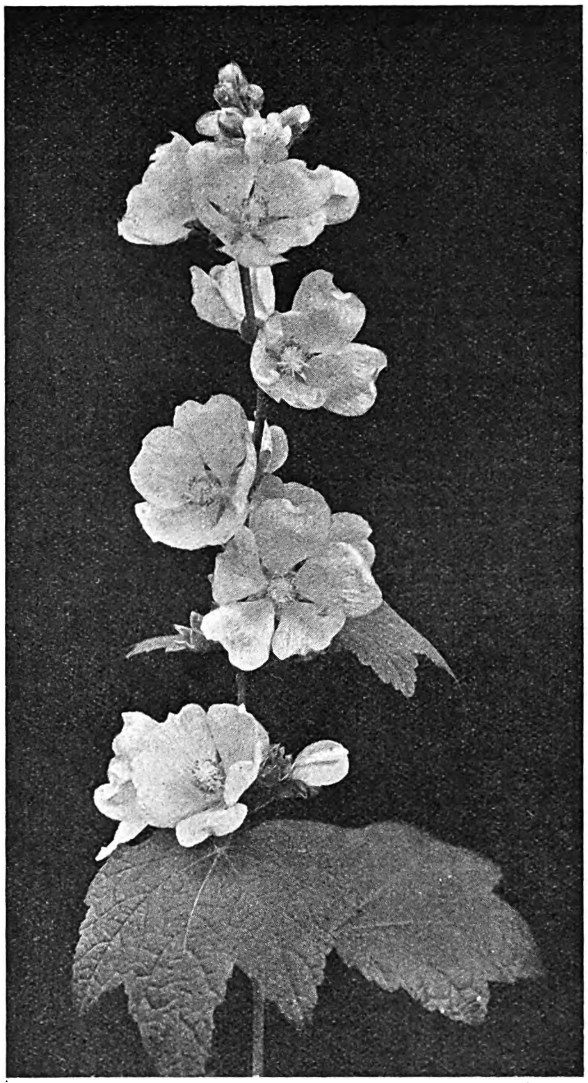


FIG. 137.—SPHAERALCEA ACERIFOLIA.
(see p. 289.)

Among other herbaceous plants, Symphytum officinale bohemicum is flowering generously. Its clear ruby-crimson blossoms are decidedly attractive and quite free from any bluish tint. While all other Comfreys have had to be cast out of the borders—very reluctantly, in some cases—on account of their rampantly spreading habits, S. o. bohemicum has not yet shown any serious inclination towards such evil ways. Cimicifuga simplex is one of the dwarfer Bugbanes and a species which is especially useful since it flowers during the later autumn. With the natural elegance which distinguishes its near allies, the Actaeas, C. simplex rises to about three feet, the terminal, milky-white inflorescences, which are pink in the bud stage, being some six inches long. Mimulus cardinalis is another reliable late-blossomer and a plant of considerable variation in the colour of its flowers, which range from almost a pure, intense scarlet to palest flesh-pink. There is also a variety whose blooms are a rich nasturtium-yellow, with a crimson eye.

It is at this season that one is able to realise the extraordinary length of the flowering period of certain plants. Primula Florindae affords an instance. The first flowers of this species opened in May, and it was not until September was well in that the last truss of bloom ceased to flower. Lobelia Tupa, which started almost as early, gives an even longer season, for it will continue until a November frost comes along. Something was said in these columns a little while ago regarding the colour of this noble perennial. Like Sir Herbert Maxwell, I have never seen a 'scarlet"-flowered form. In my specimen, the six feet growths bear enormous spikes of blooms in a deep, yet vivid, blood-red, which is accentuated by the pale grey-green of the foliage. That delightful plant of the Hawkweed fraternity, Urospermum Dalechampii, whose very large, sulphur-yellow blossoms have a bluish-purple reverse, is also an all-season flowering subject. Despite near relations of ill fame, this is a well-behaved, most attractive subject for any really dry spot. Oxalis floribunda alba is yet another good plant that will flower profusely and without intermission from April to December, and that without any cultural attention, and in the most meagre of soils.

Allium Beesianum has been very lovely since August, its drooping flower-clusters on slender, one-foot stems being a fresh lavender-blue. Also at the front of a mixed border is that comely little Aster, A. Thompsonii nana, whose finely-rayed flowers on one foot stems, are almost a pure blue. Erigeron caucasicum is also a charming plant which will often give some of its large cool lavender blooms throughout the autumn. Another good rock plant, though not too reliable in winter, is Felicia rotundifolia, whose yellow-centred blossoms are of a blue so rich and clear that they are not excelled even by those of the pretty and useful annual, F. Bergeriana (Bergheriensis). F. abyssinica, which sometimes winters in the open here, is in its own way quite as charming as the first-mentioned of these pretty little Composites, its very narrow rays being a lovely shade of pale lavender. In dry, sunny spots which the above are sharing with Erodiums and other plants which dislike our wet winters, is Achillea Kellererii, always a good late bloomer and one whose foliage is never other than singularly attractive. In even leaner soil are some of the Satureias. These are very cheerful objects in autumn days, delightfully fragrant and beloved of the bees. Even the easily-grown and naturalising S. montana and S. rupestris, their upright growths crowded with white or pale lilac blossoms, are by no means to be disregarded at this season, the former having, at a little distance, the appearance of white Heather. A few more of these delightful plants which breathe the aromatic odours of the south would be welcome, but no one seems to stock them.

Clematis tangutica and C. orientalis, both with yellow flowers, spring up from self-sown seeds in odd places, and few climbers can be more elegant when rambling over a bank or old stumps. Space being a consideration, I usually cut them hard back every spring, which means that they remain a moderate size and the treatment rather enhances the beauty of the foliage and flower yield. They prosper in the meanest of dry, stony soils. C. Duchess of Albany, one of the texensis (coccinea) type, also has foliage and habit of singular grace. The large, Tulip-shaped flowers in a deep rosy-carmine with a darker bar are yielded throughout the later months of the season.
A. T. Johnson, Ro Wen, Conway, N. Wales.

NOTES FROM GLASNEVIN.

The exceptionally fine weather we enjoyed up to the middle of September favoured late-flowering shrubs and emphasised the value of certain subjects for maintaining interest in the fall of the year.

Abelia Schumanni is to be recommended not only for its profusion of pink flowers but also for the fact that it flowers as freely at six inches high as it does at four to five feet. A. grandiflora, a hybrid of Abelia chinensis and A. uniflora, is scarcely less floriferous, but bears white flowers and smooth, glossy leaves. This is a plant commonly grown as A. chinensis, which is apparently a scarce subject, for specimens received under the name "chinensis" have invariably turned out to be grandiflora.

The Clethras are a useful genus of Ericaceous shrubs flourishing under the same soil conditions as Rhododendrons and enjoying full exposure to the sun. C. alnifolia may be recommended for August and September flowering. Ultimately reaching a height of six to seven feet, it produces racemes of fragrant, white flowers at the ends of the current year's shoots. C. alnifolia albo-rosea is a charming variety with pink-tinted flowers. C. alnifolia paniculata is like the type but bears a more branched inflorescence giving the impression of being freer flowering. C. tomentosa is similar but with larger flowers.

Caryopteris mastacanthus has long been valued for its blue flowers in autumn, and is now supplemented by C. mongolica, with lanceolate, remotely-toothed leaves, and C. tangutica with small, ovate leaves that are white below; both have blue flowers and are easily increased by cuttings. They should be given a sunny position; in cold districts the base of a sunny wall would probably provide the necessary conditions.

Ceratostigma Willmottianum is the best of the Leadworts here, and is now a beautiful sight bearing many clear-blue flowers. Like others of the genus, it can be increased by cuttings. C. Griffithii, a species with much larger leaves, and C. Polhillii, have not flowered freely; C. Griffithii is distinctly tender, although rarely killed outright.

Fuchsias are among the most valuable of autumn-flowering shrubs, more particularly the species, though some garden varieties such as Madame Corneillson and Maid of Castile, are hardy in sheltered positions. Reference has been made in previous notes to the hardy species grown here, but F. macrostemma var. discolor is worth noting; it has smaller leaves and flowers than the type and does not require the protection of a wall. Plants three feet or so high are now very effective, bearing innumerable flowers with red calyx and blue corolla.

Indigofera pendula is an excellent shrub for a sunny wall, and is now covered with numerous long racemes of bright purple flowers on the current year's shoots. If the main branches are tied in to the wall, then it is only necessary to prune back the flowering shoots each spring; away from a wall it is apt to be killed down to the ground level and starts growth too late in spring. I. rubro-violacea is useful in the same way, and bears short, ascending racemes of bright purple-pink flowers.

Cestrum Parqui is a useful late-flowering shrub producing terminal and axillary panicles of yellow flowers. The leaves, when bruised, emit an unpleasant smell, and for this reason the plant is sometimes disliked; those, however, who like variety in shrubs will find C. Parqui useful in autumn if given a hot, sunny position.

Oxydendron arboreum, another member of the Ericaceae, can only be grown here in beds made up for Rhododendrons, and does not attain the dimensions of specimens growing under more favourable conditions. It is now only about five feet high, but healthy, and bearing freely panicles of white flowers. The smooth lanceolate leaves are just beginning to colour, and later on are more striking than the flowers.

Perowskia atriplicifolia rarely fails to flower and has enjoyed the sunny weather lately experienced. It succeeds best here on the rock garden where, although fully exposed, it enjoys a good drainage and some shelter to the roots, the combination of grey shoots and leaves, surmounted by the panicles of blue flowers of which the calyx is conspicuously woolly, is always striking. The series of Hypericums typified by H. patulum and including varieties Henryi and Forrestii, are immensely useful for autumn flowering; the two latter, from China, are hardier than the species first known from the Himalaya. Another promising variety is H. patulum grandiflorum, with large flowers and leaves.

Spiraea japonica and its varieties such as Anthony Waterer and Walluf, are justly valued in gardens for autumn flowering, but S. japonica glabrata is less well-known; growing about four feet high, it bears large, flat corymbs of pink flowers, and is quite effective in a shrubbery or planted, several together, in a bed. The Heaths are beautiful and interesting for many months of the year, and under cultivation many new varieties have arisen, while others have been found wild. Just at present the St. Dabeoc's Heath (Daboecia polifolia), and the double form of the common Ling, are conspicuous on the rock garden.

The Belladonna (Amaryllis Belladonna) is flowering with great freedom this year. Numerous clumps growing in front of the plant house are now very conspicuous, showing considerable variation in colour from pale to deep pink. Gentiana detonsa is an interesting species, probably only a biennial, but useful on account of flowering in September; growing about nine inches high, the stems bear sessile leaves, broad at the base, tapering to a sharp point The sepals, too, are long, acuminate; the four-petalled corolla is purplish-blue. The Kew *Hand List* makes this a synonym of G. serrata, while the *Flora of British India* makes it a synonym of G. ciliata; *Bot. Mag.*, t. 639. Seeds are usually produced and germinate freely. A moist soil of peat and loam, well-drained, is suitable.

In my last "Notes," a reference was made to Gentiana Forrestii—this was a slip for *G.* Farreri. *J. W. Besant, Glasnevin.*

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

Colchicums are not popular as border plants, nor do they deserve to be so by reason of the mighty uprush of leaves which arises in spring and then lies sprawling over less robust neighbours until far into the summer. Yet there are few fairer effects produced by herbs of humble stature than is presented by a drift of Colchicum speciosum in October sunshine. For reasons aforesaid, the right place for a colony is not the flower border, nor the mown lawn, nor the meadow, lest browsing cattle have not experience to cause them to avoid the poisonous foliage; but set the bulbs beside any green ride or woodland path, or along a sloping river bank, and the annual display will earn you many compliments from visitors. C. speciosum excels all other species in stature. There are several varieties thereof, but none to equal those named rubrum and album in beauty. Both these varieties were raised from seeds in Backhouse's Yorkshire nursery; it does not seem very long since the earliest bulbs of C. speciosum album were sold at £5 apiece. Of a truth its flowers are marvels of form and purity.

Many years ago, when Montenegro was still an independent kingdom, I scraped up some bulbs in the waste ground round King Nicolas's palace at Cettinge. It was in April, and I knew not what they might be. They revealed themselves in the following autumn as a very pretty form of Colchicum with delicate pink blossoms, which have reappeared in increasing number ever since, a full month before C. speciosum, and continue in long succession until well on in October. Reference to the *Handbook on Crocus and Colchicum*, by my erudite friend, Mr. E. A. Bowles, seems to indicate this plant as C. alpinum. It is certainly a very choice thing, better suited for the border than other species because of its moderate spring leafage.

Colchicums are popularly spoken of as autumn Crocuses, ignoring the distinction between the Lily Order, to which Colchicum with its six stamens belongs, and the Iris Order, which claims the Crocus, with only three stamens. To the cultivator the important difference between them is that, whereas Colchicum may be grown where rabbits abound and suffer never a nibble, all species of Crocus are esteemed a delicacy by those insatiate rodents.

In this part of the realm, throughout a shivering June and drenching July and August, we read enviously about the heat wave in southern counties. Here the usual effect of an ungenial summer is manifest in a sparse-flowering of Amaryllis Belladonna; but it is worth noting that Nerine Bowdeni has never bloomed more profusely than it is doing now in the early days of October. That and Gentiana sino-ornata are pre-eminent among plants recently introduced to illumine the flower borders in the shortening days.

Precision being essential in the classification of organisms, and current speech being subject to constant modification of meaning, recourse must be had to dead languages, which are unchanging, for the precise definition of orders, genera and species. In horticulture this lays a formidable stumbling block in the path of many a keen amateur gardener, and one often hears impatience expressed about the long-tailed Latin and Greek names affixed to plants. Sometimes, however, it is interesting to trace to their origin certain of these polysyllables.

Take, for instance, the name Euphorbia, which denotes a vast genus of herbs distinguished throughout all its infinite variety of forms by containing an acrid white juice. This is one of the most ancient of plant names, having been bestowed upon the genus close upon two thousand years ago by Juba II, King of Mauretania. This Juba was the son of Juba, King of Numidia, who, having been an active ally of Pompey in his war with Caesar, was dethroned by the latter in B.C. 46, and his son Juba was taken captive to Rome to grace the conqueror's triumph. In Rome he received an excellent education by the order of the Emperor Augustus, who replaced him on his father's throne in A.D. 29, changing the name of the kingdom from Numidia to Mauretania. Juba II was erudite, and is mentioned more than once by Pliny as a keen botanist. He wrote a treatise on the plant which was such a conspicuous feature in his realm (now Northern Morocco), and named it Euphorbia after his physician Euphorbus, who set a high value on the medicinal properties of its milky juice.

One often hears complaints about difficulty in establishing the Winter Aconite. Methinks the trouble is not far to seek. The tubers of Eranthis are small and dry up quickly. When obtained with other bulbs in autumn, their vitality is low or extinct; but if they are ordered and supplied so soon as the foliage has withered in early June, there is no herb which is more easily reared and naturalised. *Herbert Maxwell, Monreith.*

PLANTS NEW OR NOTEWORTHY.

RHODODENDRON BURMANICUM.

ALTHOUGH this delightful Rhododendron was described by Mr Hutchinson in the *Kew Bulletin*, of 1914, it still appears to be rather rare in cultivation, and certainly few notes concerning it have been seen in the horticultural press. The species was, I believe, raised in the Glasnevin Botanic Gardens, Dublin, from seeds collected by Lady Wheeler Cuffe on Mount Victoria, south-west Burma, who is also responsible for the introduction of other plants, including Rhododendron Cuffeanum.

R. burmanicum belongs to the dwarf or alpine section of this wonderful genus, and quite small examples produce trusses of bloom as may be seen from the illustration (Fig. 138) of a plant that flowered at Castleford Gardens last spring. It is growing in a six-inch pot, and barely exceeds a foot in height. The inflorescence is terminal and five- or six-flowered, the colour being greenish-white or yellowish, a description, however, which fails to do full justice to it. The flowers are large for the size of the plant, and delightfully fragrant, while the small leaves are thickly clustered beneath the blooms. The hardiness of R. burmanicum has not been tested here, in the Chepstow district, but it would, no doubt, be a good plant for a cool greenhouse from which frosts are excluded. In milder parts of the country, such as Cornwall, it should survive the winter and prove a welcome addition to the early-flowering section of Rhododendrons. *T. W. Briscoe, Chepstow.*

SPHAERALCEA ACERIFOLIA.

THIS Sphaeralcea was given an Award of Merit at the R.H.S. meeting of August 28 under the name of S. rivularis.

Our plants were raised from seeds collected in Oregon, and these were sown in January of the present year. It is a quick growing perennial, rather coarse-looking in its early stages. The first flowers appear in clusters in the axils of the leaves and are usually hidden by the large leaves of the plant. Later, however, the decorative merits of this species appear when the branches develop and terminate in handsome spikes of pale, rose-coloured blossoms individually about two inches across.

S. acerifolia (Fig. 137, p. 287) is so named from its copious, large, Maple-like leaves. When fully developed it is about two-and-a-half feet high; it gives evidence of forming a perennial rootstock and seeds promise to ripen in our climate. It is a moisture-loving plant and impatient of drought, looking unhappy in very dry weather. There is a good figure of it in *Bot. Mag.*, t. 5404.

The genus Sphaeralcea is a very showy and desirable one, but of the sixty-five species described, few are to be found in our gardens; their number is, however, increasing and this year, through the kindness of American friends, I have had several species reach the flowering stage, among them S. Munroana of Douglas.

At almost every fortnightly meeting held during the summer months, there may be seen at the R.H.S. Hall a plant bearing this name, having finely-cut foliage and rose-coloured flowers. It is lax or prostrate in habit. But this plant, whatever its name, has little resemblance to that named by Douglas after his friend Mr. Munro.

S. Munroana is quite erect, shrubby, with grey foliage and bright vermilion-coloured flowers; a small group of this was quite an ornament at Kew during the summer months. It is figured in *Bot. Reg.*, t. 1306.

S. subrhomboidea (Ryd.) is, however, a far more decorative species than either of the above, and is a native of Utah. In the open ground it makes handsome shapely bushes, bearing its showy, reddish-orange flowers in immense numbers on tall virgate panicles; this is a very showy plant and one that may prove more hardy than those commonly cultivated; it is probably new to gardens. There are, however, many more desirable species that have not reached us yet. *T. Hay, Hyde Park.*

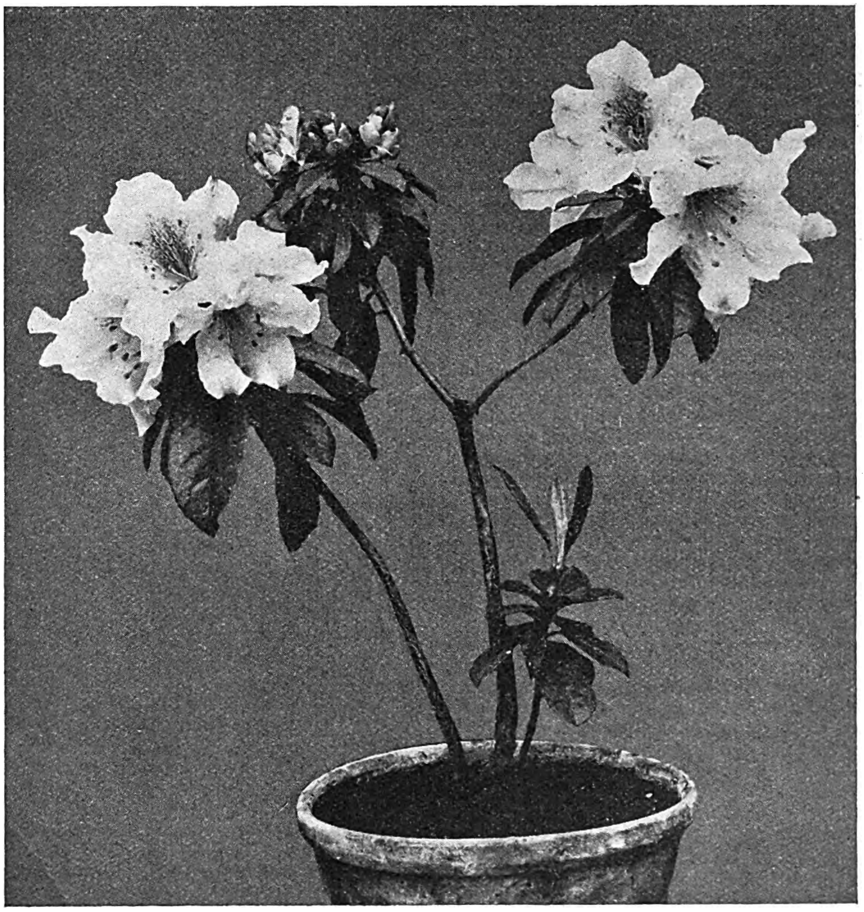


FIG. 138.—RHODODENDRON BURMANICUM.

MUTISIAS.

WHILE collecting in the Argentine and Chile during the years 1925-26 and 1926-27, Mr. H. F. Comber sent home seeds of a number of Mutisias. Of the five species and sub-species described in his notes we have now flowered four.

Mutisia retusa, Remy, var. glaberrima is common in the Pulmari hills in Chile, where it grows between three and five thousand feet. Mr. Comber describes its habit as that of Wild Honeysuckle, and this exactly answers to its behaviour over here, where it grows very rapidly over bushes such as Cotoneaster and Olearia, and also over old tree stumps, forming immense, tangled masses. The flowers resemble a large bright pink Gazania, four-and-a-half inches across, except that the ray florets are not quite so closely set; the plant sets seeds freely.

Mutisia retusa glaberrima var. alba has also flowered; it was collected by Mr. Comber at Lake Huechulafquen at 4,000 feet. The flower is very similar to that of the type. The pink form was shown before the R.H.S. Floral Committee in 1926, from a plant grown from seeds collected by Herr Goether, when it received an Award of Merit.

M. oligodon (Fig. 136, p. 285) is described by Mr. Comber as a perennial six inches to a foot high, which covers large areas by means of underground stems. It is found in rocky pastures and hot, dry places at a height of three to four thousand feet; in full sun in the Pulmari hills, the flowers are a little smaller than those of M. retusa. The ray florets are, however, more closely set, and the colour of the flower is a beautiful silky pink. M. oligodon—*oligidon* is Greek for a toothless old man—received an Award of Merit this year.

M. decurrens is identical with the plant which has been successfully cultivated in many parts of the country for a number of years. It is, however, useful to have a stock of the plant which Mr. Comber collected in the Pulmari hills at a height of three to five thousand feet, where it grows to six feet tall; in this country it grows much higher, and in the Scilly Isles I have seen it reach the top of a shrub twenty feet or more high.

The last species collected by Mr. Comber was M. retrorsa, described as a climber in low bushes nine inches to three feet high; growing in very dry, sunny places in the Zapala hills, it is said to have orange-yellow flowers, and spiny leaves that are white underneath. I am not clear whether we have this plant among the plants we received, and I should be very grateful if any of the subscribers to the expedition could give me any information concerning it.

The Mutisias are, on the whole, easy to grow, and they appear to like light, well-drained soil, and full sunshine. They have, however, a disconcerting way of going off suddenly from no apparent cause. In this way we lost all but one or two of the white forms of M. retusa, and also two fine plants of M. oligodon. It seems to me of great importance that the old stems of these creepers should not be unduly exposed; while the young growths require full sunshine, the bottom of the plant seems to ask for the shade of a bush in which it grows, and a certain amount of moisture. *William Lawrence, Burford.*

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KENYA COLONY AND UGANDA.

THE visit of the Prince of Wales and the Duke of Gloucester to Kenya and Uganda has set the country again talking of this part of Africa. It is in these new Colonies that larger areas remain unexplored, botanically, than anywhere else in the British Empire. At first thought, it may appear fantastic to write of searching for alpine plants in tropical Africa, but although it is a fact that the additions to our hardy garden plants from this region have, so far, been few, it is certain that there are desirable things growing on the vast slopes of the snow-capped mountains which are such a feature of these remarkable countries.

Kenya Colony is the seaboard whence one reaches the heart of Central Africa, and its chief port is Mombasa. The harbour is the sheltered passage between Mombasa Island and the mainland, and as a first view of tropical vegetation, the passage up to the harbour is entrancing. The steamer passes closely to both shores, which are fringed with Coconut Palms and Mango trees, with just a glimpse of a native hut or European bungalow beneath them. The island is small in size and completely occupied by natives or Europeans, and thus has little native vegetation. Chiefly notable are huge Baobab trees with their curious bottle-shaped trunks and meagre branches. The branched Doum Palm (Hyphaene thebaica), is of some interest. The Mango has flourished and some huge trees are to be seen. They provide the shade which is so acceptable in the fierce sunlight of the coast. The gardens surrounding the European bungalows are bright with Codiaeums, Bougainvilleas (Fig. 139), Oleanders and similar plants. The strong sunlight and rather short rainfall gives them such colouring as I have never seen them attain elsewhere.

Leaving the island, one passes by train through a belt of fertile soil about ten miles wide, cultivated chiefly with Coconuts and Bananas. The Taru desert is then entered, and extends for a hundred miles. The desert is not a sandy waste, but supports a fairly dense scrub of thorny Acacias. Apparently the rainfall is insufficient to support a growth of herbs, for the bright red soil is bare and dusty between the Acacia trees, except during the rainy season, when one catches glimpses of bulbs in bloom which tantalise the interested traveller. Doubtless this desert will be explored ere long, and I expect there will be some interesting discoveries of bulbous plants. To the south-west, Kilimanjaro comes into view, and, on a clear day, its snow-capped peaks, although well over a hundred miles away, may be seen from the train for many hours. The desert gives way to a more fertile region which is nearly two thousand feet in elevation, and very remarkable for a dense growth of Sansevieria. This plant exists here in several species, some of them reaching eight feet in height. Years ago an attempt was made to exploit this area for fibre. Machinery was installed and fibre of excellent quality was obtained. It was found, however, that the Sansevieria took a very long time to produce a second crop of leaves, and that the area required to keep a factory running would have to be unduly large, so Sisal cultivation took its place.

The elevation of the railway gradually rises until Nairobi is reached. Little of botanical interest has been seen for some time, but the vast rolling plains are dotted with big game animals, singly, perhaps, in the case of the rhinoceros, or in herds of hundreds in the case of zebra. This part of the journey has been rightly described as a ride through the world's greatest Zoo. Nairobi has grown from a collection of tin huts to a city in twenty-five years. It is very modern, and even has a flying club. We are now actually in the highlands of Kenya and gardens show a remarkable mixture of tropical and temperate plants. The Pineapple may be seen growing beneath the Apple tree. Sweet Peas flourish beside brightly-coloured Codiaeums, and the sweet Violet is found revelling beneath the shade of the Banana. From here, due north, may be seen the snowy summit of Mount Kenya. It has been the privilege of some to see both Kenya and Kilimanjaro from the same view point, and as these mountains are nearly three hundred miles apart, this is a view of considerable extent. Surely, somewhere in the vast area between the sub-tropical zone and the eternal snows, with its ever decreasing temperature, are growing many plants which will one day enrich our gardens.

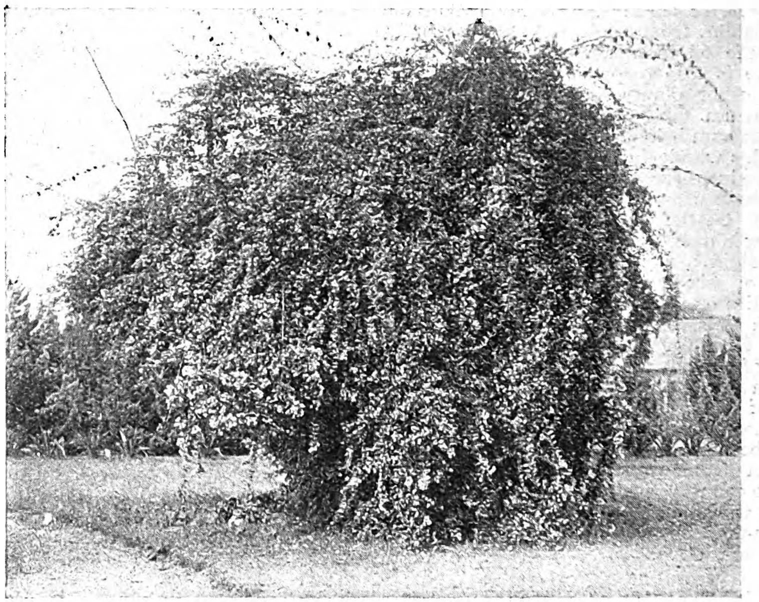

FIG. 139.—BOUGAINVILLEA GLABRA IN KENYA COLONY.
(Twenty feet high and wide.)

From Nairobi the line runs through magnificent scenery, ever climbing until, at "Mile 484," an elevation of eight thousand feet is reached. Dense forests are traversed, the trees, just discernible through the mist, being of Coniferous species. This altitude, with its mornings reminiscent of English autumn, is the home of the remarkable Tree Lobelia. Open spaces are dotted with homesteads, for in this stretch of country large areas of Coffee and Sisal are planted. Fine herds of cattle and sheep are seen. A cultivation which at one time promised much was Black Wattle, to produce tanning material, and large forests of this tree are seen. The favourite tree among settlers appears to be the Eucalyptus, and many of these trees are planted. Leaving Mau Summit, the line commences the decline to Lake Victoria, four thousand feet. The views are superb. The Great Rift Valley, with mountains and lakes contained within its steep sides, is sufficient to occupy the interest, but little of botanical importance is seen until the lake is approached. Here the plains are dotted with enormous trees of Euphorbia Candelabrum, each one often sheltering a cluster of Aloes with brilliant red flowers. An interesting plant is the shrubby Ipomoea Mahoni. This grows to a height of six feet and produces large numbers of pale pink flowers, three inches across. The species has been introduced into this country, but I have never heard of it succeeding. The eastern shore of the lake is not of much interest to the botanist. Almost bare plains lead back from the shore to high hills a few miles away. In this respect it is entirely different from the western or Uganda shore with its luxuriant forests and tree-clad islands, but this must remain for my next article. *E. Brown, Hillside, Doddington, Sittingbourne.*

AUTUMN COLOUR OF FOLIAGE.

THE factors which beget such a wealth of colour as to make the brilliance of dying autumn leaves almost outrival that of summer flowers, are somewhat obscure, but the results are warm and soothing to the eye, and one wishes they could be made to linger throughout the winter. That moisture plays a part and that the cessation of the leaves to perform their normal vigorous life at this season results in the formation of pigments seems clear, but why, of two specimens of Liquidambar, for example, growing side by side under apparently identical conditions, one should take on a brilliant flame colour and the other remain a dull bronze, is not easy to explain.

Probably a light, warm soil favours coloration more than a heavy and consequently colder one; certainly one often sees examples of intense colouring on light soils and many readers may know the fine specimen of Liquidambar in the woodland garden at Wisley, which excels in brilliancy of colour every year at this season. This plant is growing in light soil, but has access to moisture, which is probably a contributing factor to the intensity of colour. But although soil and position may exercise a considerable influence on the intensity of leaf coloration and climatic conditions may determine to some extent the times of beginning and ending, there are some subjects which have a marked tendency in all seasons and under all conditions to develop coloration, and by choosing and grouping these subjects a wide variety of rich colouring may be obtained which lasts over an extraordinary length of time.

For example, Amelanchier canadensis, frequently so early as mid-August and seldom later than the end of that month, surrenders its green for a delicate brown which gradually deepens into a warm bronzy-purple, only to drop at the first sharp frost. In seasons when only slight frosts occur a large number of trees and shrubs retain their foliage until well into November, and a plantation of well chosen subjects would thus provide us with an ever-changing feast of colour during this relatively long period. And these colours are displayed in a gradation of harmonious and intermediate shades, from the pale yellow of Ailanthus glandulosa and Ginkgo biloba, to the fuller yellow of Liriodendron tulipifera and Gleditschia triacanthos; from the subdued orange of several of the Spiraeas to the wine-red of some of the Vacciniums, and from the glowing scarlet of many of the Acers and Thorns to the rich crimson of some of the Sumachs and Viburnums.

Among Acers, what could be finer than the clear scarlet of A. palmata ? Of an attractive colour the whole season, its autumn garb is of the most brilliant. A. Ginnala is one of the first to show vivid crimson colouring in autumn, and A. nikoense provides a gorgeous display of glowing colour, its leaves turning a rich dark red or crimson hue. Crataegus prunifolia, which forms a bushy-headed tree, is remarkable for its rich autumnal tints which embrace many shades of red, yellow, orange and bronze, and the coloration of C. Crus-gallii, the Cockspur Thorn, is intense. This tree has a tendency to make a spreading, bushy head, and in some seasons the colour is so intense that specimens appear like huge balls of fire in the distance. C. Douglasii also develops rich autumnal tints, and the closely allied Pyrus terminalis turns a rich bronzy-red. The foliage of Euonymus alatus becomes distinctly pink and for several weeks stands out conspicuously against other shrubs, finally turning a vivid crimson. E. europaeus is good for autumn foliage, and its variety atropurpureus, which has dark purple foliage during the summer, turns to a striking reddish-purple in autumn.

Among the Barberries are many highly coloured plants, B. Thunbergii being unsurpassed for the brilliancy of its autumn foliage. B. polyantha and B. canadensis are also fairly constant, while B. Aquifolium generally turns a glowing purple after the first frost. There are several Viburnums which take on great depth of colour, both our native species V. Opulus and V. Lantana being excellent, their foliage turning to a deep, rich crimson.

The Sumachs furnish some striking examples in autumn colouring. Rhus Toxicodendron, R. cotinoides and R. glabra displaying brilliant orange, scarlet and crimson colours. Enkianthus japonicus develops a rich fiery red and Stephanandra Tanakae, another Japanese shrub with graceful arching branches, turns a rich orange-yellow; both these shrubs are valuable for the front of the shrubbery.

Parrotia persica is a richly-tinted, small tree, its Hazel-like foliage being resplendent in its crimson and gold autumn tints. Cercidiphyllum japonicum, an upright shrub of slow growth, is constant in autumn colouring. It first presents a delicate and beautiful shade of red which gradually deepens to one of intense brightness. The Mollis and Ghent Azaleas claim a foremost place among the general run of autumn colouring shrubs, and are worth growing for this feature alone. The ornamental-leaved Vines, besides their value as summer decorative plants, give highly effective autumn tints. V. hederacea, and V. Veitchii, two old favourites, are noted for the intense brightness of their foliage in autumn and may be planted with great effect in many positions. The Knaphill Scarlet Oak, Quercus coccinea splendens, is one of the best of the larger trees for autumn colour, for not only is its hue brighter than that of most other trees, but it remains for weeks an object of beauty and is generally the last of deciduous trees to shed its leaves. Its brilliantly tinted foliage, so well as being decorative in the garden, is also valuable for cutting and remains fresh in water for many weeks. *W. A.*

THE DINGLE, FOXDENTON HALL, CHADDERTON.

Foxdenton Hall is at the present, and for a number of years has been, in the care of the Chadderton Urban District Council (Lancashire) as a public open space.

The estate is a beautiful garden of extraordinary composition, and remarkable from the fact that with very few exceptions the flowers employed are annuals—or so treated—Stocks, Antirrhinums, Nemesias, Godetias, Marigolds, and scores of other kinds. These are planted with as much care as the old-time conventional bedding plants, but with an abandon far removed from that form of gardening. Straight lines are unknown. The blending of the primary colours and their tones, or the contrast of one colour with another, is carried out in the most skilful manner. The modern Antirrhinum, with its more vigorous habit and its present-day beautiful colours, grows on the rock walls with wonderful vigour.

There are two excellent bowling greens; one has been "raised" from seeds, and a finer "green" it would be difficult to find. The craftsmanship of Mr. Holland, the Superintendent of the Chadderton Council's Parks, is meeting with the warmest and widest appreciation, and he has long been noted for his splendid cultivation of Stocks. There is complete and abundant evidence of his skill at Foxdenton and in the other parks under his care. Our illustration of The Dingle (Fig. 140), shows something of the beauty of Foxdenton Hall as a public garden, and also indicates the conditions under which gardening is carried on in this industrial Lancashire district.

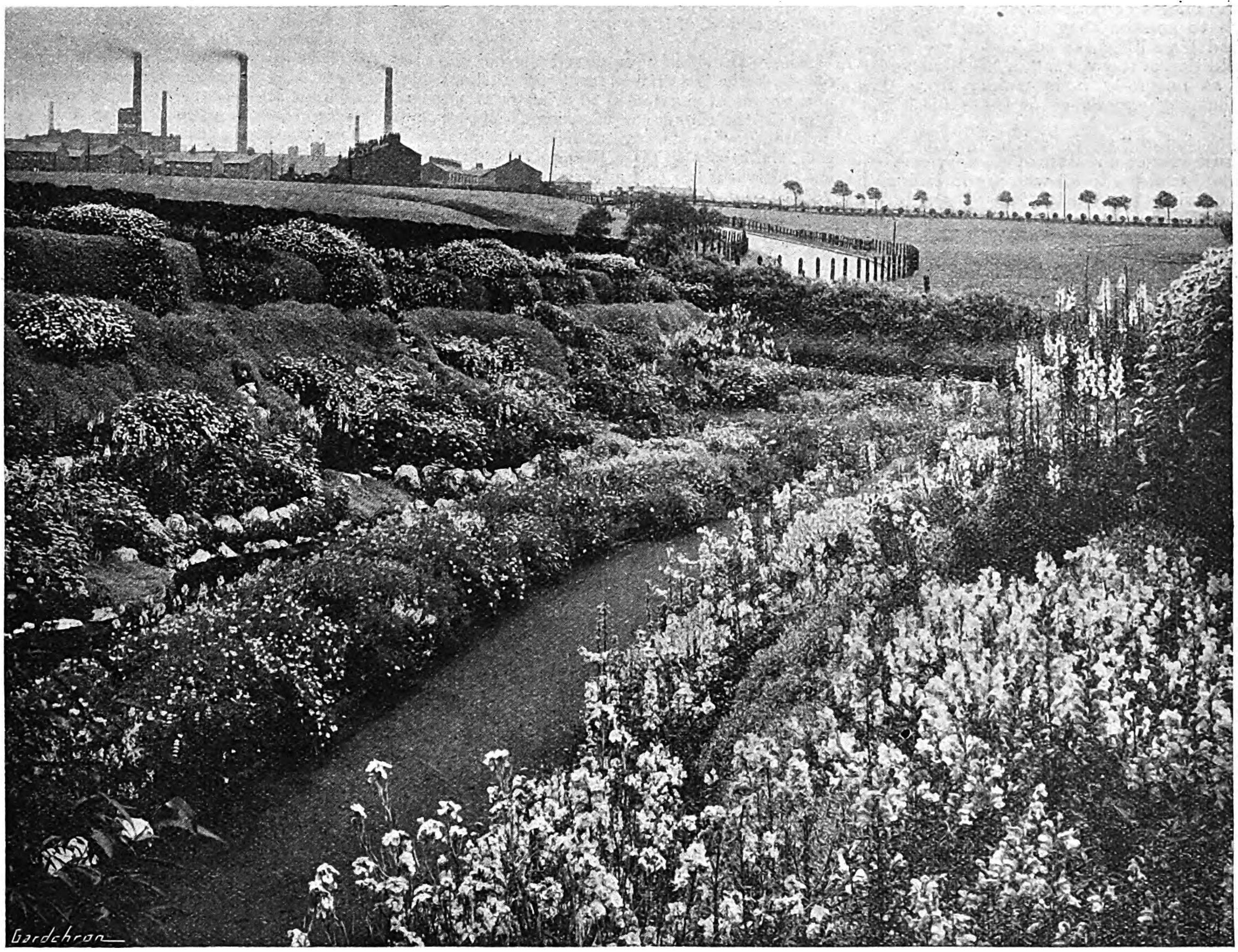

FIG. 140.—THE DINGLE, FOXDENTON HALL, CHADDERTON, LANCASHIRE.

THE INFLUENCE OF AIR POLLUTION ON VEGETATION.*

In choosing a suitable title for the paper I am reading to you to-day, I have selected one which I feel will be sufficiently comprehensive to cover all that I desire to talk about on the present occasion.

It is usual to speak about the great amount of damage caused to vegetation by the soot-ladened and acid-charged atmosphere of industrial areas, but without the most careful research and experiment it would be quite impossible to differentiate with anything like accuracy between the damage that is caused by soot on the one hand and by acids on the other. Under these circumstances I have felt it safest and best to use one common term which embraces the effects of both soot and acids.

I have to confess that it might have been better had I qualified the subject of my paper by the addition of the words "in the Manchester Parks," as naturally it is mainly from this source that my experience of the subject has been gained.

The question of "air pollution," so long as it exists, must ever be a matter of the very deepest interest and concern to all who are in any way connected with the cultivation of plants in large towns and cities. Broadly speaking, atmospheric impurities have a far more harmful effect upon vegetable growth than have rigorous climatic conditions. In a city like Manchester, for instance, it is the impure atmosphere far more than the cold and wet weather experienced which limits and hampers the efforts of the public authorities in making the parks of the city the beauty spots that they desire them to be.

While a smoke-laden atmosphere is inimical to both animal and vegetable life, its effects are undoubtedly more apparent if not more deadly in the case of vegetation—probably largely on account of the greater immobility of the latter.

In order that you may the more easily appreciate the reason why air pollution has such a depressing and injurious effect upon vegetation, it will be as well, perhaps, in the first place to state in simple, popular language a few facts concerning the physiology and life history of plants generally. I do not intend, however, to overburden you with technicalities, but will merely touch on sufficient of these to enable you to follow some of the evidence that it is proposed to lay before you.

The statement frequently made in quite another connection that "a human being cannot live on air," is not equally true in its application to plants which, as a matter of fact, very largely depend upon the air for the greater part of their sustenance. The green leaves or other equivalent organs of plants are, as it were, a combination of the lungs and stomachs of animals. One of their functions (as it is also that of roots) is to absorb air through special pores which are dotted over their surface and to pass off a considerable amount of $C.O_2$. In other words, leaves and roots act as respiratory organs. Besides doing this, the leaves under certain conditions, reabsorb $C.O_2$, which in conjunction with the salts taken up from the soil by the roots, is elaborated within the green leaves into chemical compounds that ultimately go to form new tissue either in the growth of the plant itself or in the production of flowers and fruits.

While the respiratory functions can proceed during the hours of darkness, the chemical combination of $C.O_2$, with the plant food abstracted from the soil—a process known as assimilation—can only take place during the time that the leaves are under the influence of direct sunlight.

In addition to leaves requiring a free passage of air through their epidermis in order to fulfil their various functions, the roots growing in the soil also require a plentiful supply of air, otherwise they too will soon cease to function.

With the knowledge of these elementary facts, one can readily understand why the cultivator is so particular about the cleanliness and health of the foliage of the plants with which he deals, and his great objection to a hard and impervious soil in his garden.

There are four direct ways in which vegetation may be adversely affected by air pollution. They are :—

1st.—By the reduction of the intensity of sunlight frequently brought about by the smoke pall which hangs over cities and industrial areas.

2nd.—By the deposit of soot or other solid matter on the foliage of plants, thereby closing up the breathing pores of the leaves.

3rd.—By acids lodging on the tender leaves and growing-points of plants which, as a consequence, are burnt and killed.

4th.—By the surface of the soil becoming covered over with a deposit of soot to such an extent as to hinder a free passage of air to the roots.

Vegetation in Manchester is adversely affected in each and all of these ways to a greater or lesser degree.

I have previously expressed the opinion that atmospheric impurities react upon the health and vigour of vegetation to a far greater extent than do the rigours or vagaries of climate, but naturally, when the two conditions are combined, then the injury to plant life, and the difficulties the cultivator has to contend with, are increased very considerably. Within the area of London itself, the probabilities are that the amount of smoke pollution is as great as—if not greater than—it is in Manchester, but plants do not appear to have such a constant struggle for existence as they have in the latter city. In my opinion, as the climate of London is more genial than it is in the northern city, plants in that area are more vigorous and vegetation generally is therefore better able to withstand the ill effects of air pollution.

Quite a large number of plants which succeed almost in the very centre of London are an utter failure in certain parts of Manchester. That this is not entirely due to climate is shown by the fact that the same plants succeed much farther north where, although colder, the air is much purer than it is in Manchester.

(*To be continued.*)

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* A Paper read by Mr. W. W. Pettigrew, V.M.H., Superintendent of the Manchester Parks department, before the Smoke Abatement League of Great Britain, at the Conference held at Harrogate, on September 29.

NOTICE OF BOOK.

New Zealand Trees and Shrubs.

Interest in the culture of New Zealand plants has grown rapidly in recent years, not only in New Zealand itself, but also in Britain and many other countries. Any new and authoritative work on this subject is always welcome; and in the case of this small book* by Mr. Allen, the welcome will be well deserved.

The book is mainly intended to help those who are able to "collect" New Zealand trees and shrubs in their native wilds, to do so intelligently, even although their knowledge of botany may be small. But it will be equally valued by those less fortunate beings who have to confine their work with these Antipodean plants to what may be done in the way of growing them in lands far distant from New Zealand.

Mr. Allen has here placed in our hands a system which should enable anyone to determine the identity of any unnamed New Zealand tree or shrub; or to check the name given to it by the nurseryman or amateur from whom he obtained it. The value of this is obvious when one considers how often wrong names are given to specimens of this interesting and not too well understood flora.

How does Mr. Allen set about helping, even those who have little botany, to do this ?

His system is most ingenious and relies mainly on the observance of the habit of growth and the leafage of the plant to be investigated. The flowers and fruit only come into the question quite at the end.

He takes the seven hundred or so species of New Zealand wooded plants and divides them into sixteen sections. Those in each section have certain broad characteristics in common. Each section is again divided up into sub-sections, A, B, C, etc., with still closer resemblances between the components of each. In a similar way these sub-sections are split up into what we may call divisions, and these again into sub-divisions and sub-sub-divisions; until at last we are left with a large number of small ultimate groups, consisting each of from one to ten individual species, which are grouped together by their close similarity of habit of growth and leafage. To each of these species is there given its own concise, but clear and informative, botanical description.

The scheme for utilising this divisional arrangement is as follows :—

Facing page 1 is a Key to Sections. From this we find that Section I takes all the climbers; Section II, all the plants that are leafless or nearly so; Section III, all those whose leaves are reduced to scales; Section IV, all those with leaves in tufts at the end of bare stems; and V, all those with compound leaves.

This disposes of nearly one-third of all the trees and shrubs. The remaining two-thirds include all those with simple leaves distributed along their branches. The key page shows how these are to be allocated among the remaining eleven sections, according to whether the leaves are alternate or opposite, toothed or not toothed, hairy or not hairy, stalked or not stalked, and so on.

Having, by aid of the key, placed the plant under investigation into its appropriate "Section," the special features to be observed are its habit of growth, divaricating branches, length, shape and thickness of leaves, character of tomentum, waviness of margins and so on. For it is by such features as these that our plant will be guided through sub-section, division, sub-division, and on to its own small ultimate group. Here, from the botanical description given, it is usually not difficult to identify it; for the individuals in each ultimate group often differ very much from each other botanically.

As the author states, this system produces strange bedfellows. For example, I find one of the ultimate groups in Section IX composed of a Senecio (Compositae), a Suttonia (Myrsinaciae), a Dacrydium (Taxaceae), and a Phebalium. This all sounds very unscientific; but the main question is not whether the grouping is scientific, but whether the system will work for the purpose of identification by one whose knowledge of botany may be meagre. That there are difficulties and pitfalls the author himself warns us. Among these, he calls attention to :—Cross-fertilisation in the wild between allied species, to which so many New Zealand species are prone; epharmonic response, i.e., the marked variation in habit and foliage, in plants of the same species, caused by differences in soil and environment in which they may be growing; jordanons, forming what he describes as compound species, and this is a subject with which we would have liked our author to have dealt more fully. As a result of these peculiarities we sometimes find members of the same species finding their way into more than one of the small ultimate groups, or even into different sections of the Systematic Table.

Being myself an incomplete botanist, I have been trying to put this system to a practical test. In most cases I find that it leads fairly easily to identification. But as a beginner I have stumbled over several obstacles. Most of these I contribute to the poorness of my botany and to my being inexperienced in the use of the tables. I refer to such things as border cases between a thick and a thin leaf; a long or a short stalk; a pointed leaf; a doubt as to the correct botanical term to apply to the shape of a leaf. For although the author has given excellent diagrams representing leaf shapes and also illustrations of leaves of certain species, I find terms used which have not been so illustrated.

Then again, the course in following a plant through the various divisions of its section is not always clearly marked. It may be seen at a glance whether one is in sub-section A or B; for that is printed at the top of each page. But with the further divisions and sub-divisions there is a possibility of missing one's way; where a new sub-divisional number 3 or 4 occurs there may be nothing to show whether it belongs to Division (a), (b) or (c). This would be avoided by a clearer spacing off of one division from another, and by giving each division or sub-division its full reference title on each occasion. For example, on page 81, where the sub-divisional number 2·22 is given, its governing divisional letter (a) occurs two-and-a-half pages earlier. It would have been clearer if the full reference title B (a) 2·22 had been given.

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* *New Zealand Trees and Shrubs and How to Identify Them*, by H. H. Allen, M.A., D.Sc., F.L.S., etc. Published by Messrs. Whitcombe and Tombs, Ltd., Price 6s. 6d, Auckland, Christchurch, Dunedin, Wellington, N.Z.; Melbourne and London.

When page 158 is reached, after the botanical description of the last species in the final group, without any break in the spacing, there is a key to genera, followed by groups of genera. I have just enough botanical knowledge to see that this will be exceedingly useful in placing a specimen botanically; but I am a little puzzled as to its relationship to the excellent system which has taken up the major portion of the book; at any rate, its application there is not explained.

The glossary of terms, excellent so far as it goes, might with advantage have been more comprehensive.

These are, however, really small matters which may easily be remedied in a second edition, which I hope the author will be asked for in due course. The book includes a number of beautiful photographs from Laing and Blackwell's last edition, and also some most useful and instructive illustrations of seed-pods and of leaves from various allied species and their hybrids.

The compilation of this little book must have entailed a vast amount of close and careful observation, and the author is to be congratulated on producing a most ingenious and workable system for the identification of species of New Zealand's woody plants. It should prove most useful either by itself or as an aid to the consultation of such standard works as that of Cheeseman. It should be in the hands of every nurseryman or amateur interested in the cultivation of the somewhat confusing shrubs of New Zealand; for with a little persistence in use the difficulties to which I have alluded would soon be overcome. *A. H. Williams.*

LIME-CONTAINING FERTILISERS.

WHILE the successful market gardener well realises that the question of liming should be given prior consideration to other manurial treatment of the soil, he is not always aware that the lime in many so-called "lime-containing" fertilisers is present in a form which, in beneficial action, is in no way comparable to lime in its burnt or limestone forms. While lime is an essential component of the food of all plants, it plays an equally, if not more important rôle in improving the soil tilth and drainage, in increasing the solvent action of the soil water and plant root juices, in acting chemically on added manures and in preventing sourness.

There are a number of fertilisers on the market, a few of which do contain appreciable quantities of lime in the free state, that is to say, as oxide (burnt lime) or carbonate (limestone or chalk). In the majority of cases, however, the lime is present in a combined condition in which, although it can still act as a plant-nutrient, it cannot so readily function in the beneficial way attributable to burnt lime or limestone. In buying these, it should be borne in mind that it is not a question of how much lime they are claimed to contain, but of how much free lime. Of the few substances that are valuable in this respect, the better grades of basic slag, of mineral (rock) phosphate, and of nitrolim (calcium cyanamide) may be mentioned.

Much of the misunderstanding regarding the term "lime-content" is due to the fact that some fertilisers are often referred to as containing a certain percentage of lime, with no reference to the form in which it is present; the market gardener, before purchasing, should ascertain whether free or combined lime is here implied. For example, steamed bone-flour consists essentially of phosphate of lime, and the manufacturer could rightly claim that it contained thirty-five per cent. of lime, *i.e.*, of calcium oxide; but such a statement is misleading in that here "combined" lime is referred to. The foregoing observations apply with equal force to those manures known as dissolved bones, superphosphate and nitrate of lime, as also to some forms of guano, which latter contain only traces of lime in the form of carbonate.

The idea that the frequent use of such lime-containing substances does away with the necessity of liming in the form of burnt lime or limestone is fallacious. Further, the employment of those manures which do contain small quantities of free lime does not actually add to those valuable lime reserves which should exist in all cultivated soils, although it may reduce to some extent the demand made on the latter by the use of other fertilisers, such as sulphate of ammonia and potash salts, which are probably being applied to the same land.

On definitely sour land an application of burnt lime or of ground limestone is necessary and the same applies, although naturally to a lesser extent, even to sweet soils. The "free" and "combined" lime contents of the more commonly used fertilisers are given below. *A. C. Burns, M.Sc., F.I.C., Sutton Bonington.*

Trade Name.	Essential chemical components.	Calcium oxide content as :— "Free" Lime.	"Combined" Lime.
Bone Ash	Phosphate of Lime ...	4%- 5% ...	–44½%
Raw Bones	" " ...	4%- 5% ...	–26%
Bone Meal	" " ...	4%- 5% ...	23%–30%
Steamed Bone Flour	" " ...	Nil ...	30%–37%
Dissolved Bones	Acid " " ...	Nil ...	18%–19%
Superphosphate	Acid " " ...	Nil ...	14%–19%
Basic Slag	Phosphate of Lime ...	2%–10% ...	11%–24%
Guano, phosphatic...	" " ...	Traces ...	11%–38%
Mineral (rock) phosphate	" " ...	3½%–10% ...	30%–36%
Nitrolim	Cyanamide of Lime ...	20%–30% ...	25%–28%
Nitrate of Lime	Calcium nitrate ...	Nil ...	34%
Gypsum	Sulphate of Lime ...	Nil ...	46½%

BEAN POD CANKER OR BEAN ANTHRACNOSE.

(COLLETOTRICHUM LINDEMUTHIANUM).

THIS disease has been called Pod Spot and Pod Canker in England and Anthracnose of Beans in America.

It attacks all parts of the common French Bean and Scarlet Runner, but by far the most frequent place of infection is the young pod. (Fig. 141.)

Small brown or rust-coloured spots appear on the half-grown pods. These rapidly develop and become dark with a reddish border. The centre becomes sunken and darkens, and as the fungus develops under the epidermis, the fruiting stage pushes through. A ring of pinkish spores, soon amalgamating into a pinkish, sticky mass, appears on the darkened centre of the spot. The fungus grows vigorously under the spot, downwards through the wall of the pod as well as upwards. It penetrates to the seeds and these become spotted. The spots on the Beans are often also brown, with a purplish-red border, fainter, but resembling those on the pod.

If the disease attacks the young stems the spots are, as a rule, elongated up and down the stem, again dark with a reddish border. The pinkish-white spores appear on the spots. If the attack is very bad and many spots coalesce, the stem may be girdled and the plant fall over.

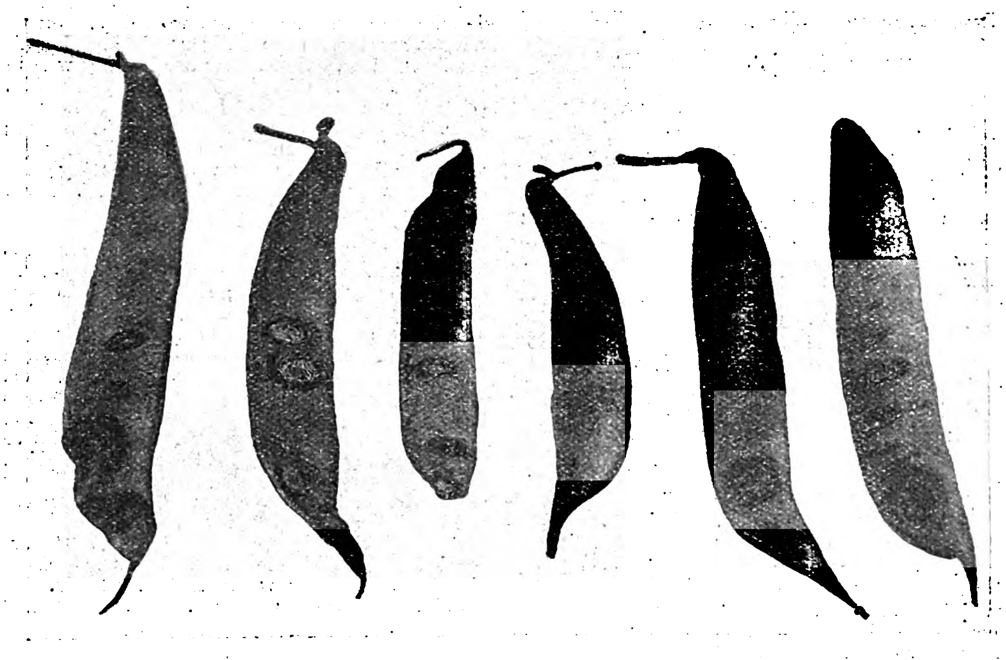
FIG. 141.—POD CANKER IN FRENCH BEANS.

The disease passes the winter as a dormant mycelium in the coat of the Bean. It is a seed-borne disease and develops with the germinating seeds when planted in the spring. The cotyledons in many cases come up infected and having spots on them, already bearing spores produced from the seed infection. From these early infections the disease spreads.

The disease is largely dependent on weather conditions for its severity. It will not flourish with either excessive cold or excessive heat. It needs a damp atmosphere and is increased by a rainy season.

CONTROL.

The real method of control lies in the use of disease-free seeds from disease-free crops. Some measure of control has been found in the use of Bordeaux mixture (4-4-40). To be successful, the spraying should be begun early in the season and repeated several times. The first spraying should be given when the plants are only three inches or four inches high, and repeated at ten-day intervals for three or four times.

All diseased plants should be cleared up and burnt, as the infection can survive in the dry tissue, or seeds, for at least two years. *N. L. Alcock, Edinburgh.*

THE GENUS PRIMULA.

(*Continued from p.* 269.)

EUCYCLIA (W. W. Sm.) Tsarong P.

(Cortusoides.).

A pretty, diminutive, perennial species, closely allied to, if not a microform of, P. vaginata (Watt). It has a slender, elongated, cylindrical rootstock or rhizome, which bears at its apex a tuft of rounded, seven-lobed leaves about one inch across, with heart-shaped bases and toothed margins; both surfaces are more or less downy and the margins are fringed with minute hairs; they are borne on stalks about one-and-a-half-inch long, which are dilated below into winged, clasping sheaths. Flower stem half-an-inch to two-and-a-half inches tall, bearing one or two pale shell-pink blossoms on stalks about three-eighths-of-an-inch long, covered with minute down. Corolla half- to five-eighths-of-an-inch across, divided into five broadly oval lobes furnished with four or five irregular truncate teeth; tube cylindrical, about three-eighths-of-in-inch long. Flowers in May.

It grows in stony alpine meadows in poor soil, in the province of Tsarong, south-eastern Tibet, at 14,000 to 15,000 feet above sea-level.

Culture: Grow it in sandy, gritty loam and limestone chippings in an open spot in the rock garden with underground moisture.

EUOSMA (Craib.). Pungent P.

(Petiolares.)

A desirable perennial species which produces a somewhat dense tuft of elliptic or egg-shaped leaves, three-quarters-of-an inch to two inches long, rounded at the tip, wedge-shaped at the base, stalkless or narrowing to a very short stalk; nearly smooth or very slightly mealy; margins furnished with sharp, undulate teeth. Flower stem two to four inches tall (including the flower stalks), bearing three to seven purplish-rose, fragrant blossoms with a greenish-yellow eye. Corolla half- to three-quarters-of-an-inch across, flat, with heart-shaped, narrowly bilobed segments; lobes irregularly toothed; tube cylindrical, about three-eighths-of-an-inch long.

It grows in shady spots usually on the banks of streams on the mountains of the Shweli-Salwin divide, at 10,000 to 11,000 feet above sea-level.

Culture: Good, rich, fibrous loam and peat in a damp shady spot is indicated.

EXIMIA (Greene.). Choice P.

(Nivales.)

This strong-growing perennial is considered by some botanists to be a microform of the variable P. nivalis. It produces a tuft of smooth, non-mealy, lance-shaped or oblong-spathulate leaves two to five inches long, broad at the tip, pointed or blunt and tapering below into a short stalk; margins usually entire or at times minutely scalloped. Flower stems stout, four to six inches tall, smooth or slightly mealy at the tip, bearing an umbel of six to ten purple blossoms. Corolla about three-quarters-of-an-inch across, divided into five oval, pointed, undivided lobes.

The species is found in damp pastures in the Kurile, Aleutian and Pribilof Islands, between the coasts of Siberia and Alaska.

Culture: Plant in rich, somewhat heavy, fibrous loam in a damp, half-shady spot.

FABERI (Oliver). Faber's P.

(Amethystina.)

This plant is closely allied to P. Dickieana and is perhaps but a Chinese form of that plant. The leaves are smooth and quite free from meal; they have oblong or broadly lanceolate, pointed, thin blades, which are stalkless, or tapering to a short, winged stalk; margins with widely separated teeth. Flower stem eight to ten inches tall, bearing an umbel of two to ten yellow blossoms. Corolla concave, about three-quarters-of-an-inch across, divided into five ovate-oblong, blunt, entire lobes.

The plant is found on Mount Omei, in Szechuan, western China.

Culture: Grow it in good fibrous loam, peat and sand, in a moist, half-shady spot, with protection from damp in winter, or treat it as a frame plant. *A. W. Darnell.*

(*To be continued.*)

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante. pp. 112-118.)

(*Continued from p.* 272).

ENGLAND, S.

Surrey.—Some Apple trees are bearing very heavy crops, notably the varieties Charles Ross, Fearn's Pippin, Irish Peach, Beauty of Bath and Allington Pippin, on pyramid trees, and Royal Russet, Adam's Pearmain, Bismarck, Peasgood's Nonesuch, King of the Pippins, Golden Noble, Blenheim Pippin, and Cox's Orange Pippin on standard trees. The fruits are, however, small at present, owing to the dry weather experienced throughout July. The soil is very light, with a sandy subsoil, and therefore dries out quickly. *Noah Fullegar, Eastbury Manor Gardens, Compton, near Guildford.*

Sussex.—Late cooking Apples are scarce. Of dessert Apples, Cox's Orange Pippin is the best crop. The quality is good where pests and diseases have been controlled by spraying, but in many gardens aphis and scab have rendered many of the fruits worthless. Plums are a very light crop in general, but Pond's Seedling, Monarch and Czar are bearing well in some orchards. Cherries have dropped badly. Of the bush fruits, Raspberries were the best crop. Black Currants were good in places; Gooseberries were slightly under the average, and Strawberries gave a disappointing yield after showing great promise. *E. M. Bear, Magham Down, Hailsham.*

——Apples have suffered severely from attacks by aphis which have been more troublesome here than for many years past; not only are the trees disfigured, but a large percentage of the fruits, especially upon orchard trees, are damaged. Some varieties, however, are heavily cropped and the trees are again developing normal growths. Pears are a good crop and in many instances heavy thinning has been necessary; late frosts, nevertheless, caused a number of the fruits to fall when they had attained the size of Cherries. Plums, in some instances, are carrying heavy crops and the trees are clean. Bush fruits have been good, some varieties of Red and Black Currants being exceptionally so, but Strawberries did not exceed an average crop, although the fruits were of good quality. *E. Markham, Gravetye Manor Gardens, East Grinstead.*

——There was an abundant display of blossom, as is often the case following a wet summer and autumn, but, except in the case of Apples, this promise was not followed by bountiful crops. The partial failure was, no doubt, due, in the first place, to unripened and undeveloped fruit buds, and secondly, to very unfavourable weather conditions during the flowering periods. Apricots in full flower suffered from 17° of frost on March 12. Plums, a month later, met with 8° and 10°, while Pears were equally unfortunate as to weather. Insect pests have been troublesome at a later date than usual, owing to cold nights and miserable days prevalent during the whole of June; before that date sprayed trees were remarkably clean. The glorious month of July improved prospects enormously, and had a marked effect on the health of fruit trees generally. *T. E. Tomalin, Stanstead Park Gardens, Emsworth.*

Wiltshire.—Notwithstanding the heavy crop of Apples and the sunless summer of 1927, there was again a good show of blossom this spring, the majority of which, fortunately, escaped the frosts, and crops of most varieties are good. Pears are an average crop and fairly clean from scab, but Plums are very poor and continual spraying has had to be resorted to to keep down aphis, which has been unusually troublesome this season. Peaches and Nectarines are very poor crops. The trees flowered profusely but the severe frosts registered on the nights of March 12, 13 and 14, of 16°, 13° and 15° respectively, practically destroyed the blossom, while Apricots suffered in a similar way. Small fruits were excellent in all cases, Raspberries being exceptionally large and good, the varieties Pyne's Royal and The Devon being the best. Strawberries were scarce but of good quality; late frosts killed the earliest blooms. The soil in this neighbourhood is of a light nature, overlying chalk or gravel. *S. W. Tucker, Longford Castle Gardens, nr. Salisbury.*

ENGLAND, S.W.

Devonshire.—With the exception of two or three culinary varieties, such as Bramley's Seedling and Keswick Codlin, Apples are very poor. Pears are promising a good return, particularly Doyenné du Comice, Marie Louise, Fondante d'Automne, Comte de Lamy and Glou Morceau. These are grown as cordons on a south wall and have benefited by winter spraying. Small fruits, especially Black Currants and Raspberries, have been a heavy crop. Strawberries, although under average, have also been of good quality on one- and two-year-old plants. The soil here is a deep medium loam, overlying a shingle strata; the gardens form a wing of a sheltered valley running up from the sea coast east and west.—*T. H. Bolton, Hartland Abbey Gardens, Hartland.*

(*To be continued.*)

MARKET FRUIT GARDEN.

Last month was the driest September experienced in my district in the past eighteen years, beyond which my records do not go. Light showers occurred on only four days, the total rainfall being only ·30 inch. The nearest approach to this was September, 1926, when the rainfall amounted to ·58 inch. It was the third month in succession with much under the average precipitation, the total for July, August and September combined being 3·28 inches, less than we had in any one of these months last year. Naturally, such a prolonged drought affected fruit trees on my light soil, particularly in plantations which have been grassed down. Some varieties of Plums have already dropped almost all their leaves, and the foliage of Apples assumed autumnal tints early in the month. Early and mid-season Apples, including Worcester Pearmain and Lane's Prince Albert, were of good size, but later kinds, notably Cox's Orange Pippin and Bramley's Seedling, are on the small side. As always happens during drought, they have been slow in colouring and, curiously enough, late in maturing. Last year I was in the midst of marketing Cox's Orange Pippin, of fine size and colour, before the end of September. This season none were fit to gather during that month. Abundant sunshine and high temperature are unable to hasten maturity and colouring when the trees are starved because their roots can extract little nourishment from the dry soil. It has been noticeable, too, that Apples have had poor keeping qualities. Any that were thrown out because of cuts or bruises turned black (a form of brown rot disease) within a few days. Last year, in spite of the excessive wet, or because of it, Apples kept exceptionally well. It remains to be seen whether late varieties will do so this season, or whether they will follow the example of the earlier kinds.

The most annoying feature of the drought to me is that it has not given the trees a chance to utilise the manures which were applied in abundance last spring, some effect of which I was hoping to see. In spite of these drawbacks, however, I am having quite a good season. Fruits, if not too plentiful, have been of good quality and easy to sell at satisfactory prices. Even the drought brings some advantages. It has given a splendid opportunity to clean the cultivated plantations, which will now face the winter in good order, in marked contrast to the state of affairs last year. Surely one may assume also that fungous diseases, particularly scab, have received a severe set-back. I remember that 1922, following the great drought of

1921 was a scab-free season in my district, and fruits of all kinds were plentiful and of splendid quality.

Good Results from Spraying.

The benefit of an adequate spraying programme has been very obvious this season. Plums in cottage gardens and neglected orchards in the district were almost defoliated by aphis, and Apples are mainly worthless "scrumps," owing to the combined ravages of aphis and scab. On my own place, although a little aphis survived the tar-distillate winter wash, there was not enough to do any appreciable damage. As for scab, the control given by three sprayings, as described in previous notes, has been admirable, the proportion of absolutely clean fruits being most satisfactory. There is, however, at the present time, the worst attack of American blight that I have experienced for many years. Spraying in August is recommended for this pest; but who would risk this with ripening fruits on the trees, even if he had the time and the water? I do not worry much about American blight. It comes and goes, as natural conditions favour or oppose it.

Although I thoroughly believe in routine spraying and consider that the expense is justified by results, I must admit that it adds more than it should to the cost of production. Fortunately, there are signs that this disadvantage may be reduced by the introduction of cheaper washes. In the latest report from the Long Ashton Research Station, growers are shown how they may prepare their own tar-distillate winter wash. All they have to do is to buy neutral tar-distillate from any large gas-works, and emulsify it with the aid of a special preparation, which may also be bought, with the further addition of a little ammonia or soda. The result is a winter wash which is superior to the proprietary article in egg-killing powers and less likely to damage vegetation. Presumably, it would also be decidedly cheaper. The report also contains directions for making a Rape-oil emulsion wash which is likely to prove an efficient substitute for nicotine against aphis and capsids, and very much cheaper. Prudent growers will no doubt wait to see reports of further trials with these washes before adopting them; but there does not seem to be much doubt that they will soon take their place among standard spray-fluids. What I consider we want more than anything else is an oil emulsion which may be combined with Bordeaux mixture for application just before flowering, to deal with scab and insects at the same time. This would be invaluable in districts where capsids are a serious pest, and might allow us to omit the expensive tar-distillate winter washes in part of our plantations each year.

The Plum Crop.

The Plum crop, now finished, was lighter than those of the two previous years, but heavier than those of 1923 to 1925 inclusive. There has not been a really heavy crop since 1922, when the yield was considerably more than double this season's. The drought caused much loss of bulk through dropping and failure to swell to normal size in some varieties; but the fruits were wonderfully sound. The heaviest and most valuable crop was given by Monarch, followed by Pond's Seedling, Rivers' Early Prolific, and Czar, in the order given. Other varieties, particularly Victoria, were very light indeed, mainly owing to frost damage at flowering time. The financial result was better than in any year since 1923, when a very light crop resulted in wonderful prices. Plums sold well this season, partly because the weather was fine and hot, and partly because supplies from the continent were not so heavy as they sometimes are. No doubt I gained also by giving up the half-sieve as a container for anything except second-grade Plums, and packing the rest in 7 lb. chip baskets and 14 lb. veneer boxes, both these being non-returnable.

Apple Rival.

This season I had, for the first time, a large enough crop of Rival, an Apple, I believe, having the same parentage as Charles Ross (Cox's Orange Pippin × Peasgood's Nonesuch) to test its value on the market. It sold well; and I should think it can hardly fail to become popular with consumers, considering its most attractive carmine colour and pleasant flavour. It appears to be the most promising Apple we have at present to follow Worcester Pearmain. It always wins, by the way, in the class provided for such an Apple at the Imperial Fruit Show. The habit of the tree is good, and it seems to be prolific when old enough to bear. Its main fault is its liability to scab and canker. The fruits are apt to come too large on young trees, but this fault seems likely to be corrected with age, which does not happen in the case of Charles Ross. *Market Grower.*

HOME CORRESPONDENCE.

Huckleberries.—Every now and again settlers in the United States send seeds of Solanum nigrum Douglasii to friends at home under the name of Huckleberries, but they are very different from the plants to which the name was originally given. There were many different kinds of these berries, such as Gaylussacia dumosa, the Dwarf Huckleberry; G. brachycera, Box Huckleberry; G. ursina, Bear Huckleberry; G. resinosa, Black Huckleberry; Vaccinium vacillans, Blue Huckleberry; V. hirsutum, Hairy Huckleberry; and V. atrococcum, Black Huckleberry. All these berries belong to the Vacciniaceae, are natives of the eastern United States and Canada, and produce edible fruits, some of them giving large crops, but although several have been introduced to this country they do not prove fertile. Solanum nigrum Douglasii grows freely to a height of two-and-a-half feet, and ripens its large, black, shining berries, but most people look upon them with suspicion. *J. F.*

The Early Planting of Daffodils.—It is generally stated that early planting of the Daffodil is desirable, and that means, I take it, planting from the end of July until the middle of September. But what would have been the advantage of early planting in a season such as this? Here in east Sussex, for instance, the ground has been absolutely dry to a depth of about one foot or more for the past seven weeks. In conditions such as these, my own view is that planting should be deferred until after rain has fallen; the surface of the soil is then more amenable to planting, and moister conditions favour root-action. In other words, the earlier or later planting of Daffodils should depend upon the weather, and I claim that this is a common-sense view. The longer I live the less notice do I take of hide-bound, hard-and-fast rules. *East Sussex.*

White Fly and Cyanogas.—I was interested to see a reference in your issue of September 1, p. 164, to white fly and cyanogas. I should like to state that we have been quite free from white fly this year owing to the use of this fumigant. We have tried all kinds of fumigants, but there is nothing to equal cyanogas. I shall be interested to know whether any of your readers have tried it for the destruction of mealy bug on dormant vines. I do not see why it should not be better than the usual cyaniding, especially as it is so easily used, and I imagine just as deadly. *H. S.*

Actinidia chinensis.—I was much interested in Mr. Ralph E. Arnold's article on Actinidia chinensis, on p. 208. Mr. Arnold states that he has never yet seen it in flower. We have a specimen on a pergola here which has been established about fifteen years, and it has flowered during the past five seasons. The flowers appear during May in large trusses on short, well-matured shoots, and are wonderfully effective with their creamy-yellow petals and numerous brown stamens. There is no doubt that to see the beauty of its flowers a pergola is the ideal place on which to grow it, as one can only see the flowers well from below. On a wall or building, the heavy foliage would, more or less, hide the flowers from view. It may be that our success in flowering it is due to the thinning and almost spur system of pruning which we give it in November. Although it flowers very freely here, it has never yet set fruits. Apart from the flowers, which are very beautiful, it is, as stated by Mr. Arnold, well worth growing for its handsome and decorative appearance. *H. J. Beckingham, Ewhurst Park Gardens, Basingstoke.*

Colours of Flowers.—The article on "The Colour of Flowers" in your issue of September 29, p. 257, is most apropos and merits far more attention than it will probably receive. The anarchy of colour descriptions in catalogues is beyond description, and to one who lives far from shows and nurseries, and can never see the new things in bloom, it makes a lottery of ordering from catalogue descriptions. For instance, to-day I went over my Asters, and was bitterly disappointed in the new Barr's Pink, which is the colour I call magenta, and hardly to be distinguished from Lil Fardell, which I discarded as it is a colour I do not like. Yet Barr's catalogue describes it "bright rose-coloured," and St. Egwin "rose-pink." There is a world of difference between them: St. Egwin is a clear, light pink, the colour of a light pink Rose, whereas Barr's Pink (and Lil Fardell and Ryecroft Pink) are unlike any Rose unless the dull magenta-coloured R. rugosa forms like Roseraie de L'Hay or Pierre Leperdrieux. Lady Lloyd is also called "rose-pink," but is light, like St. Egwin, and Namur, which is plain "pink" is also like them. Iris descriptions are notoriously uncertain, and the lists of "pink" or "red" Irises, by some by the foremost authorities on that flower, are bewildering. If it were only possible to have some twenty or twenty-five simple colour descriptions, and leave *Ridgeway's Chart* or the *Repertoire des Couleurs* to the experts! "Gentian-blue" and "primrose-yellow" and "sky-blue" mean more or less the same thing to most people. There is a true "cold" pink, like the Roses Lady Ashtown, Premier, Radiance, etc., and there is a "warm" pink (or shrimp-pink) like Earl of Warwick, Countess of Gosford and Madame Abel Chatenay. In Irises, I find "plum" is a definite colour term, and "violet-purple" another, and "snuff" and "mulberry" (Irises like Denis de Valery Mayet and Col. Candelot) help in making colour notes. "Tango" may be borrowed from clothes, but is a good term for so many of the newer orange-russet-red Roses and Dahlias. How many times one is held back from buying an expensive novelty because of suspicions of its colour description. It would be to the interest of the commercial growers to settle the whole question. *A Roman Reader.*

Peach Sea Eagle.—On a well-balanced tree of Sea Eagle Peach, I have the finest fruits and best crop of well-coloured fruits I have ever grown, or seen, during an experience of over fifty years. One fruit gathered about a fortnight ago weighed nine ounces and was eleven inches in circumference; another weighed twelve ounces and had a circumference of eleven-and-three-quarter-inches. Are there any records of the weights of Sea Eagle Peaches? *G. Taylor, Cae Gwyn Gardens, Carnarvon.* [We have no records of weights of fruits of Sea Eagle Peach but numerous records of much heavier fruits of other varieties, including one example of Dr. Hogg, which weighed twenty-three-and-three-quarter ounces, and one of Salway that turned the scale at seventeen-and-three-quarter ounces Eds.]

Fraughans or Bilberries.—The note on this subject (p. 235), by "B. P. M." reminds me of the many names given to Vaccinium Myrtillus in different countries. The Gaelic name in the Highlands is Fraochan, *i.e.*, that which grows among the Heather, from *fraoch*, Heather or Ling, and pronounced frau-ich, the last syllable being gutteral. This explains the meaning of the Irish name, which is Celtic, like the Gaelic. The Highlanders also say Nan Dearc, the berry plant, Gearr-dhearc, the sour berry, and Dearcan-fithich, the raven's berries. In English, we have Whortleberry, Whort and Hurt. There are two woods in Surrey, on the lower greensand, named Hurtwood, where the plant grows plentifully. The French use Myrtil and Myrtille from the specific name. The Germans use Heidekraut—berry-bearing Heath, and Heidelbeere, Heathberry. *J. F.*

SOCIETIES.

ROYAL HORTICULTURAL.

October 9.—Hitherto the annual Fruit Show and the Vegetable Show of the R.H.S. have been separate fixtures, but this year, seeing that the new hall was available, the Council tried the experiment of holding them together. It may well have been considered that the exhibits of one of these popular fixtures would scarcely be sufficient to fill this larger hall, but, as events showed, any such fears were unjustified, for on the present occasion the exhibits were so numerous as to entirely fill the hall and also the large restaurant, so that there was, for the second time in succession, a plethora of exhibits demanding the attention of the Fellows and visitors. To the general visitor this did not much matter, but to those who take more than a passing interest in first-class fruits and vegetables the task of critically inspecting the two large shows on one short afternoon was a great one, and probably the experiment will not be repeated. The exhibits of each of the sections reached a very high standard of excellence in nearly every respect, and in most classes the competition was very keen, so that the position of the judges was no sinecure.

The various Committees met during the morning, although they did not find so many novelties awaiting judgment as usual. The Orchid Committee recommended two First Class Certificates to novelties. The Floral Committee recommended three Awards of Merit and selected a goodly number of novelties, chiefly Michaelmas Daisies, for trial at Wisley. The Fruit and Vegetable Committee confirmed two awards previously made, but did not add to the number.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Mr. Gurney Wilson (Hon. Sec.), Mr. Fred. J. Hanbury, Mr. A. McBean, Mr. Arthur Dye, Mr. T. Armstrong, Mr. Fred. K. Sander, Mr. John C. Cowan, Mr. J. Wilson Potter, Mr. Richard G. Thwaites, Mr. Charles H. Curtis and Mr. J. Shill.

Only three plants came before this Committee, and two of these were sufficiently meritorious to obtain the coveted First Class Certificate. The third plant—Cattleya Muriel Henderson, shown by Mr. Hanbury, failed to gain recognition, but it has shapely flowers of deep and bright purple colour, the lip being violet-purple with old gold at the base.

First Class Certificates.

Brasso-Laelio-Cattleya Irma, Dell Park var. (*B.-L.-C. The Baroness* × *L.-C. Golden Queen.*)—Another lovely hybrid of fine colouring and useful because of its late-flowering. The flower is of very rounded form, and the wide petals are of pleasing canary-yellow colour, the sepals being a shade or two deeper. The lip is very much waved and prettily and deeply frilled at the margin; the base and sides are canary-yellow, the central area deep, almost orange-yellow, with a few dull purplish lines; the front area is shaded with soft purplish-grey over a soft fawn-yellow ground. Shown by Baron Bruno Schröder (gr. Mr. J. Shill), Dell Park, Englefield Green.

Cypripedium Christopher, Brockhurst var. (*C. Actaeus Bianca* × *C. Leeanum*).—A very "clean" hybrid with a broad, pure white band occupying the larger upper portion of the wide dorsal sepal, the lower part of which is yellowish green. The wavy-margined petals and the shapely lip are clear honey-yellow, while the ventral sepal is pale green, with darker veins. Shown by Frederick J. Hanbury, Esq., (gr. Mr. S. Farnes), Brockhurst, East Grinstead.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. D. B. Crane, Mr. Arthur Turner, Major George Churcher, Mr. C. F. Langdon, Mr. W. Cuthbertson, Mr. A. E. Vasey, Mr. D. Allan, Mr. W. B. Gingell, Mr. R. Findlay, Mr. J. M. Bridgeford, Mr. J. F. McLeod, Mr. D. Ingamells, Mr. G. W. Leak, Mrs. Helen Lindsay Smith and Mr. W. D. Cartwright, Secretary.

Section B.—Mr. Gerald W. E. Loder (in the chair), Mr. A. E. Bowles, Mr. T. Hay, Mr. A. Bedford, Lady Beatrix Stanley, Mr. R. C. Notcutt, Mr. G. Yeld, Mr. G. Reuthe, Mr. Eric Marsden-Jones, Mr. F. G. Preston, Mr. L. R. Russell, Mr. W. G. Baker, Mr. Charles T. Musgrave, Mr. Reginald Cory, Mr. George Harrow and Mr. N. K. Gould, Secretary.

Awards of Merit.

Chrysanthemum Golden Security.—See National Chrysanthemum Society's awards (p. 299). Shown by Mr. J. Burrell.

Crocus Karduchorum.—A pretty species from Kurdistan, bearing goodly-sized silvery-lavender flowers which have deeper-coloured lines and a white throat. Shown by Lady Beatrix Stanley, Libbertoft Manor, Market Harborough.

Rosa Davidii.—The award to this Chinese species was probably given for the great decorative value of its hips, which are of shining vermilion colour and freely produced on graceful, arching branches. Also shown by Lady Beatrix Stanley.

For Trial at Wisley.

Chrysanthemum Red Rover.—A useful and showy spray variety. The round, compact flowers are of bright reddish-chestnut colour. Shown by Mr. H. Shoesmith.

Aster Red Rover.—A medium-sized, very bright pink variety.

Aster Lavender.—A free-flowering lavender-coloured variety.

Aster maxima.—A pink variety with a large disc.

Aster Preference.—A medium-sized, mauve-coloured variety.

Aster Excellence.—A pale blue variety. All the above-named Michaelmas Daisies were shown by The Hon. Vicary Gibbs (gr. Mr. E. Beckett), Aldenham House, Elstree.

Nerine Miss Gerda Elwes.—An exceedingly good spike of large salmon-coloured flowers which have a line of deeper colour along each segment. Shown by Mr. W. H. Walters, Colesborne, Gloucester.

Fruit and Vegetable Committee.

Present: Mr. A. H. Pearson (in the chair), Mr. W. Poupart, Mr. Joseph Cheal, Mr. F. Jordan, Mr. J. G. Weston, Mr. G. F. Tinley, Mr. J. Basham, Mr. W. F. Giles, Mr. T. Pateman, Mr. H. A. Prince, Mr. J. W. Earl, Mr. A. W. Metcalfe, Mr. A. Poupart, Mr. E. A. Laxton, Mr. Edwin Beckett, Mr. A. C. Smith, Mr. J. C. Allgrove, Mr. F. Bostock, Mr. W. H. Divers, Mr. H. Markham, Mr. G. Woodward, Mr. H. S. Rivers, Mr. J. Wilson and Mr. A. N. Rawes, Secretary.

The Committee confirmed the Awards of Merit recommended previously to Apple King George V, shown by Messrs. J. Cheal and Sons, Ltd.; and Apple Saltcote Pippin, shown by Messrs. Herbert Chapman, Ltd.

Fruit Show.

Although there was only one collection of nine dishes of ripe dessert fruits, this was of exceedingly good quality and well worthy of the first prize, which was awarded to Baron Bruno Schröder (gr. Mr. E. J. Henderson), Dell Park, Egham. This splendid collection included Melon Superlative, Muscat of Alexandria and Alicante Grapes, Barrington and Princess of Wales Peaches, Queen Mary and Cox's Orange Pippin Apples, Marie Louise and Pitmaston Duchess Pears.

There were no fewer than seven collections of six dishes of dessert fruits, and the general quality was very commendable. The best collection was staged by Lord Swaythling (gr. Mr. F. J. Rose), Townhill Park, Bitterne, Southampton, who included large bunches of Muscat of Alexandria and Mrs. Pince Grapes, Emerald Gem Melon, Sea Eagle Peaches of beautiful colour, Beurré Superfin Pears, and Cox's Orange Pippin Apples. In a good second prize exhibit, Mrs. Hornby Lewis (gr. Mr. A. E. Friend), Danesford Park, Marlow, had smaller, but perfectly finished bunches of Muscat of Alexandria Grapes and a Barnet Hill Melon of splendid appearance. Viscount Hambledon (gr. Mr. W. Turnham), Greenlands, Henley-on-Thames, was third, and he included Melon Sutton's Scarlet and Alicante Grapes of excellent quality. T. S. Hall, Esq. (gr. Mr. F. Richardson), Cricket St. Thomas, Chard, was fourth in this large class.

Grapes.

The ten classes for Grapes were mostly well filled and, as a rule, the bunches were well finished, although occasionally a weak bunch was to be seen. The competition was especially noteworthy for the great excellence of the varieties Muscat of Alexandria and Appley Towers in several of the leading exhibits.

The best collection of four varieties, two bunches of each, was staged by Lord Swaythling, who had immense and shapely bunches of Muscat of Alexandria, Appley Towers of splendid quality, Mrs. Pearson and Mrs. Pince. Viscount Hambledon, who was second, included Muscat of Alexandria of superb quality; the bunches were shapely and the berries carried that rich amber colour which tells of high quality; Lady Downes, Appley Towers and Muscat Hamburgh were also well shown. The Rt. Hon. Lord Belper (gr. Mr. J. McCartney), Kingston Hall, Derby, who was third, had excellent bunches of Alicante.

In the classes for two varieties, two bunches of each, there were only three exhibitors. The first prize was won by Lady Durning Lawrence (gr. Mr. J. Rutherford), King's Ride, Ascot, whose exhibit included the best of the many good bunches of Muscat of Alexandria in the show. H. Wolcott Warner, Esq. (gr. Mr. A. Humpherey, East Kentwyn, Henfield, Sussex, had very good bunches of Alicante. Sir Arthur Evans (gr. Mr. C. Branson), Youlberg, Oxford, was third.

The following classes required two bunches each of specified varieties. Viscount Hambledon was first with Lady Downes, which carried beautiful bloom, and Mr. T. S. Hall was second. Lord Swaythling was an easy first in the class for Mrs. Pince, where he had splendid, well-finished bunches. The four exhibits of Alicante were all good. Captain R. B. Brassey (gr. Mr. G. L. Quinn), Shottesbrooke Hall, Northampton, had handsome bunches of splendid colour, and Mrs. Hornby-Lewis was second with smaller bunches of larger berries, also well finished. Captain Brassey was also an easy first in the class for Madresfield Court. The bunches of Appley Towers were not equal to those shown in the collections. Viscount Hambledon was first, and C. G. A. Nix, Esq. (gr. Mr. E. Neal), Tilgate, Crawley, was second. In the class for any other black variety, C. G. A. Nix, Esq., was first with very good bunches of Muscat Hamburgh, and Lord Belper was second with Gros Colmar, of good size. Lady Durning Lawrence again showed excellent bunches of Muscat of Alexandria in the special class, and F. Bostock, Esq. (gr. Mr. J. Prior), Pitsford House, Pitsford, was a good second. Excellent bunches of Mrs. Pearson, shown by Lord Swaythling, were the best in the class for any other white Grape, and Lady Hutt, shown by Lady Durning Lawrence, was second.

Out-door Fruits.

The collections of hardy fruits filled considerable table space and were exceedingly interesting as they illustrated the high quality fruits our best growers produce in the open in this country. In the class for thirty varieties, one dish of each, only one of Peaches and one of Figs might be included. Of the five admirable collections, the very best was shown by Captain M. Drummond (gr. Mr. L. L. A. Smith), Cadland Park, Southampton. This was composed of exceedingly good fruits, very attractively staged. The Pears included Triomphe de Vienne, Marguerite Marillat and Pitmaston Duchess. The chief Apples were S. T. Wright, Peasgood's Nonesuch, Mère de Ménage, Charles Ross, Allington Pippin, Cox's Orange Pippin and Rival. There were also excellent dishes of Plums Coe's Violet, Coe's Golden Drop and Monarch. Lt.-Col. Wingfield Digby (gr. Mr. E. Hill), Sherborne Castle, Dorset, was second with another well set up collection of high grade fruits, which included Plum Coe's Golden Drop, Sea Eagle Peach, Directeur Hardy, Durondeau and Triomphe de Vienne Pears, and Wealthy, Peasgood's Nonesuch, Lane's Prince Albert and Mère de Ménage Apples. Lord Swaythling was a good third in this important class.

In the class for twelve varieties of hardy fruits, Peaches and Figs were excluded. Sir Randolf Baker, Bart. (gr. Mr. A. E. Usher), Ranston, Blandford, Dorset, was first with a collection of very high-class fruits which was especially noteworthy for the beautiful colour of the Apples and Pears. The former included Gascoyne's Scarlet, Cox's Orange Pippin and Allington Pippin, while the chief Pears were Doyenné du Comice, Marguerite Marillat and Durondeau. There also were excellent dishes of Coe's Golden Drop and Late Orange Plums. J. L. Loudon, Esq. (gr. Mr. J. Bond), Ollantigh, Wye, was second, and his dishes of Apples Rival and Charles Ross also carried high colour. Pitmaston Duchess Pear and President Plum were also of note in this exhibit.

Although only three competitors staged twenty-four varieties of Apple, they all were of fine quality. The first prize was won by Captain M. Drummond, whose exhibit was characterised by the ideal shape and colouring of the fruits. The chief sorts were Exquisite, Rival, Lord Hindlip, Charles Ross and Ribston Pippin of the dessert varieties, and Warner's King, Peasgood's Nonesuch and S. T. Wright of the culinary sorts. Lt.-Col. Wingfield Digby was a good second, and his best coloured dishes were of Rival, Allington Pippin, Mère de Ménage and Herring's Pippin.

In the smaller class for twelve varieties of Apple there were eight exhibits. The best was shown by J. H. Loudon, Esq., who had excellent dishes of King of the Pippins, Allington Pippin, Charles Ross and Scarlet Pearmain, dessert varieties, and Rev. W. Wilks, Mère de Ménage, Peasgood's Nonesuch and Royal Jubilee, culinary Apples. Sir Randolf Baker, Bt., was a close second, and his outstanding varieties were Charles Ross, Rival, Wealthy, Sir J. Thornycroft, Royal Jubilee, Peasgood's Nonesuch and Byford Wonder.

No fewer than thirteen exhibits of six cooking varieties of Apple were staged. The first prize was won by the Earl of Bessborough (gr. Mr. T. E. Tomalin), Stansted Park, Emsworth, Sussex, with excellent dishes of Gascoyne's Scarlet, S. T. Wright, Rev. W. Wilks, Loddington, Peasgood's Nonesuch and Hambling's Seedling. Sir Randolf Baker, Bart., was second, and his best dishes were of Crimson Bramley, Rev. W. Wilks and Mère de Ménage. Captain M. Drummond was third.

The six dishes of dessert Apples which won the first prize for Lord Swaythling were ideal in appearance in every respect. The varieties were Cox's Orange Pippin, Gascoyne's Scarlet, Ribston Pippin, Wealthy, King of the Pippins and James Grieve. N. G. Chalmers Hunt, Esq. (gr. Mr. W. J. Wright), Gravell's House, Hitchin, was second, and Lt.-Col. Wingfield Digby was third.

The three classes for Pears contained many admirable fruits, and some of the dessert varieties were beautifully coloured. Captain M. Drummond had the best collection of eighteen dessert varieties, showing splendid fruits of Durondeau, Marguerite Marillat, Beurré Alexandre Lucas, Beurré Superfin and Roosevelt. Lt.-Col. Wingfield Digby had Directeur Hardy, Souvenir du Congres, Durondeau and Charles Ernest in his good second prize collection. J. H. Loudon, Esq., was third.

There was a large class of nine dishes of dessert Pears, where the first prize was won by F. C. Stoop, Esq. (gr. Mr. G. Carpenter), West Hall, Byfleet. His very best were Beurré Superfin, Beurré Alexandre Lucas and Pitmaston Duchess. Sir Randolf Baker, Bart., in his second prize exhibit, included Souvenir du Congres, Pitmaston Duchess and Doyenné du Comice of high quality. Catillac, Beurré Clairgeau and King Edward VII were the three first prize winning stewing Pears shown by Lt.-Col. Wingfield Digby.

Plums were freely shown and of excellent quality. Of the fourteen dishes the first prize sorts were Rivers' Late Orange, Coe's Golden Drop and President, shown by Lady Mary Morrison (gr. Mr. H. Mills), Fonthill House, Tisbury, Wilts. Captain Brassey was a good second.

J. H. Loudon, Esq., was first in the class for Damsons and Bullaces, and Lt.-Col. Sir Walter Holsey, Bart. (gr. Mr. T. Avery), Gaddesden Place, Hemel Hempstead, was first with a dish of Lloyd George Raspberries.

Market Growers' Classes.

The various classes arranged for competition among growers for market sale attracted a deal of well deserved attention, for they illustrated the very best grades of Apples and Pears packed in most tempting arrays. In the class for four standard boxes of Cox's Orange Pippin, the first prize was won by the Reading University College Gardens, with Apples of almost perfect size, colour and packing. In the next class, which was for a similar number of boxes of any other dessert variety, the Reading College was also decidedly first with boxes of Worcester Pearmain, of most brilliant colouring, and, as in the former class, of ideal size and uniformity. Indeed, it would be difficult to imagine more meritorious boxes of dessert Apples than these.

In the class for four boxes of Bramley's Seedling the first prize was not awarded, but the Reading College was placed second, with a good exhibit, and was again first with excellent fruits of Newton Wonder in the class for four boxes of any other cooking variety. The one-layer boxes of Apples were also of very tempting appearance. The first prize for three boxes of Cox's Orange Pippin was won by Mr. G. Burnett Stuart, Manor Fruit Farm, Chelmsford, with excellent fruits of beautiful colour. The Reading College added to its triumphs by being first with splendid fruits of James Grieve in the class for any dessert variety other than Cox's Orange Pippin. Messrs. F. and T. Neave, Faversham, were the most successful exhibitors of Pears, for they won both first prizes with admirable boxes of Conference and Doyenné du Comice. Messrs. J. Almond and Son, as usual at the R.H.S. Fruit Show, won both first prizes with chip baskets of admirable Muscat of Alexandria Grapes.

District County Classes.

In this section many choice fruits were staged, and competition in the majority of the classes was keen. For each district there were two classes, one for six varieties of Apple, four cooking and two dessert, and the other for six varieties of dessert Pear, one dish of each.

W. H. Myers, Esq., was first in the Apple class for Kent, Surrey, Sussex and Hampshire, in which there were many fine exhibits, showing Cox's Orange Pippin, Ribston Pippin, Newton Wonder, Blenheim Pippin, Lane's Prince Albert and Lord Derby; while the Earl of Bessborough, Emsworth, Herts., was first for Pears with Beurré Hardy, Conference, Doyenné du Comice, Roosevelt, Beurré Alexandre Lucas and Pitmaston Duchess.

Lady Mary Morrison, Tisbury, Wiltshire, was first in the Apple class for Wiltshire, Dorset, Somerset, Devon and Cornwall, with excellent examples of Cox's Orange Pippin, Ribston Pippin, Rev. W. Wilks, Newton Wonder, Bramley's Seedling and Peasgood's Nonesuch; Miss Jay Phillips, Newton Abbott, being awarded second prize for Pears, only three exhibitors competing; her best fruits were of Marguerite Marillat and Pitmaston Duchess.

In the well contested classes confined to amateurs of Oxford, Bucks., Berks., Bedfordshire, Hertfordshire and Middlesex, Mr. A. R. Carlisle, Henlow, Biggleswade, was first for Apples, showing Peasgood's Nonesuch, Bramley's Seedling, Newton Wonder, Lane's Prince Albert, Cox's Orange Pippin and Allington Pippin, while among the numerous exhibitors of Pears, the Rev. Roland Smith was first with fine examples of Louise Bonne of Jersey, Doyenné du Comice, Beurré Bedford, Durondeau, Beurré Six and Pitmaston Duchess.

In the class for growers in Essex, Suffolk, Norfolk, Cambridge, Huntingdonshire and Rutlandshire, the Earl of Sandwich, Huntingdon, was first for Apples, exhibiting fine fruits of Newton Wonder, Lord Derby, Gascoyne's Scarlet, Bramley's Seedling and Cox's Orange Pippin; while Lord Suffield received the first prize for Pears, with excellent examples of Doyenne Bussoch, Doyenne du Comice, Marie Louise d'Uccle, Marguerite Marillat, Pitmaston Duchess and Durondeau.

There were numerous entries from the counties of Lincolnshire, Northamptonshire, Warwickshire, Leicestershire, Nottinghamshire, Derbyshire, Staffordshire, Shropshire and Cheshire, Capt. R. Brassey, Northampton, being placed first for Apples with Peasgood's Nonesuch, Cox's Orange Pippin, Ribston Pippin, Lord Derby, Rev. W. Wilks and Charles Eyre; Capt. Brassey was also first for Pears, with Pitmaston Duchess, Durondeau, Louise Bonne of Jersey, Marie Louise, Conference and Doyenné du Comice.

The Earl of [Coventry, Croome Court, Worcester, was first for Apples in the counties of Gloucestershire, Worcestershire, Herefordshire and Monmouthshire, with fruits of King of the Pippins, Cox's Orange Pippin and Peasgood's Nonesuch of special quality; he was also first for Pears, his best fruits being of Marguerite Marillat and Pitmaston Duchess.

There were no entries in the classes for the six northern counties of England and the Isle of Man, but in the classes for growers in Wales, R. J. Corbett, Esq., Towyn, was first both for Apples and Pears. Of the former, his varieties were Charles Ross, Cox's Orange Pippin, Red Victoria, Herring's Pippin, Baron Wolseley and Peacemaker, all well coloured, while his best Pears were Conference and Pitmaston Duchess.

Major C. Gordon, Castle Douglas, showed the best Apples from Scotland, but there were no exhibits of Pears in this section, while the Earl of Dunraven, Castletown, was first for Apples among growers from Ireland, his best fruits being of Peasgood's Nonesuch, Baron Wolseley and Loddington; the Earl of Bessborough was first for Pears. There were no entries from the Channel Islands.

Single Dish Classes: Apples.

In the majority of classes in this section the entries were extremely numerous, and the general quality of the fruits very high.

For a dish of Adam's Pearmain, W. P. Metcalfe, Esq., Stone Hall, Oxted, was first with very choice fruits, while for one dish of Allington Pippin, a class in which there were over forty entries, N. Hanbury, Esq., Green End House, Little Munden, was first. G. E. Banks, Esq., Carfax, Carshalton, was first for wonderfully-coloured specimens of American Mother; Sir Randolf Baker, Ranston, Blandford, was first among many exhibitors for one dish of Blenheim Pippin; G. E. Banks, Esq., received the first prize for Charles Ross; and Mr. R. Lukin, Burghfield Common, was first for Claygate Pearmain.

There was a large number of richly coloured exhibits in the class for Cox's Orange Pippin, W. H. Myers, Esq., Swanmore, Hampshire, being placed first; while F. C. Stoop, Esq., West Hall, Byfleet, Surrey, was first for Duke of Devonshire.

J. A. Stidston, Bishopsteignton, was deservedly first for Egremont Russet; W. P. Metcalf, Esq., received the first prize for Ellison's Orange; and A. R. Carlisle, Esq., Henlow, Biggleswade, showed the best examples, in a well filled class, of Gascoyne's Scarlet.

G. E. Banks, Esq., was again first in the class for James Grieve, and H. W. Henderson, Esq., Newbury, won the first prize for King's Acre Pippin; R. J. Corbett, Esq., being first for one dish of Superb.

For one dish of Orleans Reinette, Mr. W. P. Metcalfe, Esq., was first, and A. H. Pullen, Esq., Wallington, led for Ribston Pippin; J. A. Stidston, Esq., with wonderful specimens, receiving the first prize for Rival.

There were only three entries in the class for one dish of St. Cecilia, G. Yeld, Esq., Gerrard's

Cross, being placed first; while in the better competed class for Sturmer Pippin, W. H. J. Wittall, Esq., Haslemere, received the first award. R. J. Corbett, Esq., received the first prize for one dish of William Crump; while in the class for one dish of eight fruits of an early variety not named in the class list, fit for use, F. C. Stoop, Esq., was placed first for good specimens of St. Edmund's Pippin; while E. Reynolds, Esq., Watford, was first in the similar class for any late variety, showing Lord Lambourne. In these last two classes there were large numbers of exhibits, and many choice fruits were exhibited.

The numerous entries and high quality of the fruits which characterised the preceding classes for dessert Apples were also apparent in the classes for cooking sorts.

Lady Mary Morrison, Tisbury, Wiltshire, showed the best dish of Annie Elizabeth; and T. Bostock, Esq., Pitsford, was first with Bismarck, with very fine fruits. Mr. R. Lukin showed the best dish of large fruits of Blenheim Pippin; and Mrs. Calby, Burderop Park, Swindon, showed the best dish of Bramley's Seedling.

F. C. Stoop, Esq., West Hall, Byfleet, was a prominent prize-winner in these classes, gaining first prizes for dishes of Dumelow's Seedling, Golden Noble and Norfolk Beauty; while the Earl of Bessborough was first in the classes for Crawley Beauty, Grenadier and Queen, respectively. Mrs. E. Cordeux, Burry, Nottinghamshire, showed the best dish of Ecklinville; Viscount Hambledon, Henley-on-Thames, led for King Edward VII; W. A. Nightingale, Wallington, received the first award for Encore; and H. W. Henderson, Esq., exhibited the best dish of Golden Spire.

There were many entries in the class for one dish of Bramley's Seedling, and the dish of excellent fruits shown by Mr. A. R. Carlisle was undoubtedly the best; he was also first for Newton Wonder; while the Earl of Sandwich, Huntingdon, received the first prize for Lord Derby. J. A. Stidston, Esq., secured first prizes for Monarch, and also for Stirling Castle; Mrs. T. S. Hall, Chard, was first for Peasgood's Nonesuch in a well-contested class; Mrs. Hornby Lewis, Marlow, carried off the honours for a single dish of Rev. W. Wilks; and Lt.-Col. Wingfield Digby, Sherborne, was first for S. T. Wright, G. E. Banks, Esq., being placed similarly for one dish of Warner's King.

In the last class, for one dish of eight fruits of any variety not included in the above classes, the Earl of Bessborough received the first prize for good specimens of Loddington.

In the class for one dish of eight fruits of the best-flavoured Apple not mentioned in the single dish classes, there was a large variety of Apples shown, the fruits of King of Tompkin's County, shown by Captain Maldwin Drummond, being adjudged the best.

Single Dish Classes: Pears.

There were many fine specimen fruits displayed in the twenty-one classes for single dishes of varieties of dessert Pears, although in this section, competition was very poor in a few of the classes.

J. A. Stidston, Esq. led for one dish of Beurré Bosc; Lt-.Col. Wingfield Digby was first for Beurré d'Anjou; Lady Mary Morrison, for Beurré Hardy; and the Earl of Bessborough, for Beurré Superfin, the last-named exhibitor also receiving the first prize for Josephine de Malines.

Mrs. Hornby Lewis was first for one dish of Comte de Lamy, and Captain R. Brassey received the first prize in the class for one dish of Conference; Lord Suffield, Norwich, led for Doyenné du Comice with very good fruits; and Lady Mary Morrison, for Durondeau.

The best exhibit of Easter Beurré was shown by Captain Maldwin Drummond, Southampton, while the best in the class for Emile d'Heyst was that by Lady Mary Morrison; A. Helsham-Jones, Esq., Newbury, was placed first for Fondante d'Automne, and Sir Randolf Baker for Glou Morceau.

Mrs. Winterbottom, East Grinstead, led for one dish of Louise Bonne of Jersey, while Lord Suffield was deservedly first in the classes for Marguerite Marillat, and for Marie Louise; while in the well-contested class for Pitmaston Duchess, the Rev. Roland Smith, Huntingfordbury, was the successful exhibitor, as also was he in the class for one dish of an early Pear not included in the previous classes; and for one dish of a late variety, similarly qualified, the Pear shown being the large-fruited Charles Ernest.

Lord Suffield was first for Thomson, and A. Helsham-Jones led for Winter Nelis.

In the final class, for one dish of eight fruits of the best-flavoured Pear not mentioned in the single dish classes, Captain R. Brassey was the successful exhibitor, with attractive examples of Madame Treyve.

Non-competitive Exhibits.

Upon entering the hall, visitors were confronted by several extensive exhibits of fruits. Messrs. G. Bunyard and Co., Ltd., had a very fine collection of fruits, embracing Grapes, Pears, dessert and culinary Apples. Grapes were represented by three good bunches of each of the varieties Golden Drop, Madresfield Court, Esperione, Buckland Sweetwater, Black Prince and Royal Muscadine; while among the many varieties of Pear we noticed attractive baskets of Beurré Superfin, Emile d'Heyst, Beurré Hardy, Fondante de Thirriot, Doyenné du Comice, Roosevelt, Durondeau and Conference, together with a large tray of Pitmaston Duchess. Their fruits of Cox's Orange Pippin were exceptionally good, while they also had finely coloured and shapely fruits of such choice Apples as Lady Sudeley, Orleans Reinette, Peacemaker, Charles Ross, James Grieve, Worcester Pearmain, Wealthy, Rival, Peasgood's Nonesuch, Thomas Rivers, Cutler Grieve and Cellini Pippin.

The Swanley Horticultural College staged a collection of hardy fruits which included large baskets of such Apples as Newton Wonder, Peasgood's Nonesuch and Bismarck; and Pear Pitmaston Duchess. They also had fruits, packed in boxes as for market, of Apples Lane's Prince Albert, Newton Wonder, Charles Ross, Barnack Beauty, Bismarck, Allington Pippin and Worcester Pearmain; together with baskets of several other choice varieties of Apples and Pears.

The fine collection of Apples and Pears exhibited by C. G. A. Nix, Esq. (gr. Mr. E. Neal), Tilgate, Crawley, Sussex, was worthy of especial praise. Among Apples, he had magnificent specimens of S. T. Wright, Charles Eyre, New Hawthornden, Mère de Ménage, The Queen, Loddington, Rival, Rev. W. Wilks and Peasgood's Nonesuch, all richly coloured, together with such varieties as Wealthy, Coronation, Laxton's Superb, King of the Pippins, and Barnack Beauty, while a few of the most noteworthy Pears were Beurré Bedford, Durondeau, Beurré Hardy, Fertility, Doyenné du Comice and Pitmaston Duchess. A really magnificent collection of fruits.

Messrs. J. Cheal and Sons, Ltd., also staged a very fine group, which included excellent fruits of many varieties of Apple and Pear. Of the former we noticed Sandringham, Prince Albert, Annie Elizabeth, Encore, Peasgood's Nonesuch, Arthur Turner, Gascoyne's Scarlet, Rival, Adams' Pearmain, Newton Wonder, Herring's Pippin and King Edward VII, of especially fine quality; while notable Pears were Bellissime d'Hiver, Doyenné Bussoch, Doyenné du Comice, Marguerite Marillat and Catillac.

The University of Reading Horticultural Department had an instructive exhibit of fruits packed for market. There were half-bushel boxes, with the sides, ends and tops replaced by glass, to demonstrate the methods of packing; boxes of single layers of fruits, and half-bushel baskets or sieves containing fine samples of such Apples as Cox's Orange Pippin, Lord Derby, Lady Sudeley, James Grieve, Norfolk Beauty and others. Small baskets of several choice varieties of Apples and Pears were also shown.

In Messrs. Laxton Brothers' well arranged group we noticed good examples of such varieties of Apple as Laxton's Superb and Lord Lambourne, Worcester Pearmain, Allington Pippin Newton Wonder and Cox's Orange Pippin; while the most notable of their Pears were Pitmaston Duchess, St. Germain, Conference and Marguerite Marillat.

The Barnham Nurseries, Ltd., set up a choice collection of many varieties of Apples and Pears. The best of the Apples were Royal Jubilee, Coronation, Ellison's Orange, Steirling Castle, Allington Pippin and Charles Ross, while among Pears there were good examples of Duchesse d'Angouleme, Beurré Hardy, Marie Benoist, Beurré Tanqueray, Pitmaston Duchess and Catillac.

Messrs. Daniels Brothers, Ltd., had a small collection of hardy fruits, among which we noted Apples Peasgood's Nonesuch, Gascoyne's Scarlet, Lord Suffield, Charles Ross and Peacemaker; and among the Pears, Roosevelt, Souvenir du Congres, and Marguerite Marillat, of which they had good specimen fruits.

Mr. J. J. Kettle showed fruiting sprays of various autumn-fruiting and perpetual-fruiting Raspberries; and Messrs. R. C. Notcutt had a good collection of Apples and Pears. Among the former, notable sorts were American Mother, Guelph, Rival, King of the Pippins, Peasgood's Nonesuch, Blenheim Pippin and Coronation, all of good quality and highly coloured; while Pears were well represented by Emile d'Heyst, Conference and Pitmaston Duchess.

In the collection set up by Messrs. John Waterer, Sons and Crisp, Ltd., we noted, among Apples, good specimens of Rev. W. Wilks, The Queen, King of the Pippins, Ellison's Orange and Rival, while the best of their Pears were Pitmaston Duchess, Catillac, Doyenné du Comice, Conference and Durondeau.

The attractive array of fruits staged by Mr. J. C. Allgrove contained well-laden trees of such Apples as S. T. Wright, Cox's Pomona and Lord Burghley, together with baskets of specimen fruits of these varieties, while other Apples which they showed included well-coloured specimens of King Edward VII, Rival, Cox's Orange Pippin, Adams' Pearmain, Mére de Ménage and Lord Hindlip. Pears such as Conference, Beurré Clairgeau, Durondeau and Beurré Superfin were shown well, as also were Plums President and Coe's Golden Drop.

The large baskets of Applès, such as American Mother, James Grieve, Charles Ross and Annie Elizabeth, set up by Messrs. S. Spooner and Sons, Ltd., were very attractive; they also had good examples of Wealthy, John Standish, Cox's Pomona and Superb, among others, while nearby, Messrs. T. Rivers and Son, Ltd., showed well-fruited Apple trees of the varieties Gascoyne's Scarlet, Cox's Orange Pippin, Peasgood's Nonesuch, Beauty of Kent and King of Tompkins County, together with baskets of several varieties of Apples and Pears, Plums and Peaches.

An interesting exhibit, set up by W. H. J. Whittall, Esq., Grayswood Hill, Haslemere, consisted of one-hundred-and-forty single examples of distinct varieties of Apple, grown at an altitude of 6,000 feet.

Medal Awards.

Silver-gilt Hogg Medals.—To The University of Reading Horticultural Department, for Apples; and Messrs. J. Cheal and Sons, Ltd., C. G. A. Nix, Esq., Messrs. George Bunyard and Co., Messrs. T. Rivers and Sons, Mr. J. C. Allgrove, the Barnham Nurseries, and Messrs. Laxton Brothers, for collections of fruits.

Silver Hogg Medals.—To the Swanley Horticultural College, Messrs. S. Spooner and Sons, Messrs. J. Waterer, Sons and Crisp, Ltd., and Messrs. R. C. Notcutt, for collections of fruits.

Hogg Medals.—To — Brain, Esq., and W. H. J. Whittall, Esq.

[A full report of the Vegetable Show will appear in our next issue.—Eds.]

NATIONAL CHRYSANTHEMUM.

The Floral Committee of the National Chrysanthemum Society met at the R.H.S. Hall, Westminster, on Wednesday, September 26, last, when twenty-seven new seedling Chrysanthemums were submitted. The following varieties received First Class Certificates, and the Committee wished to " See again " Mrs. F. C. Smeardon, a spray variety of rich ruby colouring flushed with rose, shown by Messrs. J. Webber and Sons.

First Class Certificates.

Autumn Gold. II, 1b.—A well-set-up, rounded variety. The broad florets incurve attractively, and the colour is bright yellow. Shown by Mr. C. T. Kipping.

Golden Security. II, 1b.—Of similar type to the above, but rather more incurving, and the golden-yellow colour is intensified by a flushing of pale orange in the centre of the flower. Shown by Mr. J. A. Barrell.

F. J. Woods. II, 1b.—A good, orange-bronze-coloured flower of graceful form. The florets are rolled towards the tips. Shown by Mr. J. Barrell.

Merribron. II, 1b.—A beautiful flower of graceful form. The broad, substantial florets are bright chestnut in colour with a pale gold reverse which shows in the centre of the bloom. Shown by Messrs. Cragg, Harrison and Cragg.

Nesta. II, 1b.—The award was given to this lovely flower as an indoor variety, shown as Ophelia, subject to change of name as there already is an Ophelia and of similar type. The colour is mauve-pink with a lemon reverse. Shown by Mr. H. Shoesmith, junr.

DUBLIN NATURALISTS'.

Recently, members of the Dublin Naturalists' Field Club spent a pleasant afternoon at Kilruddery, Co. Wicklow, the estate of the Earl of Meath. Following an interesting hunt for fungi, conducted by Professor M. J. Gorman, the party visited the pleasure grounds. Eight long, and well-maintained, ancient hedges of Yew and Beech, which radiate from a common centre like the spokes of a wheel, were thoroughly appreciated. There is a tradition that in bygone days, when these grounds belonged to a monastery, that the Abbot could from the central position keep a constant watch over the monks, no matter in what portion of the grounds they were working.

Other features were some fine beds of Dahlia Lady Aileen, which originated from Kilruddery ; a wild garden with Cornflowers and Poppies in full bloom ; an interesting group of New Zealand trees and shrubs in excellent condition ; Tree Ferns, and a winter garden.

The mansion, of the Elizabethan style of architecture, commands a noble panorama of the Wicklow Hills and the grounds slope up towards the Little Sugarloaf.

HORTICULTURAL EDUCATION ASSOCIATION.

The twenty-third Annual General Meeting and Conference of the above Association took place recently at The School of Agriculture, Cambridge.

The Association is composed of men and women who are engaged in horticultural education and research, and a very representative body of members, from all parts of the British Isles and Northern Ireland, assembled on this occasion.

During the morning of the first day, the Association was addressed by Dr. Salaman, who, in a short lecture, very ably outlined the progress of his work on problems relating to the Potato. The University Farm was then visited, and here Mr. Brenchley, in the absence of Mr. F. T. Brooks, gave a short address on " Silver Leaf Disease," and also explained some portions of the work now being carried out in connection with this disease at Cambridge and elsewhere.

The National Institute of Agricultural Botany was next visited, under the guidance of the Chief Officer of the Institute, Mr. Eastman, and Mr. Finlayson. Here the members were able to see something of the scientifically exact processes of seed-testing as conducted at this Institute. Later in the day, the Association inspected the Advisory Department of the School of Agriculture, which is responsible for the Advisory Work of the Cambridge Province ; here, Mr. Pethybridge explained some features of the work of the department, especially that in relation to his own work in connection with capsid bug attacks.

The Annual General Meeting of the Association was held in the Lecture Theatre of The School of Agriculture during the afternoon of the second day, and as a result of the polling Sir William Lobjoit was elected President-Elect for 1929-30.

Dr. Kate Barratt, Principal of Swanley Horticultural College, is President for the current year, and Mr. F. W. Costin, Agricultural Education Department, Chichester, is Honorary Secretary and Treasurer.

A full report of the two-days' proceedings will be issued to members and prospective members.

PARKS AND BOTANIC GARDENS SUPERINTENDENTS.

The quarterly meeting of the North-western Branch of the Association of Parks and Botanic Gardens Superintendents was held at Salford on September 22. It was an ideal sunny autumn day, and there was a good attendance of members from various parts of Lancashire and Cheshire. The party assembled at the main entrance to Buile Hill Park and then proceeded, under the guidance of Mr. J. Richardson, Parks Superintendent, to inspect the propagating department, flower beds, bowling greens, etc. Several members of the party also visited the Natural History Museum in the park. Tea was partaken at the Café and the members then adjourned to the Museum at Peel Park, where a room had been placed at their disposal by the Salford Parks Committee, for the general meeting.

The President of the Association, Mr. W. W. Pettigrew, and the General Secretary, Mr. A. Blackburn, explained the arrangements that had been made with regard to the forthcoming Parks Superintendents' Conference, to be held in London on October 23 and 24. The programme of the Branch for the winter months was also discussed, and it was decided that the next two meetings be held at Manchester on the last Saturdays of January and April, 1929.

READING AND DISTRICT GARDENERS'.

The first meeting of the autumn session of this Association was held in the Abbey Hall on September 24, when there was an excellent attendance presided over by the President, Mr. Frank E. Moring. The subject for discussion was " Apples and Pears," and this was introduced by Mr. F. Lock, the representative from the Newbury Gardeners' Association, who gave an exceedingly practical discourse on these fruits. He stated that without doubt the Apple was the most popular of all fruits and the finest from the food point of view. Starting with the site and soil best adapted for the culture of Apples and Pears, he proceeded to advise as to the preparation of the ground, the age and shape of trees, the time for planting ; pruning and thinning of fruits. An interesting discussion followed in which several members took part.

At the close of the meeting a hearty vote of thanks was tendered to Mr. Lock for his admirable and practical lecture.

There was a glorious array of flowers staged, Roses being largely shown and exceedingly fine for so late in the season. In the competition for three vases of flowers, grown out-of-doors, there were six entries, the first prize being awarded to Mr. A. W. Gower, The Gardens, Calcot Grange, for Roses, Zinnias and Michaelmas Daisies. For one vase of Roses, twelve sprays to a vase, there were five entries, and the first prize was won by Mr. F. G. Rabbetts. In the non-competitive section, Mr. W. Bates, Winnersh Nursery, Wokingham, staged twelve large vases of Roses, each vase containing a distinct variety. An award of Merit went to Mr. F. Turner, Southview, Calcot, for well-grown Tomatos.

ANSWERS TO CORRESPONDENTS.

Begonias Diseased.—*N. C. C.* The Begonia leaves are affected with Botrytis cinerea. Remove and burn the leaves on which dead patches are seen to be spreading. More air is required ; a close atmosphere is beneficial to the growth of this fungus. Reduce the moisture content of the atmosphere by eliminating overhead watering, and cease syringing and damping down. Some bacteria were also present in the diseased tissues.

Grapes Disfigured.—*W. R.* It would appear that your Grapes are suffering from what is commonly known as shanking, and a similar case to the one you state was dealt with in our issue of September 22, p. 240. The advice given then should answer your purpose.

Moles in the Garden.—*A. H. H.* There are several methods which you might adopt to rid your land of moles, the most effective being to trap them. If there is a local mole-catcher, and there usually are men skilled in this pursuit, we would advise you to employ him. Failing this, you should try trapping the moles yourself. Special traps may be obtained from the local ironmonger, with instructions for their setting, and these should be placed in the main runs of the moles ; they should be well concealed and set firmly, care being taken not to touch them with the naked hand. At least one mole a day should be caught by this method. Another good plan is to follow the main runs to the nests, which should be destroyed. Fresh calcium-carbide, as used for acetylene lamps, if placed in the runs and the holes covered, should drive the moles away, as the fumes are obnoxious to them, while in America, paradichlora-benzine, a teaspoonful placed in the runs at intervals of six or eight feet, has been found to banish the moles effectively.

Iris Society.—*S. and L.* The Secretary of the Iris Society is Mr. G. N. Bunyard, The Nurseries, Maidstone.

Kniphofias Failing —*S. W. D.* The Kniphofia plants are affected with foot-rot fungus, Phytophthora species. Remove any badly infected plants and burn them. Potash manures should be applied to the soil as they induce resistance to attack by this disease. Waterlogged soil increases susceptibility to attack, therefore attention should be paid to drainage, and lime should be incorporated with the top nine inches of soil.

Names of Fruits.—*A. E.* Common Black Bullace.—*M. C. H.* 1. decayed in post ; 2, Autumn Compote ; 3, squashed ; 4, Strawberry Pippin ; 5, Lord Derby.—*J. C. W. & S.* 1, Lady Derby ; 2, Cox's Orange Pippin.

Names of Plants.—*I. M. R.* 1, Mentha sylvestris alopecuroides (Fox-tail Mint is an old name) ; 2, Thymus Serpyllum (wild Thyme) ; 3, Antennaria dioica (Cat's foot) ; 4, Aster indicus, not a kitchen herb ; 5, Sedum album ; 6, Artemisia dracunculoides, used as a substitute for Tarragon. Nos. 2 and 6 may be used as herbs, if you like. The Aster has also been named Boltonia indica, and Asteromoea indica.—*M. B.* for *W. H.* The China Aster, as nearly as may be discerned from the flattened bloom received, is Sutton's bedding Aster Delicate Rose.

Potato Tubers Diseased.—*H. M.* The Potato tubers are affected with the canker form of corky scab, a disease induced by wet, poorly drained soil. Excess of lime is detrimental and tends to increase the incidence of the disease. Attend to drainage, but do not add lime or chalk to infected ground. Apply flowers of sulphur at the rate of two-and-a-half ounces to one square yard, in early spring ; do not use " seed " from infected plants, and practice crop rotation. Boil badly infected tubers and feed them to pigs.

Rosebuds Dropping.—*M. McN.* Your Roses are suffering from a very bad attack of mildew.

Communications received.—S. J. M. A.—J. A.—E. M. C.—M. E. V.—E. B.—G. W. S.—J. G. W.—T. B.—R. G.—F. S.—F. R. D.—A. E. L.—M. B.—A. T.—A. F.—J. A. N.—J. B.—G. H. B.—J. A. H.

MARKETS.

COVENT GARDEN, Tuesday, October 9th, 1928.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz. ...	10 0-12 0
—elegans ...	10 0-12 0
Aralia Sieboldi	8 0—9 0
Araucarias, per doz.	30 0-40 0
Asparagus plumosus ...	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistras, green ...	16 0-60 0
Aspleniums, doz.	12 0-18 0
—32's	24 0-30 0
—nidus ...	12 0-15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Chrysanthemums per doz. ...	15 0-24 0
—white, per doz.	15 0-24 0
—yellow, per doz.	18 0-24 0
—pink, per doz.	21 0-24 0
—bronze, doz. ...	12 0-18 0
Crotons, per doz.	30 0-45 0
Cyclamen, per doz.	24 0-36 0

	s. d. s. d.
Cyrtomiums ...	10 0-12 0
Erica gracilis, per doz. ...	30 0-36 0
— — 60's, per doz.	15 0-18 0
— — 72's, per doz.	8 0—9 0
—nivalis, per doz.	30 0-36 0
— — 60's, per doz.	12 0-15 0
— — 72's, per doz.	8 0—9 0
Kochia, per doz.	15 0-18 0
—60's	9 0-12 0
Lilium longiflorum, 48/32's ...	15 0-21 0
Nephrolepis in variety ...	12 0-18 0
—32's	24 0-36 0
Palms, Kentia,	30 0-48 0
—60's	15 0-18 0
Pteris in variety	10 0-15 0
—large, 60's ...	5 0—6 0
—small... ...	4 0—5 0
—72's, per tray of 15... ...	2 6—3 0
Solanums, per doz.	12 0-15 0
— 60's, per doz.	9 0-12 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	9 0-10 0
—cuneatum, per doz. bun. ...	6 0—8 0
Arums (Richardias), per doz. blooms ...	5 0—6 0
Asparagus, plumosus, per bun., long trails ...	2 6—3 0
—med. sprays	2 0—2 6
short „	— 1 0
—Sprengeri, bun. long sprays...	2 0—2 6
med. „ ...	1 0—1 6
short „ ...	0 6—1 9
Asters, white, per doz. bun. ...	2 0—4 0
—pink, per doz. bun.... ...	3 0—5 0
—single vars., per doz. bun. ...	2 6—3 0
Autumn foliage, various, per doz. bun. ...	6 0-12 0
Carnations, per doz. blooms	2 6—4 6
Chrysanthemums—	
—white, per doz. blooms ...	2 6—5 0
—yellow, per doz. blooms ...	2 6—6 0
—bronze, per doz. bunches ...	6 0-10 0
—bronze, per doz. blooms ...	2 6—4 6
—pink, per doz. bunches ...	9 0-12 0
—pink, per doz. blooms ...	3 0—6 0
Cornflowers, blue, per doz. bun.	2 6—3 0
Croton leaves, per doz. ...	1 9—2 6
Fern, French, per doz. bun.	10 0-12 0
Forget-me-nots, per doz. bun.	10 0-12 0
Gardenias, per doz. blooms	4 0—9 0
Heather, white, per doz. bun.	9 0-12 0
Lily-of-the-Valley, per doz. bun.	18 0-30 0

	s. d. s. d.
Lilium longiflorum, long, per bun.	4 0—4 6
— — short, per doz. blooms...	4 0—4 6
—speciosum, long, per bun. ...	4 0—5 0
— — — short, doz. blooms ...	4 0—4 6
—speciosum rubrum, long, per doz. ...	3 6—4 0
— — — short, per doz. ...	2 0—2 6
Marigolds, per doz. bun. ...	3 0—4 0
Michaelmas Daisies, per doz. bun.	6 0-10 0
Myrtle, green per doz. bun.	1 6—2 6
Orchids, per doz.	
—Cattleyas ...	36 0-60 0
—Cypripediums	10 0-15 0
Physalis, per doz. bun. ...	18 0-30 0
Roses, per doz. blooms—	
—Mme. Butterfly	2 6—4 6
—Columbia ...	2 6—3 6
—Golden Ophelia	2 6—3 6
—Richmond ...	3 0—3 6
—Aaron Ward	1 6—2 0
—Roselandia ...	2 6—3 6
—HoosierBeauty	3 6—4 6
—Molly Crawford	2 6—4 0
Scabiosa caucasica, per doz. bun.	5 0—6 0
Smilax, per doz. trails ...	4 6—5 0
Statice sinuata, blue, per doz. bun.... ...	4 0—6 0
— — white, per doz. bun. ...	4 0—6 0
— — pink, per doz. bun. ...	4 0—6 0
Stephanotis, 72 pips	2 6—3 0
Stocks, white, per doz. bun. ...	6 0-10 0
— mauve, per doz. bun. ...	6 0—8 0
Violets, Prince of Wales, per doz. bun.... ...	2 6—4 0

REMARKS.—All outdoor blooms are now of inferior quality, especially Asters, Gladioli, Marigolds, Sweet Sultans and Statice sinuata. Chrysanthemums are still arriving in very large quantities, but prices are much firmer for the better grades. Some fine exhibition blooms are now on sale. The very best Carnations are in good demand. Roses are in excellent condition and prices are similar to last week's quotations. Lilium longiflorums are also on the up grade again. Violets have also been arriving in excellent condition during the past week. The newest arrivals in this department are Acacia (Mimosa), also a few pads of Capsicums and very good coloured Berberis (Mahonia); this is the earliest consignment from the south of France this season.

Chrysanthemums, Ericas and Cyclamens are the chief attraction in this department. Ericas consists of E. nivalis, and E. gracilis, very fine plants in various sizes. Solanums are also of much better quality. The usual varieties of Ferns are somewhat limited in quantity. Kentias are the most plentiful in Palms, and a good selection of various sizes are on sale. Cocos, Phoenix and the more choice varieties are very limited in quantity at the present time.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples, English—	
—Cox's Orange Pippin ½-bushel	8 0-15 0
—Worcester Pearmain, case ...	10 0-16 0
—extra special, ½-case ...	6 0—7 0
—Lord Derby, per bushel ...	5 0—7 0
—Bramley ...	8 0-10 0
—Lane's ...	7 0—9 0
—Warner's King	5 0—7 0
—Newtown ...	12 0-13 0
Apples, Nova Scotian—	
—Cox's Orange Pippin, ½-barrel	30 0-35 0
Bananas, per bun.... ...	12 0-21 0
Figs, hothouse, per doz. ...	3 0—3 6
Grapes, English—	
—Muscat of Alexandria, per lb.	2 0—5 0
—Alicante ...	1 3—2 0
—Canon Hall, Muscat, per lb.	2 0—5 0
—Black Hamburgh, per lb. ...	1 0—1 9
Grape Fruits—	
—Porto Rico ...	30 0-37 6

	s. d. s. d.
Grapes, Guernsey—	
—Muscat of Alexandria ...	1 3—1 9
—Canon Hall Muscat ...	1 9—2 6
—Black Hamburgh ...	0 9—1 2
—Gros Colmar	1 0—1 6
—Almeria, per barrel ...	18 0-22 0
Lemons, Messina and Palermo, per case ...	30 0-35 0
—Naples ...	35 0-40 0
Melons, hothouse, each...	1 0—4 0
—Cantaloupe, each... ...	1 6—3 0
—Valencia, 24's and 36's ...	15 0-17 0
Oranges, Valencia Lale ...	20 0-25 0
Peaches, hothouse, per doz.	6 0-24 0
Pears, Californian—	
—Beurré Hardy	18 0-20 0
—Doyenné du Comice, ½-case	12 0-12 6
—Fertility ...	4 0—6 0
—Conference ...	4 0—7 0
Pineapples, each	2 0—5 0
Plums, English,	
—Damsons ...	10 0-11 0
—Prunes ...	8 0-10 0
—Coe's Golden Drop... ...	18 0-20 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans—	
—French, ½-bush.	4 0—5 0
—Guernsey, per lb.	1 0—1 6
—Scarlet Runner, half-bag ...	5 0—7 0
Beet, per bag ...	5 0—6 0
Brussel's Sprouts, ½-bag ...	4 0—6 0
Cabbage, per doz.	3 0—4 0
Cauliflowers, per doz.	2 6—3 6
Celery, washed, per doz. ...	18 0-24 0
Cucumbers, doz. 36's, 42's, 48's	12 0-16 0
Lettuce, Cabbage, English, doz.	2 0—3 0
—Cos	2 0—3 0
Mint, per doz. bun. ...	1 0—1 6

	s. d. s. d.
Mushrooms—	
—cups... ...	2 0—3 0
—broilers ...	1 6—2 0
—" field," per lb.	0 9—1 0
Peas, English—	
—flats, special	18 0-22 0
Potatos—	
—English, cwt.	5 0—8 0
Savoys, per doz.	2 6—3 0
Tomatos, English, pink... ...	2 6—4 6
— — pink and white ...	2 6—4 6
— — white ...	2 0—3 0
— — blue ...	2 0—3 0
—Guernsey ...	1 9—3 6
—Jersey ...	1 0—2 0

REMARKS.—The general demand has been variable during the week, most sections reporting quiet periods and slack trade; at the time of writing conditions point to more steadiness. Hothouse Grapes are plentiful, and increased supplies are available from Holland, but prices all round remain steady. English Plums are becoming scarce and the few sell well. Some Grapes from the Aylesbury district are now being marketed and sell fairly well. English Apples are not so plentiful, and after a few days of poor inquiry show a better tendency, from a selling point of view. An increasing supply of Apples from America are becoming available and making itself felt on the demand for any but the best home-grown dessert and cooking Apples. Pears are fairly popular and meet a moderately good reception from the buyers. The Tomato section is still doing badly. New crop Tomatos sell just a shade more freely, but there are still large quantities of outdoor Tomatos for which selling figures are low. Some good Guernsey Beans are available, and these sell readily at firm prices in spite of the outdoor Beans that are being marketed. There are still some Peas on the market, and in good condition, but prices are comparatively high. Cucumbers have improved in demand being now rather scarce. Mushroom supplies have been encouraged by the milder weather and easier conditions rule in that department. Salads are doing well, the green vegetable market is rather more active, and with colder conditions the old Potato trade would become busier.

GLASGOW.

The severe frosts of the past week, registering up to 14° in some districts, finished the supplies of outdoor Chrysanthemums for the season, and as the market had to depend on supplies of disbudded Chrysanthemums, grown under glass, buyers had to concede higher prices in order to meet their requirements, as consignments were none too plentiful. Quotations for these Chrysanthemums were as follow:—In Memoriam, 6s. to 7s. per dozen blooms; Alcalde, 1s. 9d. to 2s. 3d.; Holicot Bronze, 1s. 4d. to 1s. 6d. Pink and Bronze Consul, 2s. to 2s. 6d. for 6's; Debutante, 1s. 9d. to 2s.; Cranford Yellow, Belle Mauve and Pink Delight, 1s. 6d. to 2s.; Almirante, 1s. 6d. to 1s. 9d.; Holicot Yellow, 1s. 3d. to 1s. 6d.; Sanctity, 1s. to 1s. 9d.; Phoenix, 1s. to 1s. 6d.; and Betty Spark, 10d. to 1s. 3d. Sprays of Loan's Pink and Crimson made 6d. to 8d. per bunch. Prices for Carnations ranged from 1s. 6d. to 4s. per dozen; Pink Roses, 2s. to 3s. 6d.; red and white, 1s. 3d to 1s. 6d.; Richardias, 2s. 6d. to 4s. 6d. per bunch; Michaelmas Daisies, 6d. to 1s. 3d.; Calendula, 2d.; Smilax, 1s. to 1s. 3d.; and Asparagus Fern, 6d. to 9d.

In the fruit market, Victoria Plums continued plentiful and cheap, at 4d. to 5d. per lb. for table quality and 1½d. to 2½d. for preserving. Damsons were worth from 5d. to 6d. per lb. A varied assortment of Grapes are now available, but the demand for hothouse varieties is, so far, disappointing. Muscat of Alexandria fluctuated between 3s. and 3s. 6d. per lb.; Gros Colmar, 2s. 9d. to 3s. 6d.; Kippen, 3s. 6d.; and Belgian Royal, 1s. Peaches realised 6s. to 7s. per dozen; green Figs, 6s.; Anjou Pears, 20s. per case; Grape Fruits, 25s. to 28s. for 96's; South African Oranges, 150, 176 and 216 counts, 26s.; Cooking Apples, 3s. to 3s. 6d. per stone, and Bramley's Seedling, 5½d. per lb. American Apples are now arriving in the Clyde in considerable quantities and are selling at the following quotations:—Jonathan, 17s. per case; McIntosh Red, 14s. 6d. to 15s. 6d.; Wealthy, 13s. to 14s. 6d.; and York Imperial, 25s. to 32s. per barrel.

Tomatos are firmer at 6d. to 7d. per lb.; while vegetables and salads kept steady at 1s. 6d. to 2s. per dozen for Lettuce; 3s. to 5s. for Cucumbers; and 2s. 6d. to 4s. 6d. for Cauliflowers. Brussels Sprouts sold at 3s. per stone, and Mushrooms realised 3s. per lb.

CATALOGUES RECEIVED.

J. B. POCKETT, Cowley Nurseries, Healesville, Victoria, Australia.—Chrysanthemums.

PERRY'S HARDY PLANT FARM, Enfield, Middlesex.—Bulbs and tubers.

CLIBRANS, LTD., Altrincham.—Trees, shrubs and climbers; herbaceous and alpine plants.

E. P. DIXON AND SONS, LTD., Hull.—Nursery List.

R. WALLACE AND CO., The Old Gardens, Tunbridge Wells.—Nursery stock.

THE PORTLAND CEMENT SELLING AND DISTRIBUTING CO., LTD., 20, Buckingham Gate, S.W.1.—Concrete blocks.

KERSHAWS, Nurserymen, Keighley.—Fruit trees, Roses, etc.

Foreign.

A. GRUNWALD, WEINER-NEUSTADT, Austria.—Evergreens, etc.

ERNST BENARY, Erfurt, Germany.—List of Novelties.

ENQUIRY.

Mr. J. K. Budde, Utrecht, Holland, asks whether anyone has seeds of Coleus aromaticus to spare for scientific purposes.

GARDENING APPOINTMENTS.

Mr. C. Cross, late kitchen garden foreman at Chatsworth, Derbyshire, and Eastwell Park, Ashford, Kent, as gardener to S. A. COURTAULD, Esq., The Howe, Halstead, Essex. [Thanks for 2/- for R.G.O.F. Box.—EDS.].

Mr. H. A. Lee, for five years gardener to W. G. PHILLIPPS, Esq., and previously five years general foreman to the Rt. Hon. LORD HARLECH, Brogynton, Oswestry, as gardener to Capt. BEST, Vivod, Llangollen.

Mr. A. Surridge, for the past six years gardener to Lt.-Col. CLIFTON, Clifton Hall, Nottingham, as gardener to The Rt. Hon. LORD ISLINGTON, P.C., Rushbrooke Hall, Bury St. Edmunds, Suffolk. [Thanks for 2s. 6d. for R.G.O.F. Box.—EDS.].

Mr. W. G. Fisher, for the past four years and nine months gardener to G. M. FREEMAN, Esq., K.C., The Greyfriars, Winchelsea, Sussex, as gardener to H. E. BAKER, Esq., Weston Acres, Woodmansterne, Banstead, Surrey. [Thanks for 2s. for R.G.O.F. Box.—EDS.].

Mr. Frank Lee, formerly gardener to E. G. MILLS, Esq., Gurrington, Ashburton, Devon, as gardener to H. E. CHAFY, Esq., of Holnest Park, Sherborne, Dorset.

Mr. John Curzon, for nearly four years gardener to Captain B. D. BYFIELD, Hewshott House, Liphook, Hants., as gardener to Sir JOSEPH TICHBOURNE, Bart., Tichbourne Park, Alresford, Hants. [Thanks for 2/- for R.G.O.F. Box.—EDS.].

SCHEDULES RECEIVED.

ACCRINGTON AND DISTRICT CHRYSANTHEMUM SOCIETY.—Exhibition to be held in the Town Hall, Accrington, on Saturday, November 10.—Secretary, Mr. A. A. Crabtree, Arden View, Hodder Street, Accrington.

HENFIELD CHRYSANTHEMUM SOCIETY.—Exhibition to be held at the Assembly Rooms, Henfield, on Thursday, November 1.—Secretary, Mr. J. M. Musson, Ivy Cottage, Henfield.

THE
Gardeners' Chronicle
No. 2182.—*SATURDAY, OCTOBER* 20, 1928.

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Supplementary Plate.
Paronychia capitata.

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 47·7°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, October 17, 10 a.m. Bar. 30·1. Temp. 60°. Weather, Raining.

Tar Distillate Sprays.

Fruit growers who have used the well-tested brands of tar distillate sprays as winter washes for fruit trees, are satisfied that these sprays constitute an invaluable means of reducing the damage done by insects to the fruit crops. This being the case, it is most desirable that the crude mixture of substances contained in tar distillate washes should be subjected to careful investigation with the object of discovering to which of the various ingredients of these washes their beneficently toxic effect is due. This investigation has been carried out in admirable manner by Mr. F. Tutin, at Long Ashton Agricultural and Horticultural Research Station.* Examination of the various ingredients obtained by the distillation of tar shows that they may be separated into several "fractions." Thus crude tar distillate contains a considerable quantity—some twenty-per cent.—of tar acids. These may be separated from the remainder of the tar distillate, which is then left as a mixture of neutral substances. Experiment shows that these acid substances, which are present in commercial washes, are of no use as toxic agents, to the eggs of injurious insects. The neutral residue left after the removal of the acids may be separated by heat into two fractions, one boiling at temperatures of from 190° to 280° C. and the other at temperatures of 280° to 360° C. These two fractions may be designated respectively as low neutral and high neutral. Emulsion made of original tar distillate, of low neutral and of high neutral, showed very remarkable differences when used as agents for destroying the eggs of the small winter moth. Whereas the emulsion for the crude tar distillate and for the low neutral fraction left a certain number of eggs undestroyed, that from the high neutral, that is, the fraction distilled at the high temperature (280° to 360° C.) killed all the eggs of the Small Winter Moth. Similar results were obtained by testing the toxicity of the several emulsified fractions on the eggs of the Permanent Apple Aphis, and the latter fact is the more important in that even the best commercial brands of tar distillate washes are inferior in killing power, so far, at all events, as the eggs of the Winter Moth are concerned. Mr. Tutin draws from these experiments the important conclusions, that the portion of the tar distillate boiling above 280° C. is more toxic to eggs than is the material of lower boiling point, and it is more toxic also than is the original crude distillate itself. Having isolated the effective material, Mr. Tutin's next task was to find a material which, when mixed with it, would produce, a good and permanent emulsion. Soaps were tried and found wanting in this respect and, indeed, it was found that the high neutral fraction is more difficult of emulsification than is the crude distillate. However, after much research, two sulphonated oils supplied by the British Dyestuffs Corporation, Limited, and known as Agral W.B. and Agral AX, were found to effect the emulsification of the one hundred per cent. toxic high neutral fraction. Thus, when one part of Agral W.B. and ten parts of high neutral tar oil are diluted with water to which a little caustic soda and carbonate of soda are added, a good and permanent emulsion is produced. Experiments made with this new wash showed it to be about double as effective as an egg killer than is an ordinary commercial wash, and moreover, the new high neutral wash has the additional advantage that it damages foliage far less than do the commercial tar distillate washes. All who use tar distillate washes know that risk of damage entailed by spraying fruit trees makes it essential to confine the use of these washes to winter when the trees are dormant. If it proves possible to use the new high neutral tar distillate washes in summer time as well, these discoveries will be of the greatest service to fruit culture. We hope, therefore, that so soon as the laboratory tests above described are confirmed by the large scale trials in the orchard which are now being carried out, the high neutral tar distillate washes will be put on the market.

Our Supplement Plate.—Paronychia capitata, a Pyrenean member of a family closely related to the Pinks, is a small plant but none the less attractive, especially when it is established and bears numerous heads of crowded white bracts as shown in the Supplement Plate that accompanies the present issue. It is just the kind of plant for clothing a space in the rock garden where a few of the daintier and smaller bulbs—species of Crocus, etc.—find a congenial home, as these are able to push their way through the Paronychia, and pay their debt of gratitude by flowering when their blossoms do not compete with the florescence of their protector.

R.H.S. International Exhibition of Garden Design and Conference.—On Wednesday, October 17, at 11.30 a.m., the Rt. Hon. The Earl of Crawford and Balcarres, K.T., F.R.S., who was introduced by Lord Lambourne, President of the Society, declared this exhibition open. In his opening speech, Lord Crawford emphasised the value of this pioneer effort on the part of the R.H.S., and spoke of the value of the sculptor's and architect's art in association with garden craft. The exhibition itself should appeal to all garden lovers, and all who can should certainly make an endeavour to visit it. The body of the new hall is filled with many fine examples of garden sculpture; the left aisle is devoted to exhibits of photographs and plans of famous gardens of various countries—France, Sweden, the Unites States of America, Holland and Germany—while the British Empire section occupies the aisle on the right-hand side of the hall, and includes, besides many fine examples of famous gardens in this country, displays from Canada, South Africa and Australia. On the first and second floors are exhibits which illustrate the history of horticulture in England, Italy, France and Spain. The old hall is devoted to exhibits of garden ornaments—sculptures, seats, pergolas, etc. We hope to publish a full report of the exhibition in our next issue.

Bridgewater Square, Cripplegate.—On October 15, the Lord Mayor of London formally declared the garden in the centre of Bridgewater Square, Cripplegate, open to the public for all time. This garden is all that remains of the once famous gardens of Bridgewater House, which was destroyed by fire in 1687, and was previously the London residence of the Earls and Dukes of Bridgewater. The history of this small garden has been chequered, but it has finally been secured and laid out as an open space. The local people formed a Preservation Committee and, with the aid of the City Parochial Foundation, the Poulter Trust, the Metropolitan Public Gardens Association, and some of the Livery Companies, collected the sum of £3,121 towards the cost of its purchase. The Corporation supplied the balance of over £2,000, spent £500 on laying it out as a public garden, and has undertaken the maintenance of it.

Chrysanthemum Displays in the London Parks.—The annual displays of Chrysanthemums in the London County Council's parks at Battersea, Finsbury, Southwark, Victoria and Waterlow Parks were opened to the public on Saturday, October 13, and will continue throughout November.

The Jones-Bateman Cup for Research in Fruit Growing.—The Secretary of the Royal Horticultural Society asks us to remind those who intend to compete for the Jones-Bateman Cup, which is offered for award for research in the growing of fruits, that accounts of their work must reach him not later than by October 31.

National Rose Society's Rose Trial Ground.—The new Rose Trial Ground will be in readiness to receive plants on and after November 1, and raisers of new varieties of Roses are cordially invited to send novelties of their own raising for the years 1926, 1927 and 1928. Six plants of each variety should be sent and the stock on which they are worked should be stated. In the case of climbing or rambling varieties, two plants only should be sent. Arrangements have been made to have the Roses planted immediately on arrival. Plants of Roses not yet in commerce will also be received and every care taken to ensure security. The garden is completely enclosed and will be under the personal supervision of the Hon. Secretary. All Roses, whether they have received an award or not, will be eligible—if considered by the Committee of Judges to be worthy—to receive a special award. Full particulars may be obtained from Mr. Courtney Page, N.R.S., 28, Victoria Street, Westminster.

International Pomological Congress at Liege, 1930.—The Belgian National Committee of Pomology is organising, in accord with the Central Committee of Agricultural Congresses, an International Congress to be held at Liége in 1930, on a date to coincide with the Exhibition of Fruits. The Congress will last two days, and a third day will be occupied by excursions to centres of fruit production and places of interest around Liége. Among the questions to be discussed will be methods of securing uniformity of nomenclature; degeneration in fruit trees; practical means to adopt for the destruction of pests; and observations on the effects of the different manures.

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* *Annual Report*, Agricultural and Horticultural Research Station, Long Ashton, Bristol.

Legacies to Gardeners.—The late Mrs. Isabel Clayton, of Chesters, Humshaugh, Northumberland, who died on April 27, left £50 to her gardener, Mr. James Cooker.—The Very Rev. Dr. William Page Roberts, of The Highlands, Shanklin, Isle of Wight, who died on August 17, left £20 to his gardener, Mr. Price.—The late Miss Salisbury Anne Charlotte' Rothe, of Nethrop House, Banbury, who died on September 5, left £50 to her gardener, Mr. Harold Chilton.

Mesembryanthemum.—Mr. N. E. Brown asks us to state that "Phyllobus" (p. 253) should read Phyllobolus.

Cropping versus Quality in Potatos.—Quality as a factor in the testing of seedling Potatos was the subject of an important discussion at a conference held at Ayr on the occasion of the annual inspection of seedlings raised by Messrs. McGill and Smith. A representative company, numbering over seventy, assembled at the trial grounds at Alloway Mill, where eighty-seven boxes were submitted for examination and each visitor was invited to select the best ten varieties in the order of merit. The voting revealed unanimity of opinion regarding No. 11,262, placed first on the list. This is a maincrop variety bred from an Arran Comrade—Doon Star cross, and was the only seedling in the Philpstoun trials which equalled Arran Consul and Arran Crest in cropping. No. 8,256 was another promising seedling obtained from a British Queen—Herald cross. In point of earliness it comes in between Epicure and British Queen, and being a heavy cropper is likely to displace the latter variety. What is believed to be a record yield for one root grown under field culture was obtained from No. 12,267, obtained by crossing Field-Marshal with No. 4,236 (Flourball × Majestic). The produce weighed 13 lbs. 15 ozs. ware, and 1 lb. 9 ozs. of seed and chats. At the conference, Mr. Thomas Anderson, of the Board of Agriculture, initiated a discussion on quality as a factor in seedlings. He maintained that in Potato breeding, size and weight should be the first consideration, while next in importance he placed resistance to virus diseases. Some people put quality first, but in his opinion quality should be left to take care of itself in the early stages. Mr. Watson, who is in charge of the Ayr trials, took a different view. He said they had almost reached the limit of production, and with the enormous crops that were being grown they began to wonder whe e the market was to be found unless the quality was tremendously improved. There was a ready outlet for Potatos if the quality was really good, and he thought they would have to test for this earlier in the career of a seedling than they had done in the past. The most important contribution to the debate was made by Mr. Gibb, Bishopton, a member of the Synonym Committee. Mr. Anderson, he said, always preached size and weight as if nothing else mattered, nevertheless Golden Wonder could always command from £3 to £5 per ton more than any other variety, so that if they got quality in a Potato they were assured of financial success, with an average crop of six to eight tons per acre. With all due respect to Mr. Anderson's opinion, he considered that the Synonym Committee would need to pay more attention to quality in future. Under the present system of testing he questioned if Kerr's Pink could have passed. That variety had never shown up well at East Craigs or Philpstoun, yet it was the only Potato which gave superb quality when well grown, and a good crop as well. He further expressed the opinion that the Synonym Committee would not get much credit by registering Arran Consul. Mr. McCullum and Mr. Miller, of the Board of Agriculture, agreed that quality was an important factor. The latter observed that in Scotland a mealy Potato was preferred, and judging by personal experience it was more easily digested than a wet one. Mr. Robb, of the Plant Breeding Station, Edinburgh, regarded Potato breeding as very much in the nature of a gamble, but he considered that they were playing for safety by trying to discover the hereditary qualities of the respective parents. The Chairman, Mr. McGill, remarked that although Great Scot, Epicure and Field-Marshal were included in the seedlings displayed that day, not a single vote was cast for any of these standard varieties.

Mr. W. Humphrey.—One of the most successful of modern Sweet Pea growers is Mr. W. Humphrey, whose portrait appears below. His gardening career was begun at Somerhill Gardens and Southwood Gardens; after a period at Southwood, he returned to Somerhill, where he was employed in the glass department for two years. He married early, and took a single-handed position at Marlfield, Tonbridge, with the late F. East, Esq., but a year or so later he became gardener to F. W. Franks, Esq., at Loampits, Tonbridge, and he has filled this position for twenty-two years. Mr. Humphrey's skill is not confined to Sweet Peas, but he has made a great feature of this popular flower, and on three occasions has won the *Daily Mail* Cup, and during the present year won the Sutton Cup at the exhibition of the National Sweet Pea Society, while over a score of Gold and Silver Medals give further evidence of his success as a grower and exhibitor. For twenty years Mr. Humphrey has been a member of the Tonbridge Gardeners' Society, and for the past ten years has been its Chairman. He is also a frequent lecturer on his favourite subject, having lectured at local societies at Redhill, Croydon, Chislehurst, Crowborough, Tunbridge Wells and many other places. He tells us that he has been a regular reader of *The Gardeners' Chronicle* for twenty-four years.

MR. W. HUMPHREY.

Horticultural Club.—A Club Dinner and Lecture has been arranged for Tuesday, October 30, at St. Ermin's Hotel, Caxton Street, Westminster, S.W.1. The Dinner will be at 6.30 p.m. for 7 p.m. Following the Dinner, Mr. Herbert Cowley, Editor of *Gardening Illustrated*, will lecture on "Plant Collecting in the Pyrenees," illustrated by lantern slides.

Horticultural Conference at Sutton Bonington. There was an excellent attendance at the Conference of Horticultural Organisers for the midland provinces, held recently at the Midland Agricultural and Dairy College, Sutton Bonington, when Sir William Lobjoit opened a discussion on "Some present day problems of Commercial Growers of Vegetables and Fruit." Sir William, at the outset, drew attention to the difficulty of finding suitable land in suitable situations, as the questions of water, labour supply, manure and markets had to be considered. Fortunately, whereas in the old days growers were limited to land in close proximity to towns, the motor has widened the area of choice. He considered it unfortunate in building schemes that fertile valleys were not reserved for the culture of garden produce on a large scale. Sir William subsequently drew attention to the excellent work done by research workers, the patience and persistence of whom he very much admired, also the propaganda work done by the county staffs. He mentioned a few diseases such as Leaf Stripe, in Tomatos, Leaf Spot in Cucumbers, etc., which are to a large extent under control, but he regretted that there were still so many diseases for which no prevention or remedy had yet been found that could be applied economically on a large scale. He also drew attention to the difficulty of obtaining pure seed stocks, and said numerous losses occur annually through the use of bad seeds. He was of opinion that many of the implements and machines now used in the colonies might be adapted for use by large vegetable growers in this country. Regarding distribution, he emphasised the necessity for the presentation of produce properly graded and of uniform quality, and considered that there was a real need for cheap non-returnable packages. He was of opinion that there is too much "blind-hole" consigning of produce, and that there is an urgent need for central depots. He favoured a development of the National Mark in connection with garden produce. In the subsequent discussion, Messrs. Roebuck and Stirrup, advisers for the area, pointed out that, having regard to the amount of time required for the solution of growers' problems, and the fact that year by year new diseases and pests spring up, it is fortunate that we have been able to hold our own in the matter of crop diseases. Mr. Murray, Horticultural Organiser for Lindsey, considered that the Ministry of Agriculture could help growers very much if they would establish a research station for vegetable culture, and tackle the question of synonyms, in the same way as they have done for Potatos at the Ormskirk trial ground.

National Sweet Pea Society.—The Annual General Meeting of the National Sweet Pea Society will be held in the Horticultural Hall, Vincent Square, Westminster, S.W.1, on Wednesday, October 31, 1928, commencing at 3 o'clock in the afternoon. Mr. G. H. Burt will propose:—That in Rule 9, line 5, after the words "Annual General Meeting" the words "No member shall be nominated unless his consent shall have been previously obtained," shall be inserted. The President, Mr. E. H. Christy, and the Chairman, Mr. Alfred Dawkins, will entertain the members to tea at the close of the meeting.

Perfume in Flowers.—At the first of the meetings arranged by the Birmingham and Midland Counties' Gardeners' Mutual Improvement Society, held at the Birmingham Chamber of Commerce and presided over by the Chairman, Mr. J. Smith, Superintendent of Parks for Birmingham, an extremely interesting lecture on the subject of "Perfume in Flowers" was given by Dr. Jessie B. Elliott, Lecturer on Botany at the University of Birmingham. Dr. Elliott described how the perfume of flowers assisted in the decomposition of deleterious matter and therefore promoted health, and she further explained how that perfume in flowers is due to volatile oils given off by petals, which combine with the oxygen in the atmosphere and result in the purification of the air. She also stated that perfume given off by flowers protected them from the severity of the sun by day, and afforded protection against the giving off of heat too quickly by the flowers at night. Another interesting point in her lecture was that white varieties of flowers are better perfumed than others, *i.e.*, one in six of white-flowered varieties of plants give off perfume, as compared with one in ten of red, and one in nineteen of blue. Dr. Elliott also discussed the question of colour in flowers and its association with insect attraction.

Imperial War Graves in France.—Mr. W. Dallimore, Kew, writes: "On the occasion of a recent visit to northern France, I was greatly impressed by the neatness and general upkeep of the British War Cemeteries, which are under the control of the Imperial War Graves Commission. Although the visit was not paid until October, a time when gardens usually begin to assume an end-of-the-season appearance, little evidence of that was apparent in the cemeteries. Lawns were carefully mown, grass edges neatly cut, very few weeds were to be seen, and there were still plenty of flowers. Roses were very beautiful, particularly the Polyantha varieties, such as Katherine Zermet, Mrs. W. Cutbush, Orleans, Triomphe Orleanaise and others. Each variety was planted separately on a long line of graves and these, viewed from end to end of the enclosures, appeared as long borders of distinct colours. Hybrid Teas were also prominent, Red Letter Day being particularly so within the bounds of the Indian War Memorial. In addition to Roses, various autumn-flowering herbaceous plants were effective. In the cemetery at Warlencourt, Roses were especially beautiful. Wall plants in this cemetery were also attractive. Cotoneaster horizontalis was an outstanding feature. It was densely covered with bright red berries which had an effective setting among the glossy, dark green leaves. In other cemeteries this and other Cotoneasters were seen as well-grown and well-berried bushes, perhaps the best effect seen being in Adelaide Cemetery, where a number of species have been planted with other shrubs on what was originally a bare, loose, chalk bank. This is now covered with luxuriant growth, among which Cotoneaster horizontalis, C. Franchetii and C. microphylla are prominent. Low hedges of Lonicera nitida were models of neatness in Merville Cemetery, where they constitute a distinct feature. In some cemeteries a discordant note was struck by wreaths of artificial flowers that had been carried in by well-intentioned visitors. They are quite out of place and have the effect of depreciating the general air of dignity which the builders have sought to impart to these national war grave enclosures, while they detract from the beauty of the natural flowers near by. It is to be hoped that the use of such emblems will not become general. One is inclined to think that in the near future some of the larger-growing trees, such as Poplars, may have to be removed, otherwise they will soon grow too large for their positions. After seeing the cemeteries one feels bound to compliment the Chief Horticultural Officer and his staff for the highly satisfactory results they have obtained in a comparatively short space of time, often in the face of very great difficulties. The care that is taken with the graves of those who fell in the Great War must be very comforting to bereaved relatives."

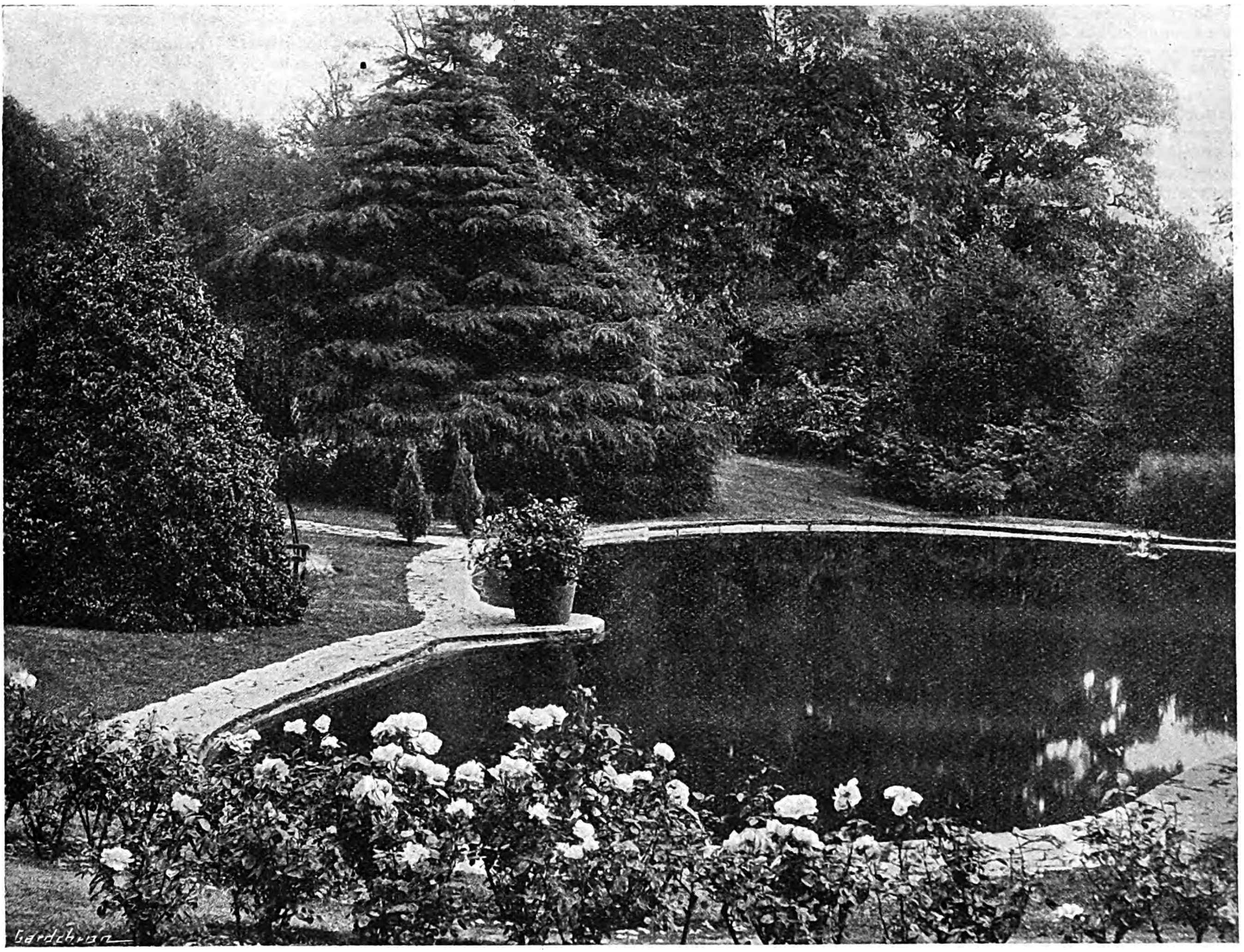

FIG. 142.—CAEN WOOD TOWERS; THE BATHING POOL.
(see p. 311.)

Appointments for the Ensuing Week.—Monday, October 22: National Chrysanthemum Society's Floral and Executive Committees meet; Harrogate Horticultural Association meets; Birmingham and Midland Gardeners' Association lecture. Wednesday, October 24: Wimbledon Gardeners' Society meets; Pangbourne and District Gardeners' Association's lecture. Thursday, October 25: Holland (Lincs.) County Potato Show; Paisley Florists' Society meets; Bideford Horticultural Society meets. Saturday, October 27: British Mycological Society's Foray with British Ecological Society at Burnham Beeches; Leeds Paxton Society meets.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Botanical Expedition to Oregon.*—The Committee have issued a thin quarto pamphlet consisting of two leaves of letterpress, and five good plates, explaining the names, etc., of the seeds in the last consignment from Mr. Jeffrey. The plates represent cones and leaves of the Coniferous plants; respecting which we must remark that "Pinus Murrayana *Oreg. Comm.* (!!)" is P. muricata, and "Picea lasiocarpa" Abies amabilis. The others were previously unknown with the exception, perhaps, of "Thuja Craigiana *Oreg. Comm.*," which must be compared with T. gigantea of Nuttall. It is true that Sir W. Hooker and Dr. Lindley are stated to have pronounced it new; but, we presume, they merely intended to say that it is new to gardens. Our own herbarium being inaccessible just now, we are unable to examine the question. For the same reason we are obliged to leave as we find them the other new names, published under the authority of *Oreg., Comm.*, whoever that gentleman may be. It appears that the managers of Mr. Jeffrey's expedition are desirous of engaging his services for another year, and subscribers are invited to signify whether the proposal is acceptable to them or not. *Gard. Chron., October* 15, 1853.

Publications Received.—*Bulletin de la Société Botanique de France;* Rue de Grenelle, 84, Paris. — *The Unconventional Garden,* by Sir Arthur F. Hort, Bart.; Edward Arnold and Co., Maddox Street, W.1.; price 10s. 6d. net.—*Fifty-eighth Annual Report of the Entomological Society of Ontario,* 1927; Toronto. — *Quarterly Journal of Forestry*; The Red Lion Press, Ltd., 3, Pemberton Row, E.C.4; price to non-members, 2s. 6d.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

Dendrobium Seedlings.—Plants that are not yet of flowering size should be kept in the warm house. Some of them are growing again, under the genial out-of-door conditions experienced lately, and these should be given every encouragement and should receive all the light available, and generous treatment to help them to complete their growths. Under these conditions the plants do not rest long and soon commence to grow again, and when the days commence to lengthen in January they should receive attention with regard to fresh rooting-material.

The Warm House.—As the end of the growing season for many plants approaches, water should not be required in such large quantities at the roots of Angraecums, Aerides, Saccolabiums, etc.; the amount should be gradually reduced as the white film covers the roots, by which time sufficient only is needed to prevent shrivelling of the leaves. Stanhopeas, Mormodes and Acinetas, that have completed their growths, only require water at long intervals to keep them in a plump condition. The plants in this house should be accustomed to more light, and air on all favourable occasions, to harden their growths so that they may withstand the trying conditions of the coming winter.

Vanda coerulea.—This beautiful species requires all the available light at this season and abundance of fresh air on all favourable occasions. Less atmospheric moisture is necessary now, especially when air may be admitted throughout the night. Ample supplies of water are still required at the roots until the flowers are removed; afterwards, very little water is needed as the white film seals over the root tips, but the foliage should not be allowed to shrivel. This Orchid should winter well in a house with an intermediate temperature. Black spot on the leaves may occur if much moisture is allowed at the roots or in the atmosphere until signs of activity are showing in the early spring.

Vanda Kimballiana.—As the blooms of this free-flowering species commence to open, the plants should be removed to a slightly warmer and drier position, where the flowers should expand more readily and be less susceptible to spot. After the flowering period only sufficient water is required to prevent the leaves shrivelling, in a position at the cool end of the intermediate house.

Thunias.—Plants of these graceful species have now completed their season's growth and, being well-ripened, should soon lose their leaves, after which they require a decided rest and should not need water until growth commences again in the spring. The plants should be placed in a light position, where the temperature does not fall below 50°, under which conditions they should winter successfully.

THE KITCHEN GARDEN.

By Allan Falconer, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Brassicas.—Advantage should be taken on dry days to go through the Brassica quarters to clear away all leaves which are turning yellow or are decayed; especially is this necessary among Brussels Sprouts, as many of the buttons may be spoilt through the rotting of the leaves. While I do not advise the wholesale stripping of the leaves, it is an advantage to take some of the lower leaves off, to let some light and air into the plants, which sometimes, in spite of plenty of room between them, develop large, leafy heads, and until severe weather reduces the foliage, it is a somewhat unpleasant task gathering the sprouts. At the same time, any sprouts which have a tendency to open should be picked and used, to enable the rest to develop into perfect sprouts. In this particular district, where many acres of Brussels Sprouts are grown for market, much stress is laid on strains, and every reputable grower is proud of his own particular strain; considering the enormous quantities of high-class produce put on the markets, much may be said for this method of saving their own seeds each year from selected plants, which are marked so soon as the sprouts are developed, and later lifted with a ball of soil and planted in a convenient spot to produce seeds the following summer. In a good strain of Brussels Sprouts there is a slight tinge of red in the leaves, and this is said to be obtained by allowing a few Red Cabbages to flower at the same time as the Brussels Sprouts, some distance away, so that bees and other insects may innoculate the flowers and give that solidity to the sprouts which is so desirable and which is so common in Red Cabbage. This point is watched very closely and judgment is necessary not to overdo it, once every few years usually meets the case and my own observation has proved to me that the method is a valuable one, as good strains are a big asset. Now that frosts have occurred, any Red Cabbages that have attained useful size may be used for pickling, while they are in good condition.

Celeriac.—It is advisable, especially on heavy land, to lift this crop now and to lay the roots in sand, close together, in a sheltered spot. Cover the bulbs well, and leave the tops intact, as these make a good covering from frosts, which, unless excessive, should not harm the crop. Fortunately, more attention is being paid to the many valuable dishes which may be provided from vegetables, and I would strongly advise every gardener to become conversant with methods of producing as many changes in the menu as possible, for it is really surprising, provided the cook is interested (and it is most desirable that the gardener and the cook should work amicably together) how many vegetables, which are little known, are easy to produce. The general public are gradually being educated up to the value of the many varieties of vegetables which may be produced, by the wonderful exhibits which some of our leading seedsmen and exhibitors go to great pains to stage.

Lettuce and Endive.—Any plants which are still in the open ground and have made good growth, may be lifted with good balls of soil and planted closely together in frames.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Muscat Grapes.—The berries of late Muscat Grapes are now ripe, the season having been in favour of producing good colour. Growers are always anxious to preserve these Grapes so long as possible, and to attain this end some care is necessary. In the first place, one should guard against excessive fire heat, but at the same time, sufficient warmth is required to keep the atmosphere dry, as moisture in the air is liable to cause injury to the berries, this Grape being very liable to damping during the fall of the leaf. A gentle warmth from the hot-water pipes during dull, sunless weather is a necessity, with a moderate circulation of air whenever the outside conditions allow. If the borders appear to be excessively dry, water should be given sparingly, and this should be done early in the morning, when there is a promise of a fine day. Observation and attention to these small details should do much to keep this Grape in good condition for some time to come.

Ripe Grapes.—In most establishments the late Chrysanthemums generally have to be housed in vineries and, if such is the case, and if the greater number of the bunches of Grapes have been used, the remainder may be cut and stored in a fairly dark room, where sufficient warmth is available to dispel damp. The bunches should be cut with a good length of stem attached, which should be placed in bottles containing water. Examine the bunches frequently and remove any berries that show the least sign of decay, for if this is neglected the bunches soon become disfigured and spoiled. When all the bunches have been removed, the borders should be given a good soaking of water, if necessary; as a rule, the borders dry out considerably when ripe Grapes are allowed to remain on the vines for any length of time. Houses containing late Grapes should be kept fairly dry and, should the borders require more moisture they should receive attention now, before cold, sunless weather arrives. The surface roots may be watered moderately with tepid water. If late laterals are still growing these should be pinched back, as they tend to keep the roots active and retard the ripening of the larger leaves.

Cucumbers.—Cucumbers which were planted last month should now be growing freely and require frequent attention with regard to tying and regulating the shoots. It is unwise to crop these plants too heavily at this season of the year. The fruits should be cut in their young state, and all that are deformed should be removed so soon as detected. Top dress the soil on frequent occasions with rich compost to encourage surface rooting. Very little air should be given at this season of the year, but in sunny weather the top ventilators may be opened a little for half an hour or so. Maintain a night temperature of 65°; on warm nights it may exceed this without injuring the Cucumbers.

PLANTS UNDER GLASS.

By J. Coutts, Assistant Curator, Royal Gardens, Kew.

Watering.—During the advancing winter months much care should be exercised in affording water to plants, for as a general rule more damage is done by over-watering than by allowing the soil to become too dry. Over-watering prevents the proper aeration of the soil, which is so essential for the well-being of plants, whether they are planted out or growing in pots. Watering generally should be done early in the day to allow the superfluous moisture to evaporate before night. This is of special importance during dull spells and still more important during fogs, when less damage results if the atmosphere is kept dry. Here I refer specially to the fogs which afflict the cultivator in the neighbourhood of London and other large manufacturing towns. If plants are kept fairly dry at the roots they are able to withstand low temperatures better than if they are in a moist condition.

Shrubs for Forcing.—There are a large number of hardy trees and shrubs that are well adapted for forcing purposes. They should be placed in receptacles of suitable size so soon as received, if purchased, while home-grown plants should be lifted and potted so soon as the foliage is shed. While some plants used for this purpose may be dug up from the open and potted, others, such as Lilac, Pyrus, Prunus, etc., are only seen at their best when they have been specially grown in pots for this purpose. For example, a pot-grown Lilac, in a cool conservatory, will keep in good condition for several weeks, while one lifted from the open lasts little more than a week. Azaleas and Rhododendrons, and other plants with fine root-systems, may safely be lifted from the open. After being potted they should be stood in the open, plunging the pots to the rims in ashes and covering them with hay to prevent damage to the pots during severe frosts. The most useful subjects for this purpose are Pyrus floribunda var. atrosanguinea, the newer P. purpurea, P. Scheideckeri, Prunus triloba var. fl. pl., which may be obtained in standard form as well as bushes—although purchased plants are usually budded or grafted, this plant may be successfully and easily raised by means of cuttings, which root readily if taken from forced plants—also P. japonica in pink and white, and P. Pissardii. Other plants are Wistaria sinensis, Spiraea prunifolia var. fl. pl., S. Van Houttei and S. Thunbergii, Deutzia gracilis, Staphylea colchica, Laburnum Vossii, Viburnum Carlesii, V. Opulus sterile and V. plicatum, Prunus Persica in several double-flowering varieties, Japanese Cherries, Kerria japonica var. flore pleno, and Cytisus in variety, including C. praecox and C. praecox alba, C. Andreanus, C. Dallimorei, C. Daisy Hill, C. Firefly and C. Butterfly. The foregoing by no means exhaust the list, but serve to show that there is ample variety.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to the Duke of Devonshire, Chatsworth, Bakewell, Derbyshire.

Preparations for Rose Planting.—Where the planting of new beds or borders is contemplated, no time should be lost before preparing the ground, and, as Roses should be considered to be permanent occupants of the site, it is very necessary that a thorough preparation of the soil should be given in the first place. Although Roses may be planted in favourable weather and in the drier soils throughout the winter and on to March and April without fear of failure if extra precautions are taken, the best results are obtained from Roses planted during October and November. At that time the ground is still somewhat warm, and this should encourage quicker root-action—and the Roses are then better prepared for the winter. Another advantage is that when the Roses are procured from a nursery, the early-comer has the pick of the stock. This being the case, the work of trenching should be done forthwith, so that the ground may become settled before the actual time for planting arrives. A properly drained position is essential. If the ground is not naturally well-drained steps should be taken to remedy this defect, as a water-logged soil in winter is fatal to Roses. The best natural soil for Roses is a strong and rich loam, inclined to heaviness; light, sandy or gravelly soils are unsuitable, as these are usually very hot in summer; but where it is intended to plant Roses and the soil is unsuitable, this may be remedied by removing a good portion of the existing soil and replacing it with a suitable and well prepared compost. As the trenching proceeds plenty of rotten farmyard manure should be dug into the bottom layers of soil, but it should not be allowed to come into immediate contact with the roots. These will find their way down to the manure as they become fully-established. When selecting the site for a Rose garden or beds, the question of shelter should be considered. Shelter from the north and east is imperative, and cold, draughty positions or wind-swept corners should be avoided for all but the hardiest of Roses. The present day method is to plant in beds or groups of one shade of colour, as, if many varieties are mixed in a bed, the growth is distinctly uneven, for different varieties differ widely in habit of growth. In any large scheme of Rose planting well-tried varieties should be relied on, leaving the novelties for borders where their peculiar requirements and characteristics may be studied. Small beds or borders may with advantage be filled with the Polyantha Roses, as these make a charming change and bloom almost continuously right through the season. There is a good choice of varieties in many shades of colour to suit any particular requirements.

Planting Roses in the Wild Garden.—Many of the stronger-growing and hardy varieties of the Wichuraiana group, and other hardy climbers, are splendid subjects for planting in the wild garden or by woodland walks. Old tree stumps or a cluster of old roots should soon become a picture of beauty if some of these Roses are planted around them early in the autumn. The Penzance Briars are of great utility for this purpose. Prepare the ground for their reception as recommended above, and if the natural soil is good enough, work in a little bone-meal with some finer material just to give them a start. Little attention is necessary for Roses in such positions; they should be left to grow naturally and unrestricted if possible.

HARDY FRUIT GARDEN.

By T. E. Tomalin, Gardener to the Earl of Bessborough, Stansted Park, Emsworth, Sussex.

Plums and Gages on Walls.—The late fruits on wall Plum trees should now have been gathered and preparations made to lift and root-prune any young trees which have made unduly strong growths during the past season. This operation is performed in exactly the same manner as advised for young Peach trees, and fully described in this column in the issue for September 29. It is always advisable to keep a supply of fine soil under cover at this season, so that if showery weather prevails the work may be proceeded with during the fine intervals. The soil for young Plum trees should not be too rich, but should consist of good loam with enough mortar-rubble or broken bricks added to render it porous, and a sprinkling of bone-meal to induce the formation of sturdy and healthy growths. Older trees, which have shown signs of exhaustion, may often be restored to a healthy condition by the removal of a few inches of the top soil down to the fibrous roots, and its replacement with good compost mixed as above, the whole being made quite firm about the roots again. Any necessary rearrangement of the wall trees should be carried out at the same time, and, in this connection, it is wise to maintain a reserve of young trees for this purpose by purchasing two or three annually. These may be kept trained on, perhaps, an outside wall or fence, from whence they may be moved at this season to fill the gaps in the more important positions. If the work of removal is carefully performed and the trees sprayed occasionally when in their new positions until the leaves have fallen, new roots should form quickly and no interruption to the cropping powers of the trees should ensue. Where new plantations are contemplated the border should be thoroughly dug and the soil renewed, or in any case enriched, by the addition of new loam and a good sprinkling of bone-meal. Adequate drainage should be provided, unless the garden is on a naturally well-drained subsoil, for water-logged borders are fatal to all the choicer varieties of Plums. Planting should be done in early autumn for preference, but, if this is not possible, it may be performed at any time before March, when the soil is in suitable condition, although the later planted trees may not do so well for the first season as those planted in autumn. A selection of the best varieties for succession should include the following, in their order of ripening:—For dessert, Oullins' Gage, Denniston's Superb, Early Transparent Gage, Jefferson, Kirke's, Count Althann's Gage, Purple Gage, Reine Claude de Bavay, Coe's Golden Drop, Coe's Violet and Late Orange. For cooking: Early River's, Early Orleans, Czar, Belle de Louvain, Victoria, Pond's Seedling, Monarch, White Magnum Bonum and President. These should ensure a succession of fruits from late July until October.

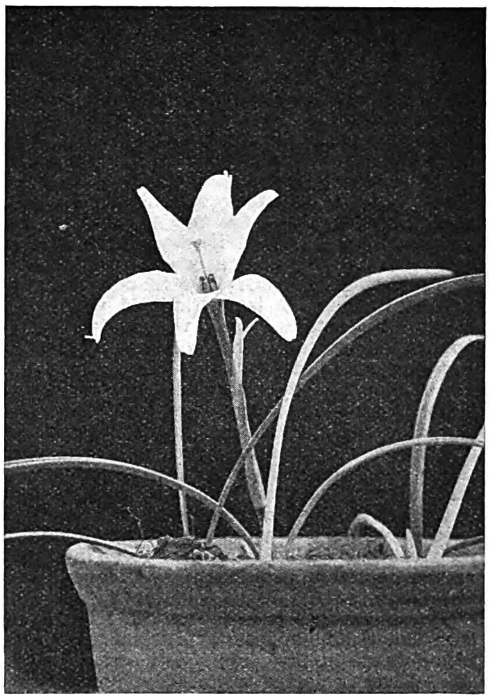

FIG. 143.—COOPERIA ALBICANS.

(see p. 306.)

Quinces.—Where these fruits are in demand over a long season, for flavouring purposes, they should be allowed to mature thoroughly on the trees, after which they should keep well in store. For Quince jelly they are probably best if picked before they are perfectly ripe.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener at Jordanhill Training Centre, Glasgow.

Autumn Tints.—The present season has been exceptionally good for the production of those glorious shades of colour which the leaves of certain trees and shrubs assume before they are ruthlessly swept off by the autumnal gales. Climbers also are very fine this season, and among these the well-known Ampelopsis Veitchii (Vitis inconstans) and other members of the family, including V. Coignetiae and V. Henryana, make a wonderful display where space permits of their extended cultivation. Notes should be taken now of the best autumn colouring plants, so well as of prominent sites for their reception, so that their effect may be seen from a distance. Nothing could be finer than large groups of Berberis Thunbergii when planted by the edge of still water, its fiery red foliage during the autumn months being reflected therein and the effect enhanced. A background of Cupressus or other Coniferous trees is of inestimable value in showing off the glory of Cercidiphyllum japonicum, but care should be taken to ensure that the best-coloured form of this fine shrub is obtained, as an inferior variety is on the market, which, to say the least of it, is very disappointing. Acer nikoense is another small tree which pays handsomely for a well-selected site, its pale green foliage gradually lighting up during October until it appears almost like tongues of fire. The Rhus family is well-known also, and where the commoner R. Cotinus has succeeded, R. cotinioides, with larger leaves, should be given a trial. Many other plants, such as Azaleas and Parrotia persica, so well as the common wild Cherry and Horse Chestnut, all combine to brighten the garden during the rapidly shortening days.

Root Crops.—Although a few degrees of frost should do the Beet crops no harm, it is advisable to get them lifted and stored before really hard frosts occur, and in lifting tap-rooted varieties, some care is necessary to avoid injury to the roots, which, in most varieties, results in "bleeding." A non-bleeding variety is grown extensively in the north, which goes by the name of Bell's Non-Bleeding, and this variety may be cut in two before cooking with very little loss of colour or quality. The Turnip-rooted types of Beet, although principally sown for early use, may also be grown as main-crops, and keep in excellent condition if stored in the usual way. Avoid storing any very coarse roots, also those that show evidence of running to seed, as these are never satisfactory, remaining hard in texture and unappetising when cooked. Carrots should also be lifted now and stored, selecting the sound roots only and rejecting all split or bolted specimens. The different varieties are best kept separate, and the second-early sorts placed in such a position that they may be used first. Carrots grown on sandy soil keep in excellent condition if stored in narrow clamps with plenty of sand among them and a good covering on top, but are sometimes the cause of great vexation and disappointment if stored in large heaps.

BULB GARDEN.

ORNITHOGALUM NUTANS.

The comparatively few hardy Ornithogalums which are in cultivation receive but scant notice from the many. This is largely due, I think, to the fecundity of the genus, as a whole, and mainly because O. umbellatum, the best-known of the hardy species, is amazingly prolific, both by offsets and seedlings. This was much more common in gardens years ago, and it was grown in many cottage gardens, where it was allowed to spread of its own free will. Although quite a cheap bulb and procurable by the hundred or the dozen at quite a low price, the allied O. nutans never seems to have gained a place in gardens to any extent. O. nutans is a most attractive plant when grown among low carpeting or flowering subjects, this being advisable because of the withering of its leaves before the flowers are properly displayed. The species may confidently be recommended for planting in semi-wild places or in spare corners; but it may be employed with advantage in large rockwork, where it may be kept within reasonable bounds. It is much less prolific than O. umbellatum.

O. nutans grows to about a foot or rather less in height, and the loose spikes of drooping flowers are quite attractive, the individual blooms being rather starry-bell-shaped and white, striped on the outside with green, and at a little distance looking as if silvered. The flowers open in April and May. The variety O. n. Boucheanum, if in cultivation, does not appear to be offered. It has larger flowers. O. nutans, although a native of southern Europe, like many other plants from that source, is quite hardy. Bulbs may be procured and planted up to the end of October, at a depth of three inches. O. nutans looks particularly well when planted at a height about level with the eye. It was figured in the *Bot. Mag.*, t. 269.

FRITILLARIA ASKABADENSIS.

It is a pleasure to learn that Fritillaria askabadensis, almost unknown and not, to my knowledge, obtainable in the trade for a number of years, is again in commerce; and I hope to have the pleasure of flowering it once more next year. It is rather surprising that it has not been in commerce for some time, seeing that it was figured in the *Bot. Mag.*, t. 7,850, and in *Flora and Sylva*, for July, 1903. It is omitted, however, from many works of reference. It has been well said that it is a noble-looking plant, allied to F. imperialis and growing four or five feet high. The flowers, which are arranged like those of the Crown Imperial, do not possess the brilliant colouring of the forms of F. imperialis, and are described as a kind of greenish-yellow, called by some sulphur-white. I think the latter more nearly conveys the impression of the colour of this fine Fritillaria. No one can assert that this is a showy plant, but there is about it a nobility which compels attention and a group of three or more plants looks well in grass or in a mixed border. It flowers in March or April. A native of Asiatic Russia, it should have a rather light and well-drained soil. It should be planted five or six inches deep at least. *S. Arnott.*

COOPERIA ALBICANS.

Some months ago I received from friends in Peru some bulbs which had been collected for me on the hills above Mollendo, where they are known as "Amancaes."

I distributed the bulbs among various botanic gardens and some friends, and the first to obtain a flower was Sir William Lawrence, who had planted his in the open at Burford. He sent the flower to Kew for identification, and I received the following letter from Dr. Hill on the subject: "In reply to your letter of September 18, the bulbs of 'flor de amancaes' from Mollendo have now been identified definitely as Cooperia albicans, Sprague. This is a new name for Zephyranthes albicans, Baker (Pyrolirion albicans, Herb.), a species which had previously been known only from the description and figure given two hundred years ago by Feuillee under the name Lilio-Narcissus flore albicante, tubo praelongo (*Journ.*, Vol. III; *Hist. Pl. Medic*, p. 29, t. 30, 1725). Feuillee's plant was from Ylo (Ilo) south of Mollendo. Cooperia has hitherto been supposed to be confined to North America, though Herbert suggested that Feuillee's plant might possibly belong to that genus, instead of Pyrolirion."

This plant has since then flowered with me, also at the Botanic Garden, Edinburgh, and with the Hon. Robert James. The flower, as shown in the accompanying photograph (Fig. 143) of my plants, is pure satiny-white, with reflexed segments which are three inches in diameter when fully open. They are very strongly-scented and the flower and stem are four inches high. This Amaryllid grows in an arid country where it hardly ever rains, and therefore requires very little water. I lost several bulbs through the injudicious use of the watering-can before the roots had developed. In its natural state it flowers after the first light shower or heavy dews in June of July. *Major Albert Pam, Wormley Bury, Broxbourne.*

FLOWER GARDEN.

VARIOUS MECONOPSIS.

Several of the members of this genus of Papaveraceous plants are handsome subjects for garden decoration, and in well-prepared positions, sheltered from drying winds and fierce sunshine, where evaporation is not too rapid, they attain their full stature and display their charms to the fullest extent. Nearly all of them are found at high altitudes and it is not always easy to acclimatise them under our conditions, but many of them succeed if given a rich, moist soil and partially shaded conditions. Even if it is sometimes necessary to coax and woo these beautiful plants, it is well repaid when good results are obtained, and the grower should not be discouraged if the first spot chosen does not give entire satisfaction; for in a position not far away they may thrive to perfection. That they like abundance of moisture is certain, but it is equally certain that they abhor anything approaching stagnation, and although some shade seems desirable, the position chosen for them should be free from the drip of trees. In the partially shaded glades of the woodland garden, where the soil is light yet retains its moisture through being naturally rich in organic matter, suitable positions may frequently be found for them.

Most of the species come from the Himalayas; they are quite hardy and are best treated as biennials, as in the majority of cases they die after flowering and setting seeds. Probably the best-known member of the genus is M. Wallichii, a truly magnificent plant with beautiful, much divided foliage which is covered with silky hairs. Under good conditions of cultivation this plant frequently reaches a height of five or six feet, its tall, branching stems bearing numbers of delightful, satiny-blue flowers of great attraction.

M. aculeata, a less-branched, smaller but equally desirable plant, forms a rosette of bright green leaves, covered with fine, silvery hairs, from which arises a loose terminal panicle of delicate mauve flowers, each with a cluster of golden stamens in the centre. The flowers open in succession from the base upwards, giving quite a long season of display. M. latifolia is a plant of similar habit but the foliage is covered with stiff bristles and the flowers are of a rather more purple hue.

M. Baileyii is a recent introduction of great merit, with all the attributes of a desirable garden plant — robust constitution, sturdy growth and free-flowering habit—while its flowers are of a most attractive and telling shade of blue.

M. cambrica, the Welsh Poppy, with its pale yellow flowers, is of much smaller dimensions than the Asiatic species, but an extremely pretty plant. It is a very fertile plant and generally spreads in an astonishing manner where conditions suit it; care should be taken in its management if planted in the rockery, or it may encroach on other plants. *W. A.*

ALPINE GARDEN.

PATRINIA PALMATA.

I am not in agreement with the ordinary advice given with regard to the cultivation of Patrinia palmata. It is generally recommended that it should be grown in a bog or a cool, moist place between stones. In such places Patrinia palmata is disposed to grow rather too tall, and it is much prettier if given poorer fare.

I like it better in the moraine, especially one receiving the sun early and until well on in the afternoon. Here it will creep about a little, but not rampantly, sending up its pretty, glossy, finely-divided leaves and sprays of bright yellow blooms so late as August and September, when flowers in the rock garden or moraine grow fewer. It is recommended for the wilder places by Farrer, but if grown as I suggest it is worthy of the position, especially as its late flowering gives it a special value. I am not aware that seeds are offered, but it may be increased by division. I may add that in the moraine referred to there is some old mortar-rubble mixed with the whinstone chips and soil. P. palmata is perfectly hardy.

ANDROSACE CARNEA VAR. LAGGERI.

This delightful Androsace is one of a small group impervious to winter damp—some others being A. carnea, A. c. brigantiaca and A. Vitaliana (Douglasia Vitaliana)—their leaves being innocent of the fine wool or down so characteristic of the major number of Androsaces. A. c. Laggeri is a Pyrenean plant, forming clusters of narrow, pointed leaves, and from among these arise dainty little heads of six or eight flowers, bright pink and paler towards the centre. It is a very easily-grown species; it dislikes lime and thrives in sandy soil in partial shade, and is one of the very earliest to flower; it may be propagated from seeds or cuttings.

A. sempervivoides is a most beautiful little species, also very easily grown and bearing in May and June, clusters of bright rose-pink flowers carried on sturdy little stems; this species, from Kashmir and western Thibet, where it occurs at 11,000 feet elevation, is quite happy in well-drained gritty loam and is thankful for a little shelter from excessive winter damp. It enjoys a sunny spot, and if so placed the dense rosettes will "carry on" for years with a minimum of attention.

VIOLA PEDATA.

The Bird's-foot Violet enjoys sandy peat and a small colony of this North American species will create a feature of unusual interest and of much beauty; the somewhat variable flowers, about one inch across, pale or deep mauve, purple or blue, are held well above the deeply-divided leaves and are freely produced in a partially-shaded situation on the rock-garden.

The variety bicolor is exceedingly pretty; the flowers are larger than those of the type and arranged somewhat like those of the Pansy, the two upper petals being rich velvety-purple, the three lower, delicate lilac or blush. The variety is rare even in its native haunts, but the type is quite frequent in light, sandy soils in the northern States of America.

These delightful Violas are very attractive when grown in pans in a cold frame or in the alpine house, and may be satisfactorily grown in this way; the plants flower over a considerable period in summer and may be propagated by seeds or division. *Ralph E. Arnold.*

HARDY FLOWER BORDER.

POTENTILLA FRUTICOSA VAR. FARRERI.

This neat-growing, shrubby Potentilla is a splendid subject for planting at the front of a sunny border. The bright yellow flowers are produced abundantly from June until autumn. Few shrubs give such a liberal display of blooms over so long a period. A well deserved Award of Merit was granted to this excellent introduction in 1922. *Charles Hodgson.*

TREES AND SHRUBS.

PEROVSKIA ATRIPLICIFOLIA.

This charming shrub, one of the four species of Perovskia, is a native of the Himalayas, and certainly merits a position in one's garden. Flowering from August to September on the current year's growths, the flowers, lavender-blue in colour, are produced in a large panicle of about one foot to eighteen inches high, and are borne on the flower stems in whorls of two to six.

They are naturally very small, being typical of the Labiate family. The stem and flowering stalks are hoary and erect-growing, attaining a height of three to five feet, and are of very attractive appearance, being silvery-grey in colour, thus creating a pleasing contrast with the flowers. The leaves, as the specific name suggests, are small, incised, lanceolate and almost glabrous. The whole plant has rather a pleasant odour, which one associates with Salvia officinalis.

The propagation of this shrub is quite simple, for soft-wooded cuttings taken in July and kept in gentle heat, root easily. Most of the upper part of the current year's growths, being tender and soft, die off in the winter. It should therefore be pruned back to the woody portions of stem and branches each spring, in order to produce fresh growth for flowering in the late summer. *R. E. Moore, Botanic Garden, Cambridge.*

ACTINIDIA CHINENSIS.

Having read Mr. Arnold's article on this very handsome and free-growing Chinese creeper (p. 208), I agree with all his remarks about it, having grown it while at Weston, Hertfordshire, and also in these gardens, and have always found it to flower freely. The blossoms are not only handsome, but also delightfully fragrant and forcibly remind one of Orange blossom.

At Weston, I grew Actinidia chinensis foemina and A. c. mascula side by side, and in consequence the fruits set and swelled to the size of small Walnuts, but never ripened sufficiently to eat. Here, we have only A. c. foemina, which blooms profusely, and fruits-form, but they do not swell. In both gardens this creeper is trained over pergolas.

To induce the plants to produce flowers, I suggest that it is a good plan to spur back all the superfluous growths during the summer; in fact, all the necessary pruning should be done then, for if left until late winter or spring, the cut growths may bleed profusely. *R. H. Crockford, Horsley Hall Gardens, Gresford, North Wales.*

BERBERIS PRUINOSA

This strong-growing Barberry ranks among the most attractive of the evergreen species, and no doubt, when it becomes better-known, it will be planted more extensively. The species was first described by Franchet in 1886, in the *Bull. Soc. Bot. France*, Vol. XXXIII, p. 387, and later, in 1904, by C. Schneider in *Ill. Hant. Lanbholzk*, Vol. I, p. 301, Fig. 196 a-d; it was introduced to France by the Abbé Delavay, who was responsible for the introduction of so many subjects to cultivation from China, in 1886, and three years later it arrived at Kew. Since that date several plant collectors have sent seeds of it home from China, and it is to be hoped that it will soon become more plentiful.

B. pruinosa is quite a distinct species, producing stiff, erect shoots of a greyish-brown colour and attaining a height of six feet or more; the branches are furnished with three-pronged spines, which are stout and sharply-pointed and nearly an inch in length. The leathery, light, sometimes yellowish-green, glossy leaves, which are often greyish-white on the undersides, are produced in clusters of three or five; they are up to three inches in length and one-half to one-and-a-half inch wide, oval or obovate in shape, and with margins armed with small spines. The flowers, lemon-yellow in colour, make this species quite an effective subject during late April and early May, for they are usually produced freely in dense clusters of so many as twenty blooms, and these are followed by even more attractive fruits, which are black, but are covered with a thick, bluish-white bloom—hence the specific name of the species—and are usually ripe by the end of September, often remaining attractive until the New Year is well advanced.

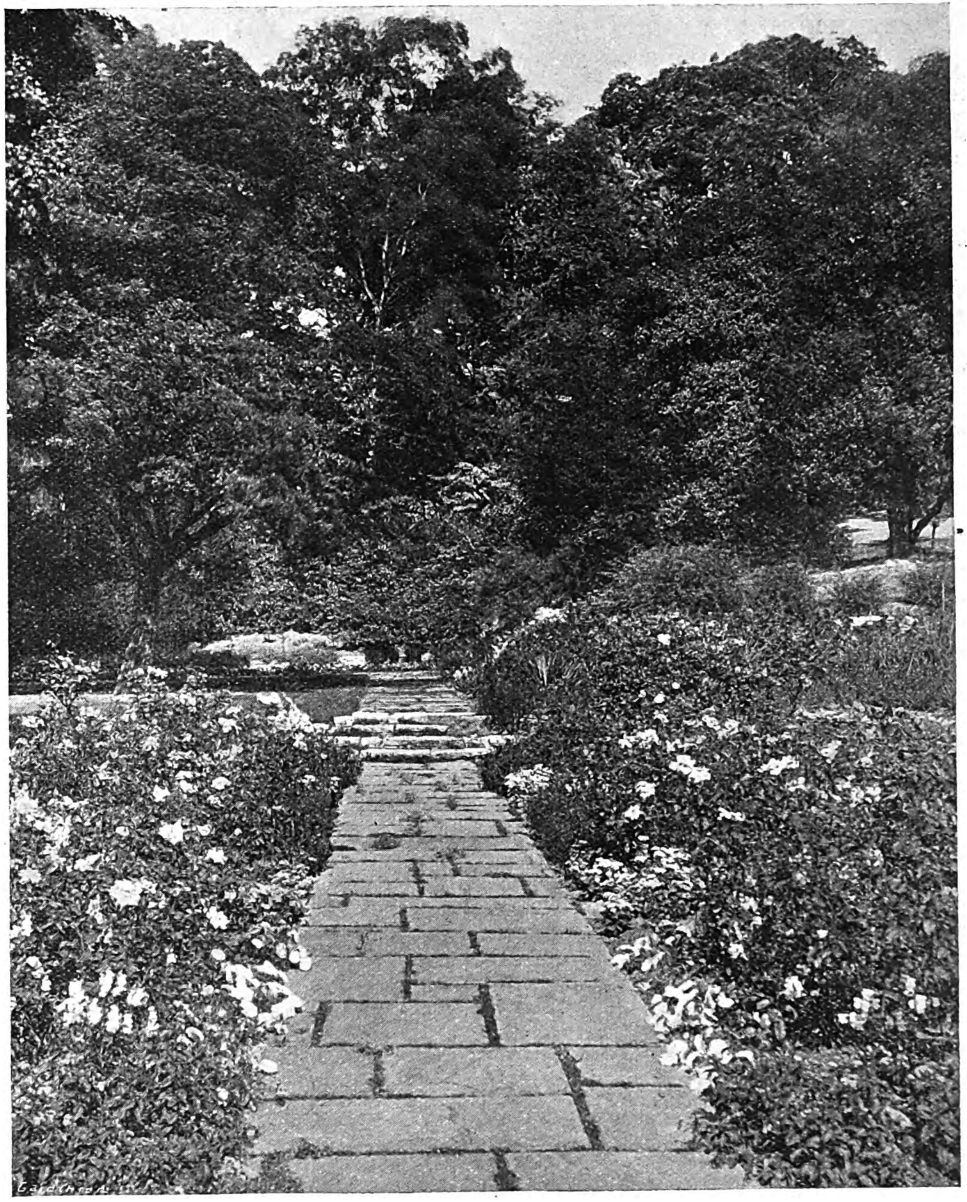

FIG. 144.—CAEN WOOD TOWERS: ROSES IN THE SUNK GARDEN.
(see p. 310.)

B. pruinosa appears to be quite hardy; it withstood last winter's severe weather admirably, and it is free and vigorous of growth, while it may be propagated by layering or by seeds, although I find that while fruits are produced in profusion, fertile seeds are not at all plentiful, so that germination is usually very irregular. *M. W.*

HYPERICUM MOSERIANUM.

There is no better shrubby Hypericum, of its own stature, than H. Moserianum. A hybrid between H. patulum and H. calycinum, it inherits all the good qualities of both the parents and none of the evil ones. It is, moreover, a most distinct member of a group of shrubs whose members are often exceedingly difficult to identify. H. Moserianum grows to twelve or eighteen inches in height, the few stout branches forming an open tuft, each being elegantly arched. The leaves, which are dark green with glaucous underparts, are intermediate in size and form between those of the parent species, being ovate and some two inches in length, while in the young state the wood is a purplish-red and this shade sometimes pervades the mid-rib of the leaves. The flowers, which are borne in clusters at the tips of the branches, are composed of broad, well-rounded, overlapping petals of remarkable substance. They are a rich golden-yellow, and the conspicuous central clusters of stamens have anthers of a bright crimson. These beautiful blossoms first appear about midsummer and continue to expand, in an unbroken succession, until October, thus affording a flowering season of exceptionally long duration even for Hypericums.

H. Moserianum was raised at M. Moser's Versailles nursery about forty years ago. It is quite hardy in a free soil, and even if cut back by frost it usually breaks from the base in the spring. Indeed, it is a good practice to cut back all or most of the growths to the ground level in April. This naturally makes the flowering rather later, but it leads to greater vigour and finer blooms. H. Moserianum never offends by spreading after the manner of H. calycinum. It may, therefore, be safely trusted in the rock garden, and it is, of course, admirable as a foreground to any grouping of taller sorts. There is a form of H. Moserianum in which the leaves are variegated with rose and white. It is known as var. tricolor, but in my experience is a poor object, of no garden merit. *A. T. J.*

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM WARDEN GEM.

This hybrid Cypripedium was derived from the intercrossing of C. Blanchette (niveum × Psyche) and C. Sanacderae. It is one of the most beautiful and perfect-shaped flowers of the C. niveum section of hybrids. The dorsal sepal is two inches long by one-and-a-half inch broad; the ground colour is pure white, and the central area covered with rich purple spottings, larger than is usually seen in this section of hybrids; outside this area is a distinct zone of miniature spots of the same colour, while the whole of the basal half of the outer edge is deflexed, giving a perfect shape. The petals are two-and-a-quarter inches long and one inch broad, pure white, except towards the base, where there are traces of greenish-yellow; they are densely covered with tiny rose-purple spots. The highly polished lip is pure white and the shape is characteristic of the C. insigne parents rather than that usually found in the C. niveum hybrids. There is the usual green area in the centre of the white shield at the base of the column.

This most desirable addition was raised and recently flowered in the collection of Clive Cookson, Esq. (gr. Mr. Stables), Nether Walden, Hexham, Northumberland. *H. J. C.*

INDOOR PLANTS.

ERANTHEMUM PULCHELLUM.

The choice of blue-flowering plants for winter decoration is a fairly restricted one, and the value of this beautiful Acanthad with rich, bright blue flowers, freely produced, should not be overlooked, for well-grown plants are very attractive during the winter months. A native of East India, it needs stove conditions, but where the facilities for growing stove plants exist its cultivation is easily managed.

Although it may be grown into large specimens it is much more useful, from the decorative point of view, when grown from cuttings each year and flowered in five-inch or six-inch pots. The plants may be grown without being stopped, when they make shapely, pyramidal specimens about two feet high, or they may be pinched once to form more bushy plants if such are desirable. For this purpose cuttings should be struck in April or May, when they root readily in the propagating case or under a bell-glass in a warm house. When rooted, they should be potted in clean, well-drained soil and grown on under stove conditions during the summer months.

They thrive in a rich compost made up of about two-thirds fibrous loam and one-third rotten manure or decayed Oak or Beech leaves, with sufficient coarse sand added to make the whole porous. During the growing season they need abundance of water and atmospheric moisture, and although shade may be necessary during the hottest part of the day, they should be exposed to as much light as possible to induce sturdy growth which favours free flowering. When they are established in their final pots frequent applications of liquid manure may be given until flowering commences, when the plants should be removed to somewhat cooler conditions and a drier atmosphere. After flowering the plants may be cut down, kept somewhat dry, and stored in a cool house until needed for the furnishing of cuttings for next year's supply. *W. A.*

THE INFLUENCE OF AIR POLLUTION ON VEGETATION.*

(Continued from p. 292.)

So much, then, for generalities. We will now attempt to examine the question in some detail.

In the first place, taking Manchester as the source from which our data are to be gathered, it is well to point out that it would be quite misleading to say that they relate to Manchester as a whole. As a matter of fact, this is far from being the case, for there are districts, as I shall later on point out, where the effects of air pollution are hardly noticeable, and there are also isolated spots in some parts of the city, where air pollution is at its worst, that vegetation does quite satisfactorily during the summer and early autumn. The prevailing winds in Manchester originate from the south-west, consequently in those districts which lie in a line to the north and north-east of the areas wherein factories are most numerous and that are most densely covered over with dwellings, suffer the greatest from air pollution. On the south-west, south and south-east boundaries of the city, conditions are about normal, so far as air purity is concerned, and vegetation compares quite favourably with what may be seen in many parts of eastern Cheshire. Here, the Pine—one of the most sensitive of trees to the effects of air impurity—is cultivated successfully. So soon, however, as one gets within a radius of about three miles from the Town Hall, few, if any, members of the Pine family are to be met with. In the whole area of Heaton Park (which unfortunately is badly affected by smoke from Salford), other than a few Yew trees growing in a sheltered position, and two small, unsightly Stone Pines in the Dial Garden, there are no representatives of the Conifer group. Had the atmosphere here been less polluted, whole plantations of beautiful Conifers might now have been clothing the hill sides of this expansive park which, under more favourable atmospheric conditions, could easily have been one of the most beautiful public pleasure grounds in the British Isles.

Air pollution makes the cultivation of Cedars, Silver Firs, Spruces, Pines and Cypress trees an almost impossible undertaking in town gardens and parks.

The open spaces in which vegetation is most noticeably affected by air pollution in Manchester are Philip's Park, Clayton Park, Queen's Park, Ardwick Green and St. George's Park. To those who have any knowledge of, and love for, trees and shrubs, the sickly appearance of those growing in the parks named must always be a source of deep regret. Probably to others who have never seen vegetation at anything like its best, these self-same trees and shrubs may appear quite normal and in every way satisfactory, more especially as the actual losses are made good each season and the numbers of individual trees and shrubs in the plantations are always about the same.

Vegetation is, perhaps, more adversely affected by air pollution in Philip's Park than in any other open space in Manchester. This is largely accounted for by the fact that on its western boundary and not a stone's throw from its main gates stands a very extensive gas-works, while on its southern side, less than a hundred yards away, is a large electricity works, either of which alone must bring about a heavy mortality among the plants in the neighbourhood.

Rather than deal with each district in detail, I propose taking the condition of vegetation as found at Philip's Park to be more or less characteristic of that existing in the four other parks situated in the worst air polluted area of Manchester.

Philip's Park is about thirty acres in extent, and in order to maintain it in a presentable condition, so far as furnishing the borders with trees and shrubs is concerned, it has to be planted up each year with 2,500 Rhododendron bushes, 2,500 Poplar trees, 1,000 Willows, 750 Elders and about 300 different kinds of flowering shrubs. If these trees and shrubs had to be purchased from a tradesman instead of being raised in our own nursery, the cost would not be less than £500 per annum.

Generally speaking, Rhododendrons live only for three years in this park. The first summer after they are planted, a fairly large percentage of them bloom, for the flower buds are already formed on them when they are brought in from the nursery in the country. Afterwards, hardly one per cent. of them bear blooms. During the second season it takes the bushes all their time to form a few new leaves and produce a little fresh wood, but by the end of the third year the majority of them have to be thrown away. Those surviving the third year are usually growing in a position which is sheltered from the prevailing wind, and under these circumstances they may carry on for a few years longer, producing straggling, sickly shoots which are anything but beautiful to look upon.

Soon after the young bushes are planted, both surfaces of the leaves become encrusted with soot, thus choking up the breathing pores and, by reducing the intensity of the light rays, the process of assimilation is soon checked. Usually it is the tips of the leaves which first show indications of injury by turning brown just as if a flame of fire had been passed under them. They appear to suffer the greatest amount of damage during damp weather in the days of winter or early spring.

With Poplars, their period of life is somewhat longer but, nevertheless, the mortality among even the hardiest species is exceedingly heavy, especially in such parts of the park as are most exposed to the prevailing wind.

I have already alluded to the fact that even in districts where air pollution is at its worst, certain isolated spots may be found wherein vegetation is much more healthy than it is only a few hundred yards further away. A typical instance of this is to be seen at Philip's Park, where in a low-lying part of the ground—known as the Valley—sheltered from the smoke-laden winds, a magnificent show of Tulips is made each spring which, later on in the year is followed by a fine display of different kinds of half-hardy, summer bedding plants. Many people are greatly surprised, especially at the Tulips doing so well, but when it is remembered that quite apart from the sheltered position in which they are grown in this park, the bulbs used have come direct from Holland where they have been produced under ideal conditions, and that the blooms, together with the necessary material for their development, are already formed in the bulbs when planted, the cause for surprise is not after all so great as might at first appear.

As one may readily understand, only plants of the very strongest constitution can possibly withstand the effects of atmospheric conditions such as obtain in the Philip's Park area. It is therefore well worth noting that many annuals and biennials prove the most satisfactory subjects to cultivate on this account. Among flowering plants of this character that do best in the open spaces in the centre of the city there is none to excel the tall-growing varieties of Stocks.

While speaking on the subject of plants that are least affected by impurities in the air, it may be as well to enumerate a few of the perennials that grow in the district under review. Among trees, the Ash, Poplar, Willow, Thorn and Elm are the only kinds worth one's while attempting to grow. As for shrubs, the Rhododendron, Privet, Elder and a shrubby Honeysuckle known as Lonicera Ledebourii, are about the very limit of one's choice. Beyond the Lupin, Funkia and the German Iris, few other herbaceous perennials are likely to live out-of-doors during the winter at Philip's Park.

It is a remarkable fact that at Queen's Park, which, measured as the crow flies, is hardly more than a mile-and-a-half away, the varieties of trees, shrubs and herbaceous plants that respond to cultivation in the open are more than quadrupled. In addition to this, they do not require to be replaced so frequently as they do at Philip's Park.

For a number of years past, it has been customary in Manchester to add to the amenities of certain streets and paved squares in the city by the use of large trees and shrubs grown in tubs. These are kept for the greater part of the year in the parks' nursery ground, about nine miles out, in Cheshire, where the air is clean and pure. About the first week in July each year the tub-plants are placed in their city quarters, where for a week or two their foliage looks delightfully green. Within less than a month, however, the leaves take on a decidedly dirty and unhealthy appearance, and by the end of September the majority of the shrubs have become so unsightly that they have to be removed once again to the nursery where they remain until the following July. Plants in tubs similar to those sent in to the city and which are kept in the nursery throughout the summer, are still clothed with foliage and are truly beautiful objects long after those that have done duty in Manchester are quite denuded of their leaves. A comparison made between the two brings home to one the disastrous effects of air pollution on even thoroughly healthy plants.

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* A Paper read by Mr. W. W. Pettigrew, V.M.H., Superintendent of the Manchester Parks Department, before the Smoke Abatement League of Great Britain, at the Conference held at Harrogate, on September 29.

The ill effects of impure air which I have already described are so patent that no one hardly could fail to observe them. There are, nevertheless, other results which are of such a subtle character that only by close observation and careful investigation is it possible to detect them.

(*To be continued.*)

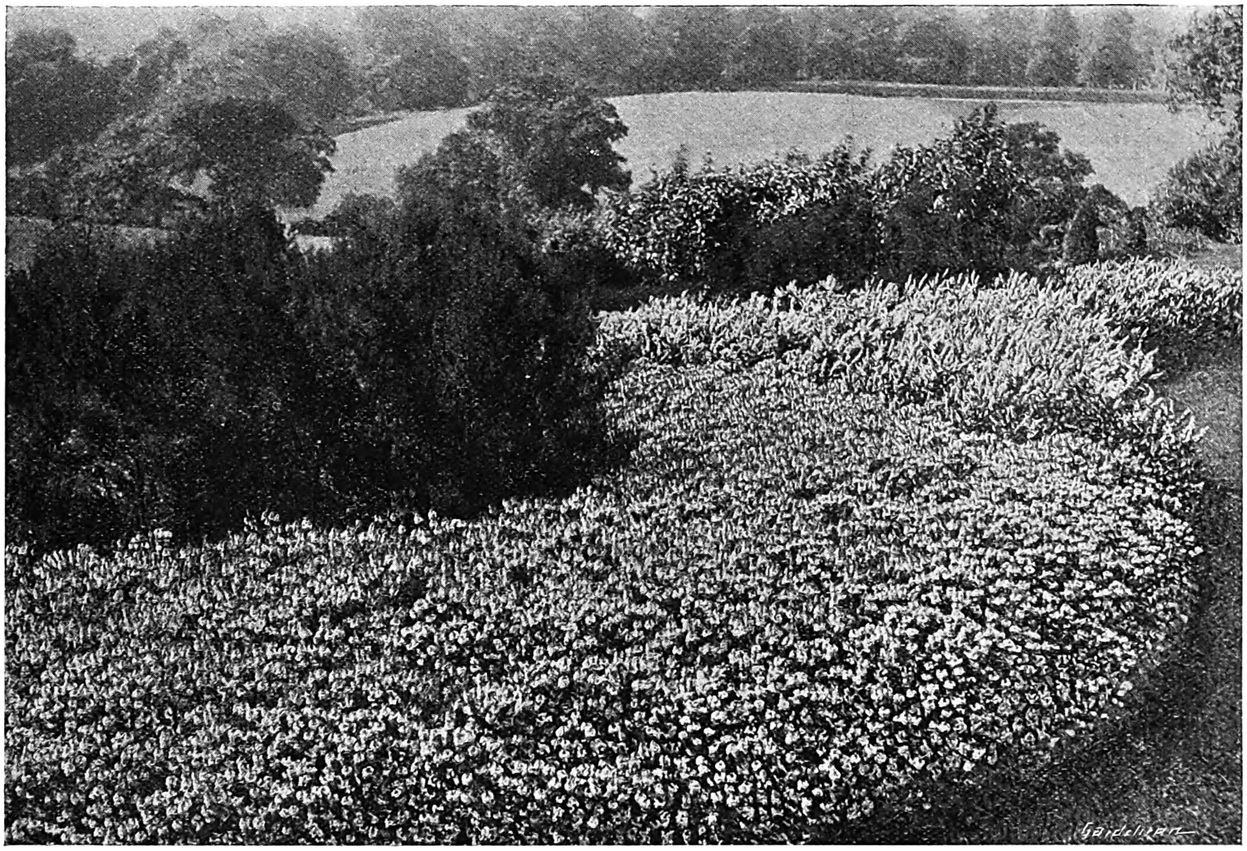

FIG. 145.—CAEN WOOD TOWERS: THE HEATH GARDEN.

(see p. 311.)

NOTES FROM WISLEY.

Most visitors to Wisley find so much to occupy and interest them in the gardens, where they are afforded opportunities of comparing the various plants on trial and of seeing the possibilities of many trees and shrubs with which they are unfamiliar, that they are apt to overlook one of the most important activities of the Royal Horticultural Society, namely, the scientific and research work, which has been going on steadily from year to year. As a result of this, many valuable discoveries have been made and handed on to the horticulturist, as, for example, the hot water treatment for bulbs affected with eelworm.

Among other interesting experiments which have been in progress during the current year, is one dealing with the effect of varying periods of light upon plants. For this purpose a special building was constructed having light-tight compartments fitted with electric light, into which plants in pots were wheeled by means of trolleys, for definite periods. This has been going on for several months, and as a result, some interesting facts may be mentioned; although a detailed report will be published at a later date. For example, Runner Beans which each day received twelve hours' daylight followed by five hours' electric light, show little if any difference from those under normal conditions, but those which regularly received twelve hours daylight and twelve hours complete darkness have been flowerless, completely stunted, and have developed Carrot-like roots. In the case of plants such as Chrysanthemums, known as short-day plants, since they mature late in the year, those which received twelve hours daylight and twelve hours complete darkness have flowered sometimes so much as six weeks earlier than those under normal conditions. The plants themselves, however, are not nearly so robust.

Other experiments in connection with light received by plants are those in progress with specially prepared glass, such as Vio-ray and Vita glass, the results of which have not arrived at a conclusive stage.

In another department, research work, valuable to both nurserymen and private gardeners, is proceeding with eelworm in herbaceous Phloxes, including the effect of various manures and the raising of resistant varieties. It is now recognised that certain varieties of Phlox are more resistant than others and that most white-flowered sorts are particularly resistant. Coloured varieties which are least liable to be attacked include the mauve-pink Antonin Mercier, coccinea and Widar, with violet-coloured flowers, while particularly susceptible varieties are George A. Strohlein, Rijnstroom and Hindenberg.

A close study is also being made of lesser-known fruit pests, and a census is being taken of insects caught underneath greasebands. Other entomological activities include a study of indigenous pests which have begun to attack plants recently discovered and brought from Tibet and China. As these plants are all raised from seeds which are sterilised before sowing, the insects which subsequently attack them have not arrived with the seeds, although a case of this sort did occur with some seeds sent from British Columbia.

A large soil experiment has been started and twenty-four brick pits each holding twenty-two tons of soil mixture, have been built on the natural subsoil of sand. The mixtures consist of various types of soil, such as loam, clay and chalk, and each one has been analysed chemically. A small root crop has already been planted to test the filling of the pits. From this experiment it is hoped to accumulate data of scientific and horticultural value on the behaviour of species and varieties of plants in different soils and under different treatments. For example, it would be a great boon to gardeners if by chemical treatment of a chalky soil, the growth of Rhododendrons could be encouraged, including the majority to which chalk is known to be absolutely fatal.

In addition to these particular experiments, it must not be forgotten that large numbers of soils sent in by Fellows of the Society are constantly being analysed, while the naming of fruits, flowers and shrubs is also included in the work of the laboratory staff.

Apart from the foregoing interesting and useful work, there is the collection and tabulation of results of the trials of flowers, fruits and vegetables, and mention may also be made of meteorological observations under the Ministry of Agriculture's scheme, which are taken several times each day. *J. L. Grant White.*

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CAEN WOOD TOWERS.

SITUATED on the northern outskirts of Highgate and adjoining the beautiful, wooded estate of Kenwood, the late Lord Iveagh's munificent gift to the nation, is Caen Wood Towers, the picturesque residence of Sir R. Waley Cohen. At one time the extensive grounds adjoining the stately mansion were heavily wooded, but during comparatively recent years the judicious removal of many of the trees and the formation of spreading lawns of beautiful turf, pools, formal gardens, and most striking of all, an extensive Heath Garden, has resulted in the production of a garden at once picturesque in its natural sylvan setting, and beautiful in its adaptation to the laws which maintain that lawns and flower borders and other creations of man are necessary to the composition of a well-equipped garden.

The mansion itself, a tall and stately structure (Fig. 147), is situated at the summit of a gently-rising slope, and from it may be seen, on a clear day and looking towards the west over the grassland valley and undulating meadows of Parliament Fields, in the distance the Houses of Parliament, and beyond them, the Surrey hills. To the right, the view is a magnificent one of the wooded slopes of Kenwood.

On the south and west sides of the house are spacious lawns, gently undulating and following the natural slope of the land down to the lower levels, with here and there stately specimen trees of Cedrus Deodara, giant Oaks and graceful Silver Birches; to the right is a woodland belt, with an undergrowth of Rhododendrons and Azaleas, apparently quite happy in the natural soil—a heavy, retentive clay—while to the left is a turreted tower, of no archaeological value and serving the prosaic purpose of a fruit-store, yet extremely attractive in its mantle of Ivy and basal setting of flowering and evergreen shrubs. Nearby is a fine bed of Rhododendron Pink Pearl, against a background of other tall Rhododendron bushes, and in this vicinity also we noted a shapely specimen tree of Crataegus tanacetifolia, about which Mr. H. Crane, the gardener who has been chiefly responsible for the production of this beautiful place, tells an interesting tale. He states that one of the large boughs fruits alternately with the rest of the tree—when the bough has fruits the remainder of the tree is barren, and vice versa—but, unfortunately, this year there are no fruits at all on the tree, so that we were unable to check this phenomenon ourselves. However, the tree was extremely attractive with its shapely, rounded head and finely-divided leaves.

The sunk garden (Figs. 144 and 146) is situated at the foot of the lawn and consists of several large rectangular beds, which at the time of our visit—quite recently—were gay with a profusion of Roses and Antirrhinums. The paths of this garden are of large flag-stones, irregular in size, while the top margin consists of a broad border of mixed herbaceous subjects and bedding plants—scarlet Salvias, freely flowered Dahlias, and dwarf perennial Asters of the Amellus section, including fine clumps of the popular but not always amiable variety King George, the border being edged with hardy Fuchsias intermixed with Stephanandra Tanakae, a shrub notable for the rich autumn colouring of its leaves and its bright, reddish-brown stems, and clumps of Santolina Chamaecyparissus, with which also the steps leading down from the lawn to the formal garden are lined. In the centre of this garden is a stone-flagged circular space, ornamented with large tubs of freely-flowered Hydrangeas.

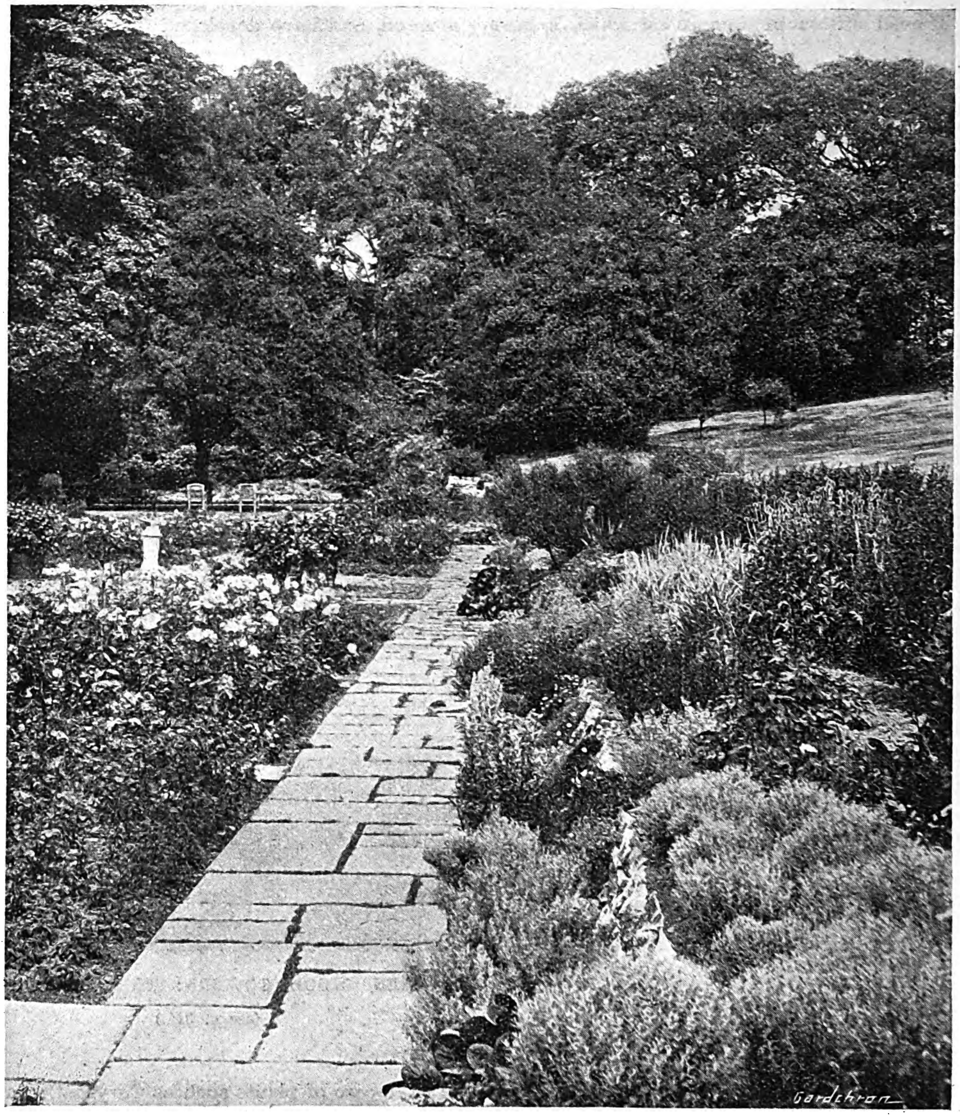


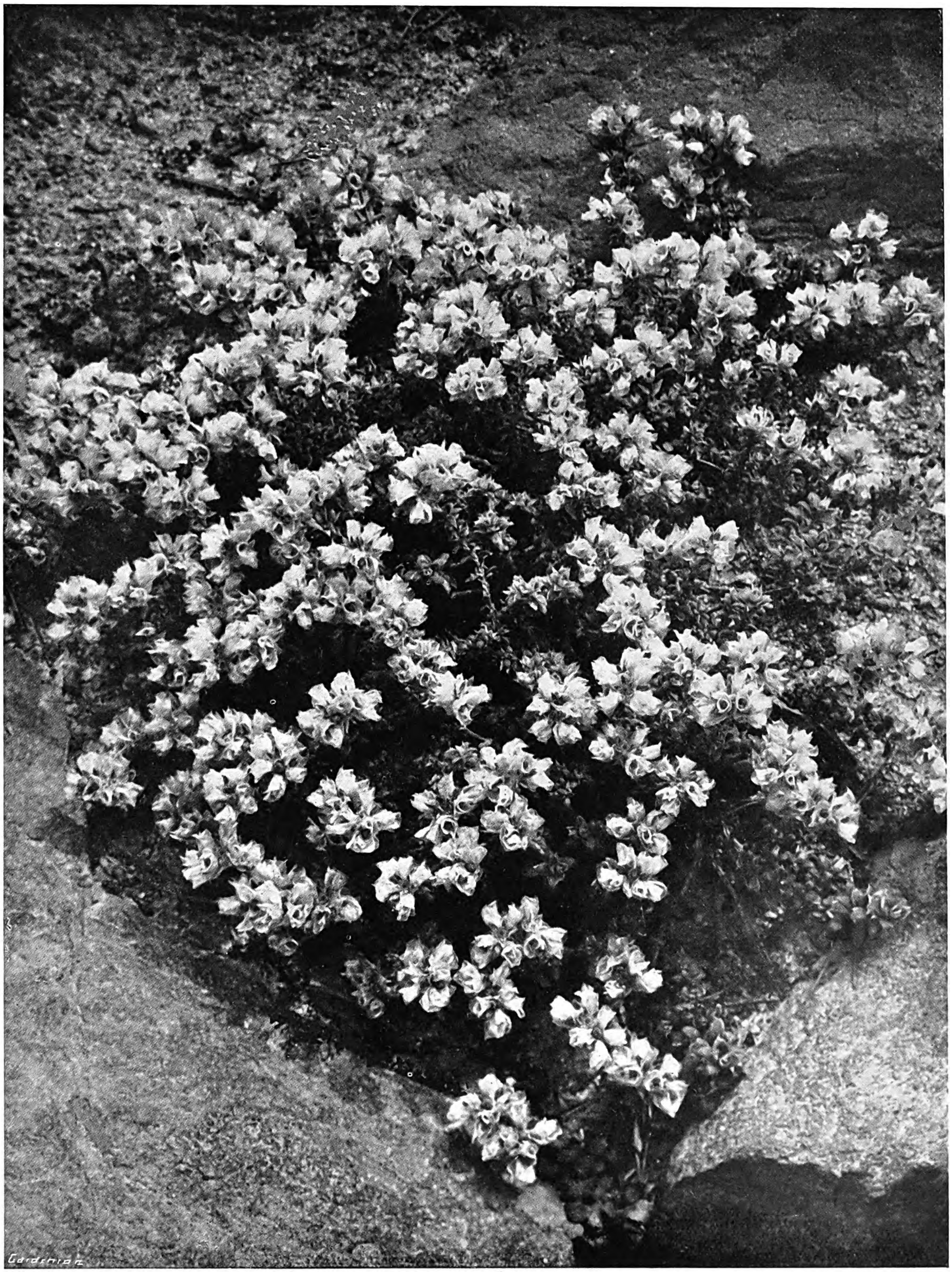
FIG. 146.—CAEN WOOD TOWERS: THE SUNK GARDEN.

Leaving the sunk garden the visitor proceeds down a grassy slope, dotted with ancient standard Apple trees, and leaving the Iris garden on the right, comes upon the water garden, passed its prime at this season of the year but showing evidence of many spring attractions, for the long pond, irregular in outline, is margined with Japanese and other water-loving Irises, Trolliuses and Primulas, while at one end of it is a towering rock bank, furnished with prostrate-growing shrubs and various alpine plants. As this is situated near the lower margin of the estate, we had of necessity to turn to the south, to traverse a walk lined with Rose bushes—still carrying quantities of blooms and evidence of the manner in which Roses flourish in these gardens—and arched with cordon fruit trees, while along the back of the borders we noticed excellent espalier Apple and Pear trees, the Apple trees in particular, especially the varieties Peasgood's Nonesuch and Lane's Prince Albert, being heavily laden with fruits.

But time would not allow an opportunity to inspect these, nor to pay more than passing respect to the well arranged and cropped kitchen garden, as we were anxious to arrive at the Heath Garden, which was yet some distance off, so the ascent was made again by means of a long winding path, lined with rock borders backed by attractive hedges of Lonicera nitida, with here and there groups of flowering shrubs or beds of Paeonies, until we came upon a fine hedge of Sweet Briar, resplendent with its brilliant fruits. And so we found ourselves back at the west entrance to the sunk garden, the entrance being marked by two stately Poplar trees, up the trunks of which rambler Roses have been trained. Turning to the right here and following the base of the lawn, then traversing devious paths, we at last reached the Heath Garden, undoubtedly one of the most attractive features of the estate.

This garden occupies a large expanse of gently undulating and sloping ground, and clever advantage has been taken of these natural

Supplement to THE GARDENERS' CHRONICLE.



PARONYCHIA CAPITATA.

features in the laying out and furnishing of the beds. Here were evidences of a continued supply of colour practically the whole year round, for the masses of winter and early spring-flowering Ericas, such as E. mediterranea, E. darleyensis, and various forms of E. carnea, showed abundant flower buds; while many of the early summer-flowering Heaths showed signs of having bloomed prolifically.

At the time of our visit a magnificent winding bed, splendid in its sweeping dimensions, of Callunas in variety, E. vagans and Daboecias, provided a wonderful display of colouring. The illustration (Fig. 145) depicts only a small portion of it, with a mass of Erica vagans alba in the foreground, and to the right the the lovely Calluna vulgaris alba Serlei, but there were many more besides, including the double-flowered form of Calluna vulgaris, Calluna v. Alportii and other beautiful sorts, together with large clumps of the several colour forms of Daboecia polifolia. Smaller beds are also devoted to Callunas, being dotted throughout the garden to provide a general picturesque effect, while here and there are clumps of Gyneriums, beds of Azaleas and banks of Brooms, the whole blending admirably to form an extremely attractive garden, bounded on the lower side by a broad shrub border, with here and there clumps of herbaceous flowers—various Heleniums, Helianthemums, Michaelmas Daisies, and other late-flowering subjects. In this shrub border we noted especially fine examples of Rhus Cotinus var. atropurpurea, various Barberries, Hypericums and named Rhododendrons, while the effect afforded by the numerous varieties of Lilac, when in flower, must be extremely fine.

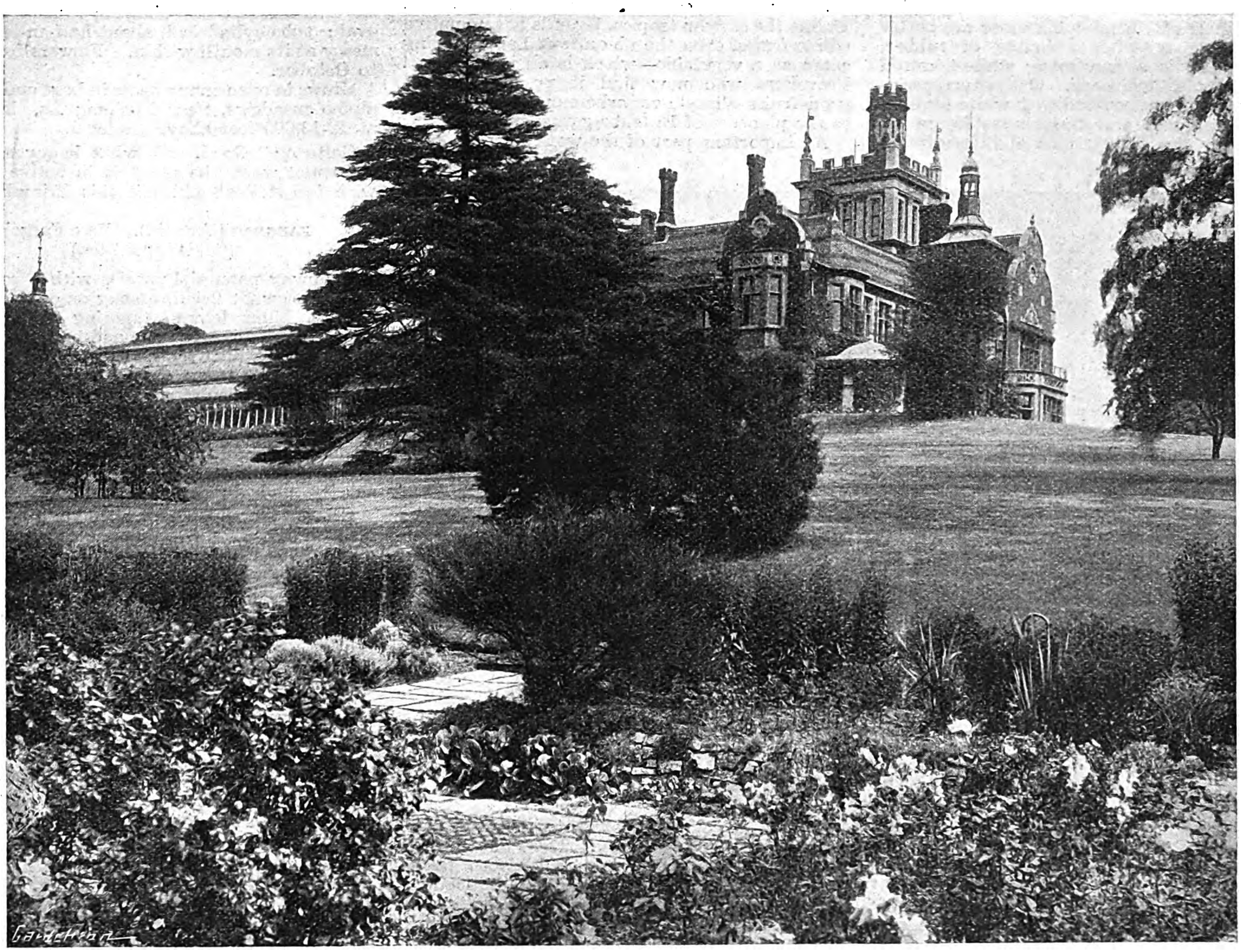


FIG. 147.—CAEN WOOD TOWERS: THE MANSION, FROM THE SOUTH-WEST.

Adjoining the Heath Garden is a small rock garden, planted chiefly with dwarf Conifers and other shrubs of low stature, and here we came upon a well-flowered specimen of the vivid blue Ceratostigma Willmottianum, close to a fine bush of Veronica cupressioides.

On the south-east side of the house the wooded portion contains many giant specimen trees of Beech, Oak, Robinia Pseudacacia, Wych Elm and Sycamore, two magnificent Beech trees, one a fine copper-leaved form, calling for special comment, while the broad path, across sweeping lawns and leading to the tennis, croquet and other lawns, is lined with ancient Sequoias, Cedars and other Conifers.

These lawns are also intersected by a long, heavily-built pergola, well clothed with climbing Roses, various Clematises, ornamental Vines and other climbing subjects, and terminating at a large Yew tree, clothed with festoons of Polygonum baldschuanicum. To the right of this is the bathing pool (Fig. 142), specially constructed for this purpose and set amid specimen Cedar, Yew and other trees. The floor of the pool, which is of considerable size and heart-shaped, is graduated to various depths, the path around it being of crazy paving, while one of the Yews has been hollowed to form an admirable dressing room for the mermaids who disport themselves in the placid waters.

Much more could be written of the beauties of Caen Wood Towers, of its beautiful trees, numerous flower beds and shaded glens, but what little we have written may convey in part the beauty of this lovely estate that lies so near to the City of London. *F.*

KENYA COLONY AND UGANDA.*

From the terminus of the railway on the eastern shore of Lake Victoria, fine passenger steamers cross the lake to Uganda. The route is near the shore and between islands, and some very fine views are to be seen. Aquatic birds, crocodiles and hippopotami are the only sign of wild life, for human life is non-existent owing to the ravages of sleeping sickness in the shore areas. Those who knew the route in the early days miss the sight of canoes pulling out from landing places to get a closer look at the big ship, or the solitary fisherman busily engaged. High forest covers many islands and parts of the shore. Extending out into the water are clumps of Ambatch (Herminiera elaphroxylon), an aquatic Leguminous tree. Its trunk is bottle-shaped, entirely below the water, and its Acacia-like crown extends to ten feet in height. Its wood is as light as cork and has many uses. In the shelter of the Ambatch, Nymphaeas in various colours abound, with Pistia Stratiotes filling in any spaces between.

Landing at Entebbe, the headquarters of the Government, the traveller interested in plants feels that he has at last reached the haven of his desire. Interesting and grand as many of the sights already have been, there is no question that no place can compare with Entebbe for the beauty and luxuriance of its vegetation. Much of the peninsula is virgin forest, and fine forest at that. Here is an interesting botanic garden, now of twenty-five years' growth. Every official dwelling house, from Government

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* A previous article on "Kenya Colony and Uganda" appeared in the issue for October 13, 1928, p. 290.

House downwards, is surrounded by gardens, and all roads and streets are tree-lined. It is, in fact, not easy for the stranger to tell exactly where he entered the Botanic Gardens or where he left them. No stronger evidence than this could be given to proclaim Entebbe a garden city, and it justifies the early policy of the botanical staff in raising large numbers of ornamental plants and distributing them free to anyone who would plant them.

Native trees which attract attention are the mighty Incense Tree (Canarium Schweinfurtii), the Lake-shore Palm (Raphia Munbuttorum), the glorious Spathodea campanulata with its rich orange red flowers, each as large as a tea-cup. This tree must surely be in the first half-dozen of the finest flowering trees. In full flower it looks like a very brilliant, large-flowered Rhododendron of wonderful size, lifted on to a forty-foot trunk. Markhamia platycalyx is attractive as a small tree on account of its bright yellow flowers of Bignonia shape, produced during most of the year. Landolphia vines are better known as an out-of-date source of rubber, but L. florida is a handsome white-flowered creeper of ample dimensions. One or two species of Dombeya become covered with white blossom in due season and are conspicuous for miles, exceptions to the general idea of Sterculiaceae being useful rather than ornamental. Rubiaceae might be considered the most showy Order, giving us Mussaendas, Pavettas, Randias, Gardenias and Coffeas—showy shrubs which would be highly valued in our gardens, did not our interest, for perhaps good reason, run more in the direction of hardy subjects.

Among cultivated plants the Bougainvillea must be given pride of place, not only for its gaiety, but because of its ubiquity. Solanum Wendlandii runs it close as a verandah climber, while Antigonon leptopus is less common, but even more beautiful. Beaumontia grandiflora climbs up large trees and bears its Lily-like flowers freely. Roadside trees are Melia Azedarach, with its strongly-scented blue flowers; Solanum macranthum, with very large leaves and fine blue flowers, the only tree of its genus; the Rain Tree (Pithecolobium Saman), an effective shade tree but of little beauty; Jacaranda mimosaefolia, the finest blue-flowering tree I have seen; Poinciana regia, the glorious Flamboyante, and many others; for, as may be expected with the Botanic Department finding the trees, monotony was avoided when the work was done.

Common plants in every garden are Codiaeums, Plumieria, Acalypha, Duranta, Plumbago, Clerodendron, Panax, Strobilanthes, Tecoma, Sanchezia and Pandanus. These plants—formerly common occupants of our now almost extinct stovehouses—grow and flourish exceedingly, as do many Roses.

Among the many plants in the Botanic Gardens, (Fig. 149) is a collection of Succulents—Agaves, Aloes, Opuntias, etc.—many given by the late Sir T. Hanbury from the La Mortola gardens; fine plants of the Traveller's Tree (Ravenala madagascariensis) which look like gigantic ostrich feather fans; and many species of Pandanus and Palms. There are Tree Ferns from the native forests; Widdringtonia Whytei, the Cypress from Nyassaland; Randias, Baikiaeas and many other plants from remote parts of Uganda.

The economic section contains the original Rubber, Cocoa and Coffee trees sent out by Kew (Fig 148), as well as the original plantations from which planters in the country were supplied with plants and seeds in the early days of the industry. Fruits consist of Bananas, Pineapples, Custard Apples, Guavas, Mangoes and many others. As with ornamental plants, so with economic plants, extensive propagation and distribution was the policy of the early years, and the result is evident in the remotest station. Unlike the eastern tropics, Uganda has no native edible fruits, even the ubiquitous Banana being eaten as a vegetable—which is all it deserves! Travellers who now find it possible to get good fruits almost everywhere owe this blessing to the pioneers of Entebbe gardens.

An important part of the work of the garden staff is the collection of meteorological data over the whole country. This data, with records of levels of lakes and rivers taken several times daily, is tabulated and distributed to places as widely separated as Cairo, India and this country. The importance of this work will be plain when it is remembered that Lake Victoria is the reservoir of the Nile, and Uganda the catchment area of the water on which the life of Egypt depends. *E. Brown, Hillside, Doddington, Sittingbourne.*

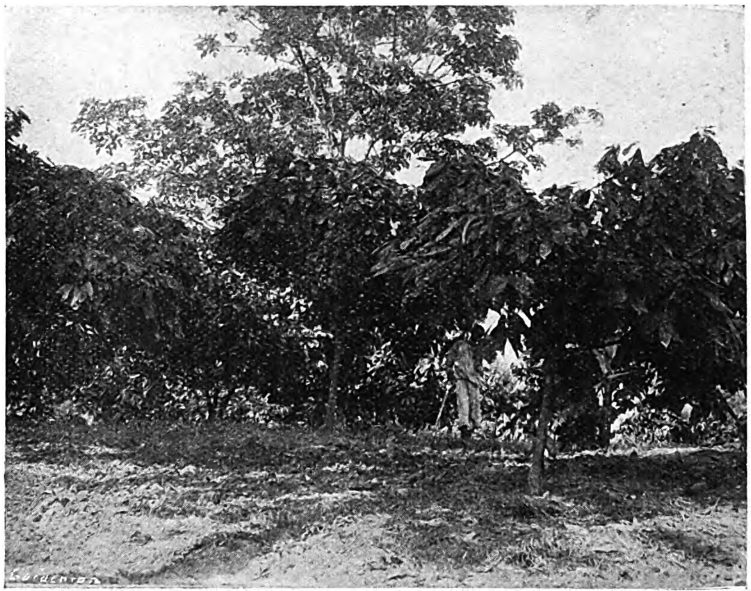

FIG. 148.—THE ORIGINAL PARA RUBBER AND COCOA TREES SENT FROM KEW TO THE ENTEBBE BOTANIC GARDENS.

THE GENUS PRIMULA.

(*Continued from p.* 294).

FAGOSA (Balf. f.). Beech-leaved P.
(Petiolares.)

A robust perennial species with a thick, woody rootstock, clothed near its apex with brown scales. Leaves four to five inches long and two to three inches across, oblong, oblong-oval, or nearly elliptic, rounded at the tip, wedge-shaped at the base, usually stalkless, or at times with a short winged stalk; both surfaces nearly smooth and almost free from meal. Flower stem usually very short, downy, bearing three to six long-stalked blossoms, the colour of which has not been recorded; they are probably some shade of purple. Corolla about one inch across; lobes broadly oval, tip broadly retuse, cleft, with a tooth in the notch.

Grows on the mountains near Tchen-Keow-tin, in eastern Szechuan, central China.

Culture: Good fibrous loam and leaf-soil in a damp, half-shady spot, are the conditions indicated.

FALCIFOLIA (Ward). Sickle-leaved P.
(Nivales.)

A beautiful, fragrant species with smooth, fleshy, almost grass-like leaves, three to six inches long, dark green above, paler beneath; margins furnished with narrow, saw-like teeth. Flower stem three to six inches tall, bearing one or two horizontal, pale or rich yellow blossoms, frequently tinged with red, subtended by bright red bracts; at the base of the flower stem are several fleshy, viscid scales. Corolla about one inch across, salver-shaped; segments broadly oval; tube cylindrical, about half-an-inch long, mealy at its mouth within. Flowers from June to October.

Grows in open sunny spots in bogs and in steep alpine meadows, near Doshong La, in Tibet, at 12-13,000 feet above sea-level.

Culture: Good, somewhat heavy soil, kept saturated when the plant is in active growth, with full sun, should suit this Primula.

FARGESII (Franch.). Père Farge's P.
(Soldanelloideae.)

A downy perennial species with a rosette of thin, somewhat flacid, oblong or oblong-wedge-shaped, blunt leaves, tapering to a distinct stalk, in all one to one-and-half inch long; margins sharply toothed towards the tip; upper surface very deeply veined, underside beautifully reticulated. Flower stem two to three inches tall, bearing an umbel of two to five, or occasionally one pale violet, nodding or horizontal blossom. Corolla funnel-shaped, divided into five short lobes which are again shortly bilobed; tube shorter than the calyx.

Grows in damp places in mountainous spots near Chingkou, in Szechuan, central China, at about 3,700 feet above sea-level.

Culture: Plant it in good fibrous loam, peat and sand, and treat as a frame plant; it should be well supplied with water when in growth.

FARINOSA (Linn.). Bird's-eye Primrose.
(Farinosae.)

This well-known and very variable species forms rosettes or tufts of broadly oblong, or broadly elliptic-lanceolate leaves three-quarters-to two inches long, covered with white meal below, rarely smooth; margins toothed or scalloped. Flower stems fairly stout, more or less mealy, four to eight inches tall, bearing a many-flowered umbel of pale lilac flowers, each with yellow eye. Corolla half- to five-eighths-of-an-inch across; segments broadly or narrowly heart-shaped, deeply cleft.

Grows on the mountains of Europe, northern Asia, and the northern United States, in damp, open situations.

Var. albiflora (Pax.), has white blossoms; it is a native of the European Alps.

Var. exigua (Velen.) is a dwarf form with broadly oblong, stalked, smooth or slightly mealy leaves. Flower stem slender, two to three inches tall; flowers rose-coloured, two to ten in an umbel, on stalks about three-eighths of-an-inch long. Native of Bulgaria. *Gard. Chron.*, 1915, Fig. 118, p. 333.

Var. Hornemanniana (Lehm.) is a non-mealy form with minutely scalloped or nearly entire leaves and a slender flower stem bearing an umbel of rose or purple blossoms. It is a native of the Alps and Pyrenees.

Var. scotica (Hook. f.), resembles the type, but is smaller, with broader leaves and shorter and broader lobes to the pink corolla; a native of northern Scotland.

Culture: Somewhat heavy fibrous loam, a small quantity of peat and limestone chips, in a damp, half-shady spot, with a mulch of fresh soil in spring, are the conditions they require.

FARRERIANA (Balf. f.) Farrer's P. (Nivales.)

A richly tinted, strong-growing perennial species with a stout rootstock furnished with whitish scales near its crown. The large, spathulate leaves have oblong-elliptic, or lanceolate-elliptic, blunt, or rather pointed blades, abruptly or gradually tapering to a stalk, in all six to eight inches long; margins cut into blunt, irregular teeth; both surfaces more or less covered with white meal. Flower stem eight to ten inches tall, rather slender, usually densely mealy, especially among the fragrant blossoms, which are borne in an umbel of four to six on short mealy stalks. Corolla about one inch across, rich purple, with a deeper tinted ring at the throat; lobes somewhat paler, broadly heart-shaped, notched at the tip, with a tooth in the centre; tube narrowly funnel-shaped, about three-quarters-of-an-inch long. Flowers in June and July. Grows in cool shady places on cliffs in Yunnan, western China, at 12,000 feet to 15,000 feet above sea-level.

Culture: Rich, heavy loam and leaf-soil, and a damp, cool, shady spot in the rock garden, are indicated. *A. W. Darnell.*

(*To be continued.*)

MESEMBRYANTHEMUM.

(*Continued from p. 268.*)

20.—PLATYTHYRA, N. E. Br.

Perennial. Rootstock a cluster of long, fleshy roots, 3–4 lines thick. Stems herbaceous, prostrate, triangular or quadrangular, with distinct internodes, glabrous. Leaves opposite, petiolate, ovate or lanceolate, flat. Flowers solitary, axillary or in the forks of the branches, pedicellate, bractless. Calyx produced above its union with the ovary into a short tube, very unequally 4-lobed above, two of the lobes being large and leaf-like. Petals very much shorter than the calyx-lobes, linear, united into a short tube at the base, arising at the middle of the produced calyx-tube. Stamens numerous, in many series, arising from the corolla-tube, erect. Stigmas 4, small, stout, obtuse; no style. Ovary partly superior, 4-celled; placentas axile. Capsule with 4 valves and cells; valves recurving when wetted, very broad, each with 2 thin and deep parallel (or sub-contiguous ?) expanding-keels toothed all along their tops, and with an inflexed thin membranous flap or wing turned back from their tips and attached to the valve about midway between the keels and margin of the valve and forming a sort of pocket on the outer side of each keel; cells open, no cell-wings or tubercles. Seeds moderately large for the group, reniformly D-shaped, minutely tuberculate.—N. E. Br., in *The Gardeners' Chronicle*, 1925, Vol. LXXVIII, p. 412.

Species 1, P. Haeckeliana, N. E. Br., a native of South Africa.

The name is derived from the Greek, *platys*, broad, and *thyris*, a door, in allusion to the broad valves of the capsule.

By its habit and petiolate leaves this genus bears some resemblance to Aptenia cordifolium and Cryophytum Aitonis. From the former, however, it differs by the calyx being produced into a short tube above the ovary and by the presence of infolded membranous flaps to the valves of the capsule. From the latter by all the leaves being opposite and the flowers seated in the forks of the branches.

1. P. Haeckeliana, N. E. Br.—Plant forming a flat carpet 3–5 feet in diameter of prostrate herbaceous branching stems. Leaves all opposite, and, including the petiole, 1–2 inches long and 3–9 lines broad, lanceolate, subacute, cuneately narrowed into a petiole, not or scarcely united at the base, flat or slightly concave above and with a stout, rounded keel or midrib on the back, glabrous. Flowers terminal in the forks of the branches or sometimes in leafy cymes. Pedicels 6–13 lines long. Calyx with the two larger lobes leaf-like, 6–11 lines long and 3–4 lines broad. Petals apparently about 4–5 lines long, with their united part about 1 line long, pale yellow. Stigmas scarcely 1 line long, stout. Capsule about 3 lines in diameter when closed. Seeds about ¾-line in diameter, compressed, minutely tuberculate, brown. Otherwise as for the genus.

M. Haeckelianum, Berger in *Engler Bot. Jahrb.*, Vol. XLV, p. 224 (1910). N. E. Br. in *Bothalia*, Vol. I, p. 160. M. ovatum, Thunb., *Fl. Cap.*, ed. Schultes, p. 417 (1823), but not of his earlier works, see *Bothalia* at place above quoted. M. elongatum, Eckl. and Zeyh., *Enum. Pl. Afr. Austr.*, p. 321 (1836), not of Haworth. M. angulatum var. ovatum, Sond. in *Fl. Cap.*, Vol. II, p. 454.

Uitenhage Division: Valley and hills of Zwartkops River, Zeyher 2,624. Near Uitenhage, Muir 3,946. Thunberg.

21.—APTENIA, N. E. Br.

A succulent herb, perennial, but of short duration; branches elongated, with distinct internodes, prostrate. Leaves opposite, petiolate, flat. Flowers solitary in the forkings of the branches, pedicellate. Calyx unequally 4-lobed down to its union with the ovary. Petals numerous, united at the base into a short tube. Stamens many, but not very numerous, erect, arising from the corolla-tube; filaments not bearded. Stigmas 4, minute; no style. Ovary inferior, 4-celled; placentas axile. Capsule with 4 valves and cells; valves broader than long, the apical part so abruptly thickened that the basal termination of the thickening is quite vertical; expanding keels closely contiguous, forming one central keel with its end united to the sub-vertical base of the thickened apical part of the valve, no marginal wings or flaps to the valves; cells open, without cell-wings or tubercles. Seeds compressed, circular in outline, tuberculate. N. E. Br. in *The Gardeners' Chronicle*, 1925, Vol. LXXVIII, p. 412, and in *Journ. of Bot.*, 1928, p. 139. Litocarpus, L. Bol., in *Fl. Pl. of S. Afr.*, Vol. VII, t. 261, f. 11.

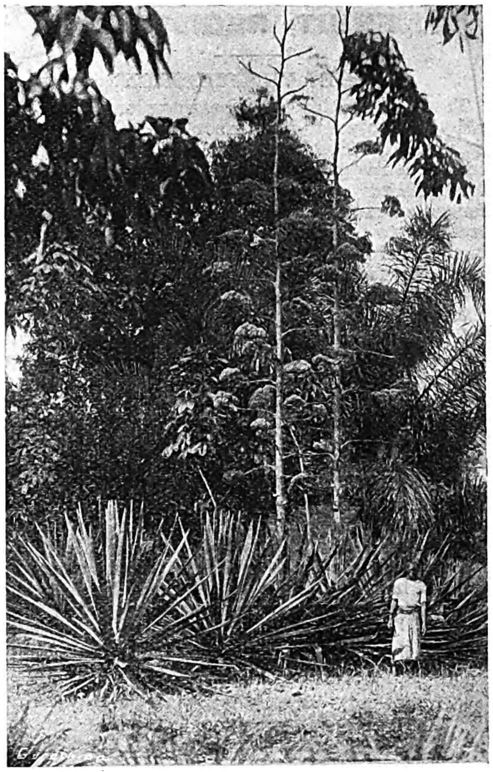

FIG. 149.—VIEW IN THE ENTEBBE BOTANIC GARDENS.
(see p. 312).

Species 1, A. cordifolia, N. E. Br. (Mesemb. cordifolium, L.). A native of South Africa, but naturalised in many of the warmer parts of the world.

The name is derived from the Greek, *apten*, wingless, in allusion to the absence of wings to the valves of the capsule.

1. A. cordifolia, N. E. Br. in *Journ. of Bot.*, 1928, p. 139.—A prostrate, glabrous herb, minutely papulose on all green parts. Leaves ½–2¼ inches long, including petiole, 2–15 lines broad, cordate-ovate, acute. Pedicels about 6 lines long. Calyx with two of the lobes large and leaf-like, 5–10 lines long, 3½–7 lines broad, ovate or elliptic, acute or subacute, the other two about 4 lines long or less and subulate. Corolla 6–8 lines in diameter; petals cuneately linear, obtuse, bright magenta-purple or rosy-purple, the inner passing into staminodes. Stamens with white filaments and bearded anthers. Stigmas about ¼-line long, oblong, obtuse. Capsule with valves about 2 lines long and 3½ lines broad, broadly deltoid-ovate, uniformly pallid or cream-coloured. Seeds about ⅔-line in diameter, compressed, sub-circular, tuberculate all over, blackish-brown.

M. cordifolium, Linn. f. *Suppl.*, p. 260; Haw., *Obs.* p. 192-195, *Misc. Nat.* p. 50, *Synop.* p. 248, and *Rev.*, p. 159; Jacq., *Ic. Rar.*, Vol. III, p. 6, t. 487; Smith, *Spicil. Bot.*, t. 6., DC., *Pl. Grass.* t. 102; Salm Dyck, *Mes.*, §61, f. 1; *Ann. Sc. Nat. Paris*, ser. 3, Vol. XVIII, p. 240, t. 10, f. 17-24; Junghans, *Ic. Pl.* t. 37; Meigen, *Deutschl. Fl.*, Vol. II, t. 96; Payer, *Organog. Comp. Fl.*, p. 356, t. 80, f. 17-24; *Flor. Mag.*, 1869, t. 460; *Gartenfl.*, 1877, p. 153; Sauviago, *Cult. Littor. Mediterr.*, p. 86, with fig.; *Rev. Hort.* 1903, p. 525, fig.; Berger, *Mes. und Port.*, p. 53 and 54, f. 8, III–IV; Schoenland in *Tr. Phil. Soc. S. Afr.*, Vol. IX, p. 36, t. 2, f. E.; *Journ. Bot. Soc. S. Afr.*, 1927, t. 4, f. 4, C.; L. Bol. in *Mesemb.* 13, f. 3, B.; Litocarpus cordifolius, L. Bol. in *Fl. Pl. S. Afr.*, Vol. VII, under t. 261, f. 11.

A native of the eastern coastal districts of South Africa, whence it was introduced into cultivation by Masson in 1774, and has now become naturalised in several of the warm parts of the world. *N. E. Brown.*

(*To be continued.*)

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante. pp. 112-118.)

(*Continued from p. 294*).

ENGLAND, W.

Somersetshire.—The late frosts and east winds experienced here, when most of the Pears and Apples were in bloom, did very little harm to some of the varieties. On the whole, the Apple crops are good, with the exception of Worcester Pearmain, Lane's Prince Albert, Claygate Pearmain, and Cox's Orange Pippin; Pears are a fair crop; Peaches and Nectarines set well but fell freely later. Apricots were damaged by frost when in blossom, while Strawberries also suffered from the same cause. Plums were a fair crop, and Cherries, Gooseberries, Raspberries and Currants were above the average. The soil in this district is heavy, on limestone. *William Mackay, Ilchester Road, Charlton Mackrell.*

Gloucestershire.—The promise of good crops of fruits was splendid, but the late frosts spoiled nearly all the stone fruits and injured most of the bush fruits, particularly Gooseberries. Out-of-door Peaches, Nectarines and Apricots were completely ruined where not protected. Pears and Apples set well and both are so far free from scab. During the scorching weather experienced in July the soil dried badly on the surface, and a lot of Apples have dropped. However, there is still more than an average crop, such sorts as Cox's Orange Pippin, James Grieve and Egremont Russet having had to have their fruits thinned. The soil here is heavy, yellow clay on limestone rock. *John Ettle, 201, Henleaze Road, Westbury-on-Trym, Bristol.*

——Black Currant bushes bore heavy crops of good fruits; Gooseberries were good and plentiful, and Raspberries were very good. Plums, on the whole, were good, and Apples and Pears are plentiful, although not regular. A few trees of Cox's Orange Pippin had to have their fruits thinned. At the time of writing the ground is very dry and rain is needed badly. *John Banting, Tortworth Gardens, Falfield.*

——The prospects of a good fruit season were good at the outset, but they were upset later by sharp frosts and a spell of dry, cold weather. The attacks of insect pests have been very severe, particularly of aphis and caterpillars on Apple and Plum trees. Thorough spraying with tar-oil wash in the winter has proved to be a valuable means of preventing attacks by these pests. In some districts capsid bug is doing serious damage to fruit crops. Where they were not winter sprayed, Black Currants have suffered badly with aphis, but American Gooseberry mildew is not nearly so prevalent as it was last year. The first Strawberry blooms were ruined, but nevertheless, healthy vigorous plants cropped well. Strawberry beds generally, however, are not satisfactory. *G. H. Hollingworth, Shire Hall, Gloucester.*

HEREFORDSHIRE.—Black Currants were very scarce in this district owing to sharp frosts experienced when the bushes were in flower, and Strawberries were also very poor here, owing to drought at the latter end of April and throughout May; there were plenty of blooms, but the fruits did not swell and the crop was about one-third of the average. Other crops are fairly good under the circumstances, Pears being very good, while Apples in general are plentiful, except the variety Court Pendu Plat, which is a complete failure. *J. B. Cooke, Ledbury Park Gardens, Ledbury, Hereford.*

——The best cropped varieties of Apples are James Grieve, Wealthy, Charles Ross, King of the Pippins, Sturmer Pippin and King's Acre Pippin. Apricot, Peach and Nectarine trees failed to set fruits owing to the cold north-east winds experienced at flowering time, but Strawberries and all bush fruits bore good average crops. Plums were very scarce, but Pears are good. These gardens are situated on the northern slope of a hill, and are therefore sheltered. A great many of the Pear trees are growing against a south-west wall. The soil is a deep sandy loam, admirably suited for fruit culture.—*F. Roberts, Stoke Edith Park Gardens, Hereford.*

SHROPSHIRE.—There was a profusion of blossom on all types of fruit trees and bushes and the weather generally was favourable to the fruits setting well, but a large number of fruits dropped during the July drought. Aphis is prevalent throughout the district. Black and Red Currants bore very good crops, but Raspberries were small, while Nuts are very scarce. The soil here is a heavy loam on a clay subsoil. *Roger F. Jones, Oteley Hall Gardens, Ellesmere.*

——Pears are a very good crop and look extremely well. Early Apples set very well, but later varieties, such as Newton Wonder and Dumelow's Seedling carry very poor crops, while the fruits dropped badly during the drought. Strawberry plants are badly diseased and produced rather a poor crop. Plums and Damsons bore splendid crops. The soil is of a clayey nature, but not very deep, and crops suffered badly during the drought. *J. Clark, Sansaw Gardens, Clive, Shrewsbury.*

(*To be concluded.*)

VEGETABLE GARDEN.

THE CARDOON.

RELATED to the Globe Artichoke, the Cardoon makes a stately object when allowed to flower. A perennial, and native of southern Europe, it grows to a height of from four to six feet, and has large, pinnatifid leaves which are whitish beneath; some varieties are armed with brown and yellow spines. In France the flowers, when dried, are used for coagulating milk. The plant is a rather thirsty subject and in light soils it is necessary to plant it in trenches so that it may benefit from all the water which is applied. A rich soil is required to produce good specimens. During April, seeds may be sown in prepared trenches at intervals of eighteen inches. The young plants should be secured to stakes, and during the absence of rain copious supplies of rain-water should be afforded, while dressings of guano may also be applied.

The plants should be kept growing actively, for a check may promote the production of premature flowers; full growth is usually attained during August.

Blanching is commenced by gathering the leaves together and winding around them bands of hay, finally earthing soil up to them, as with Celery. An excellent plan for blanching, which may be adopted where the requisite pipes are available, is accomplished by fastening the leaves closely together, then placing a drain pipe over each plant, and filling it with sand; large pipes are required for well-grown specimens. At the approach of frost the plants should be protected.

The common Cardoon is spineless and is apt to run to seed, while the Tours Cardoon is very spiny, the spines being long and very sharp; it is a hardy variety. The Purvis Cardoon is a strong grower which attains a large size, while the leaves are only slightly prickly. *C. Ruse.*

FRUIT REGISTER.

THE VEITCHBERRY.

THIS free-fruiting berry-bearing plant (Fig. 150), a hybrid between November Abundance Raspberry and a Blackberry, is a valuable addition to the fruit garden, and is especially useful for training against trellis-work or walls and fences, or it may be grown in the open garden, trained to stakes. Its cultural treatment is similar to that applied to Raspberries; each year the fruited branches should be removed and the new growths tied in, while it should be planted in good, deep and well-enriched soil.

The fruits are large and of good size, about twice that of the average Raspberry, while its colour is described as similar to that of a fully-ripened Mulberry. The flavour is good and the fruits are produced in great abundance, ripening after the summer-fruiting Raspberries have finished fruiting, but before the Blackberries are ripe, *i.e.*, at a very convenient period. The fruits are very useful for cooking purposes and are also valuable for jam-making.

The Veitchberry is one of the specialities of Messrs. Laxton Brothers, Bedford, who recently showed heavily-fruited sprays of it at a meeting of the Royal Horticultural Society.

HOME CORRESPONDENCE.

Table Decorations.—The article on Table Decorations in your issue of September 22, p. 232, was very interesting, but surely one very important point has been omitted. The remarks would be entirely applicable to an art show, but at a flower show the flowers should receive the foremost consideration. The newest or rarest species and varieties, or a lavish amount of flowers should not, of course, receive special consideration; but no table ornaments, such as fancy mats, serviettes, table-centres, or even cutlery, should ever be allowed at a flower show, as they might influence the judges. A plain white cloth (or stained table in imitation of a polished surface), and the necessary vases or bowls, are all that are required. The Japanese are past-masters in the art of table decoration, and their exquisite arrangements may be copied or modified accordingly with great advantage. A black Wedgwood bowl, with a glass holder, gives great relief after the usual type of floral decoration, besides showing all the lighter-coloured flowers to the best advantage. The general run of cut flowers need not, however, be employed, for equally beautiful arrangements with other materials are at hand—such as small bulbs, alpine flowers and flowering twigs, with the help of a few small rocks and moss. Gaudy arrays of top-heavy "florists' flowers" and "Asparagus Fern," in gilded vases, are impracticable, as also are the ornate imitation king fishers, butterflies and nymphs, which are employed to "beautify" bowls. The flowers displayed on a setting of table cloth or other substitute, should be sufficient for a horticultural show—a show which is not intended for the display of cutlery or other table requisites. *G. S. Thomas, University Botanic Garden, Cambridge.*

The Colours of Flowers.—I was very glad to see the question of misleading colour description taken up by Major P. E. Chappell in your issue of September 29, and the strong plea he puts forward in your columns for the publication of some authoritative colour-chart by the Royal Horticultural Society. The present colour descriptions of flowers are too frequently quite unworthy of our horticulturists. As an instance of this, one need not go further than the Perennial Aster Amellus var. Ultramarine, shown so well at the great Autumn Show at Vincent Square this year. Why this purple flower should have received the misleading name of Ultramarine must pass anyone's comprehension. There is a Polyantha Rose named Violet Blue, but the colour of the flower is an unpleasing, sunfaded puce. We have the deep warm purple Gladiolus Baron J. Hulot described as indigo-blue. We find the shrubby Veronica Autumn Glory, Wistaria, Heliotrope and Neapolitan Violets, all listed among blue flowers! Many of the newer Flag Irises are difficult to place as regards colour, but there is no excuse for calling the rich purple-flowered Iris germanica by the stereotyped name of the Blue Flag. The purple Dutch Crocus is termed the "blue" Crocus. We have a double Tulip named "Bleu Célest," or Blue Flag (true). In one nurseryman's list we read the "Poppy Anemones embrace among other shades, both blue and cobalt," but there is no mention of purple or violet! When it was pointed out in one of the horticultural papers a few weeks ago that the colour of Geranium ibericum should not be described as blue, as the blossoms are a rich full purple, the defence put forward was that blue and red are "only generic terms," and it was useless to argue upon a question of colours as they appeared different to various individuals. This certainly appears to be the case, as three or four quite different colour descriptions relating to the same flower may be found on comparing a few lists. This further emphasises the need of having some authority to refer to. It would be possible, no doubt, to get a colour chart, such as that suggested in your columns, published by private subscription, but endorsed or recognised by the Royal Horticultural Society. The large sums at the command of this Society could well allow such a work to be undertaken, and by it undoubtedly the comparatively small cost would be amply justified, and welcomed, by the Fellows and also the general public of all flower lovers. *F.R.H.S., Brighton.*

Perpetual-flowering Carnations.—The note on Perpetual-flowering Carnations by C. J. Reading (p. 266) was of great interest, and opens up the very debatable point as to the advisability of growing Carnations entirely in the open during the summer months. Personally, I have long concluded that such conditions are adverse to their successful cultivation, as although a free circulation of air is necessary on all possible occasions, sufficient humidity must be maintained to promote free and continuous healthy growth. Such conditions are almost impossible where the plants are subject to full exposure or cold draughts. A slight shading also is very beneficial during the hottest part of the day. In view of this, and the other conditions mentioned, I consider an unheated pit is ideal for the summer quartering of Carnations. *Thomas Baines, Marks Tey.*

Lobelia Tupa.—In one of the recent issues of *The Gardeners' Chronicle*, someone mentioned that Lobelia Tupa was not a very hardy plant. The enclosed photograph [unfortunately not suitable for reproduction—EDS.] of this plant with fifty-two flower spikes may interest you. We find it quite a hardy herbaceous plant. In winter it certainly has a little covering of straw. The seed pods this year are ripening very well. *F. D. S. S., Kingennie.*

Rosa × highdownensis.—In your issue of September 29, I noticed a statement that this hybrid Rose was thought to be a cross between R. Moyesii and K. of K., as that was the only variety near the seed parent. It is a well-known fact among Rose hybridists that it is only possible to cross-fertilise R. Moyesii with one of the species. I myself have tried many times, and incidentally, used K. of K. both as a seed and pollen parent, with negative results. The late Mr. Samuel McGredy once told me that he, too, had tried crossing it with the present day Roses hundreds of times, but had never succeeded. The point was also raised at the Rose Conference held by the National Rose Society in July last, and it was unanimously confirmed by the hybridists then present that it was only possible to use certain of the species for cross-fertilisation with R. Moyesii. The results so far obtained in that direction have not been satisfactory and in every case the distinctive characteristics of R. Moyesii were lost. It is known, also, that R. Moyesii throws variations in seedlings, but while the blooms come true to type the heps differ more or less according to the situation and soil in which the plants are grown. It would be interesting if Major Stern would be good enough to give a description of the blooms. *Courtney Page, Haywards Heath.*

Nertera depressa.—This dainty little plant has established itself in the lawn at Glenoran Rhu, Dumbartonshire, whence a specimen has been sent me by Mrs. Ewing, of Helensburgh. As N. depressa seems to require winter protection in most English gardens, its occurrence in the open so far north affords interesting evidence of the mildness of the climate on the Dumbartonshire coast. *J. Burt Davy, Lecturer in Tropical Forest Botany, University of Oxford.*

The New R.H.S. Hall.—Having read your article (p. 261) on the New R.H.S. Hall, I am inclined to agree with it. As a looker-on who, maybe, sees much, if not most of the game, all you state is very apparent. From the point of view of the R.H.S. the New Hall must appear a most excellent endeavour, and the fact that there was no re-admission to one part after seeing the other was no doubt an unfortunate oversight. I cannot think this was so with regard to the inadequacy of both halls to house the principal Autumn Show, which the Society would have us consider of national importance. The Society's remedy of still further splitting the show is an excellent one; this may sound sarcastic, but the method may prove satisfactory. *Surrey.*

FOREIGN CORRESPONDENCE.

EUONYMUS ALATUS.

THE corky-barked Euonymus is a very distinct shrub; it is a native of China and Japan, and is perfectly hardy in north-eastern America. It is of spreading but rather stiff habit, up to eight feet high, the branches in the young state being green and four-angled. Two, or all four of these angles later develop curious and conspicuous thin corky wings, each from one-quarter to one-half-of-an-inch in width and of a light brown hue. The leaves are elliptic or obovate, acute at both ends and finely toothed. They are dark green in colour turning in the fall to a bright crimson. The fruit is small, purplish in colour and normally composed of four lobes, but at times only one or two of the lobes develop. The scarlet seed-coats, which are exposed when the fruit opens, are quite conspicuous at that time.

CELASTRUS SCANDENS AND C. ARTICULATUS.

UNDER the vernacular names of Bittersweet, False Bittersweet and Wax Work, the native Celastrus scandens is commonly cultivated in the gardens of the eastern United States. It is a worthy shrub of climbing habit, and in the wild state it rambles freely over hedges, shrubs, tree stumps, etc. During the fall, it produces drooping clusters of bright orange fruits which later open (in much the same manner as do those of Euonymous europaeus) to disclose the scarlet-coloured seeds. The fruits remain in good condition practically throughout the winter and sprays are sold in the florists' stores for decorative use. The plants are unisexual and both sexes should be planted in proximity to ensure fruit bearing. According to W. J. Bean, *Trees and Shrubs Hardy in the British Isles*, it apparently does not fruit so freely in Britain as in its native land and has never been widely cultivated.

Another useful species, also perfectly hardy here, is the Japanese C. articulatus, also known under the name of C. orbiculatus. This is of more rampant growth than the preceding species, sometimes attaining a height of forty feet. The fruits of C. articulatus are borne in great profusion. They are globular, and orange-yellow in colour and open and expose to view the scarlet seeds, but as the fruits are hidden under the foliage they are not so conspicuous as those of C. scandens (which are borne above the leaves) until after the leaf-fall.

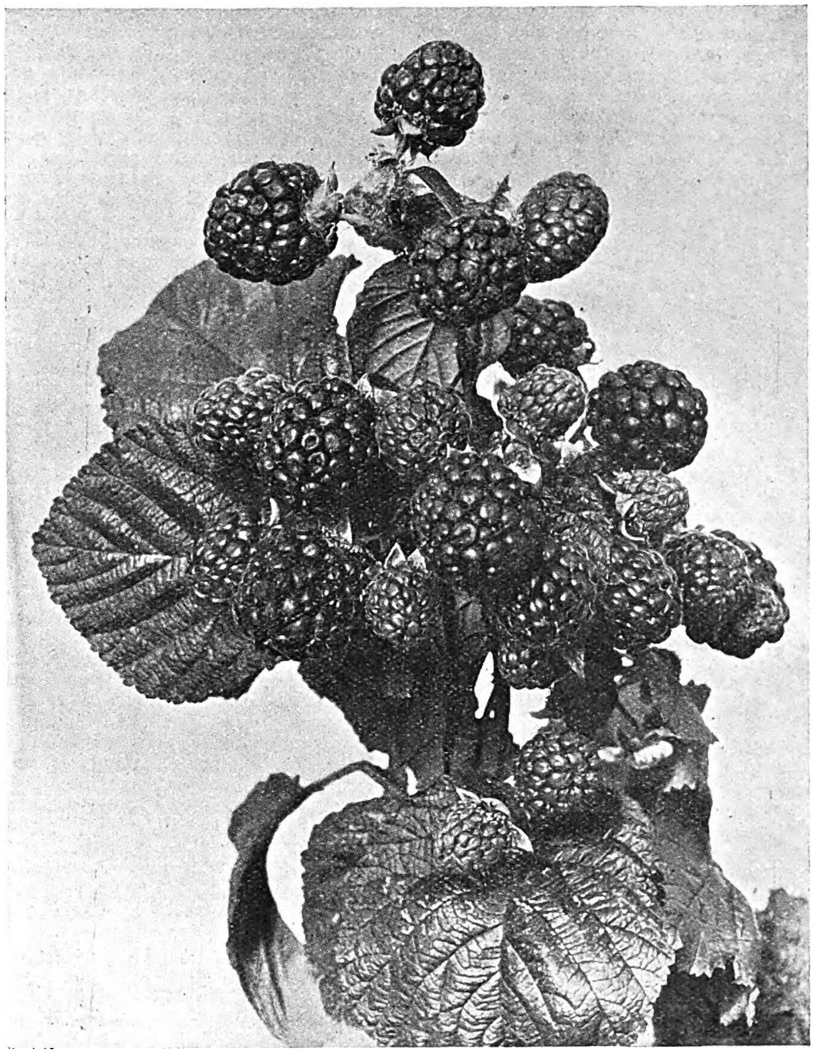

FIG. 150.—THE VEITCHBERRY.
(see p. 314).

W. J. Bean waxes more enthusiastic over the possibilities of this shrub in Britain than over the preceding species, and writes: "But the species is by no means so well-known as it ought to be, for it is the most striking of all hardy climbers during November, December and January. At that season each branch is furnished from end to end with hundreds of the brilliantly coloured fruits, which remain for at least two months in full beauty, each branch a wreath of gold and scarlet."

Certainly a specimen carrying a good crop of fruits only requires seeing to be admired and appreciated. Birds do not take the fruits of this plant. *T. H. Everett, New York, U.S.A.*

CONGRESS OF ENTOMOLOGY.

THE fourth International Congress of Entomology, which was held at Cornell University, New York State, from August 12 to 18, 1928, was the most successful meeting of its kind. Over 650 delegates and associates were registered and thirty-five countries sent representatives, the British contingent numbering twenty-one.

The greater number of the delegates arrived at Ithaca on Saturday evening, August 11, and were registered at Willard Straight Hall, which was the headquarters of the Congress.

There were many outstanding papers, but space will allow only for a resumé of those closely connected with horticultural science.

The mornings were devoted to papers of general interest, while the afternoons were given over to sectional meetings. So diverse are the aspects of the science of entomology that it was necessary to form eight sections, viz.: (1) Nomenclature and Bibliography; (2) Ecology; (3) Morphology, Physiology, Embryology and Genetics; (4) Systematic Entomology and Zoogeography; (5) Medical and Veterinary Entomology; (6) Forest Insects; (7) Apiculture; and (8) Economic Entomology, this last section being sub-divided into (a) Cereal and Truck Crop Insects; (b) Citrus Fruit Insects; (c) Cotton Insects; (d) Deciduous Fruit Insects, and (e) Insecticides and Appliances.

Then Congress was officially opened on Monday morning by addresses of welcome from the Deans of the University Faculty and the New York State College of Agriculture, Cornell.

The followed the address of the President of the Congress, Dr. L. O. Howard, who spoke on the essential recognition of entomology as a subject apart from zoology in the curricula of Universities and Colleges. There must be, he said, closer co-operation between the various sciences before the final domination of the vast hordes of insects is attained. This point was stressed by quoting the words of W. C. Allee (*The Evolution of the Invertebrates*; Chicago, 1926): "In time this may become the age of man, the most highly developed mentally of the vertebrates, but at present he is only beginning to dispute the ascendency of his rivals, the highly specialised insects crowning the Arthropod series." When speaking of the sectional meetings, Dr. Howard, in his inimitable manner, said: "And so the members of Section 8 will continue to look upon the eminent members of Sections 1, 2, 3 and 4 with a deep respect, perhaps tinged with awe, but the members of these sections, dealing as they do with 'pure' science will, I trust, look to the Section 8 men as useful members of the Congress who, perhaps, more than the others, are helping to reform the old ideas of entomology and are bringing public appreciation and public funds to its support."

Following papers by Drs. Jeannel (Paris) and Jordan (Tring), Professor Trägardh (Stockholm) spoke on the soil fauna in Swedish forests, and explained by means of diagrams the varying arthropod and microarthropod fauna in Birch, Willow, Pine and Spruce associations.

Among the six papers read before Section 8a on Monday afternoon, there was a particularly interesting one by Dr. Hayes (Kansas), written in conjunction with Professor McCulloch (Kansas), on the problem of controlling underground insect pests. It was mainly a compilation of our knowledge of insects found permanently or partially in soil. Danger may, and often does, arise from the application of soil insecticides by the changes brought about in the chemical, physical and biological condition of the soil. Before soil treatment is advised on a wide area, the agronomic phases should be studied. Arsenical compounds retard germination and subsequent growth, while sodium cyanide alters the physical condition of the soil.

On Tuesday morning, Dr. Horn (Germany) proposed that an International Institute be formed which would act as a clearing house for entomological literature. It is felt that although a great amount of useful work is being carried on by the Bureaux of Entomology in London and Washington, and, more recently, by the publishers of an American journal (*Biological Abstracts*), there is a distinct desire for some institute where literature dealing with entomological science published prior to 1913 may be collected and abstracted.

On Tuesday afternoon, Mr. Fryer (Ministry of Agriculture, England) gave an abridged account to members of Section 8d of capsid bugs injurious to Apple orchards in Britain. His remarks, which were illustrated by lantern slides, outlined the development of food habits. Between the years 1900 and 1910, the Apple capsid (Plesiocorus rugicollis) migrated from its natural food plant, the Willow, to the Apple, and its life history thereby was pushed forward one month. The factor which decides the voluntary transference of a species from one host to another is not completely understood, although it may be explained partly by Hopkin's "Host Selection" principle. The other injurious capsid (Lygus pabulinus) is a pest of herbaceous and tuberous-rooted plants, particularly Potatos and Dahlias. While the former species is single brooded, the common capsid is double brooded the first brood being found on Apple and the second on herbaceous plants. During August and September, the bugs migrate from soft-stemmed plants to fruit trees, the migratory habit being characteristic of the species. There are four species of capsid bugs indigenous to the Apple, but no serious damage is done by them. Damage by these pests is less on trees grown in grassland, the reasons being probably due to a reduction in shoot growth and the formation of a thicker cuticle. The unsuccessful attempts at control by the use of nicotine-soap wash is due to the long period over which the eggs hatch. The expense of spraying trees several times with a contact wash is prohibitive. The use of tar distillates at ten per cent. strength is suggested, also the application of potash manures to render the trees less susceptible to attack.

On Wednesday, the Congress members were transported by special train to the New York State Agricultural Experiment Station at Geneva. Demonstrations of high-powered spraying and dusting machines were carried out by the Niagara Company (Middleport, New York), Bean Spray Company (Lansing, Michigan), Friend Manufacturing Company (Gassport, New York), and the Rex Company (Rochester, New York). The capabilities of the "spray gun" and a special "boom" for attaching to horse-drawn machines used in the control of the Mexican Bean beetle (Epilachna corrupta) were displayed. Several different types of machines for dealing with the Corn borer (Pyrausta nubilalis) were shown in action in a field of Corn. Several firms arranged exhibits of proprietary insecticides in the Jordan Hall.

Sections 8a and 8d sat during the afternoon, the papers being devoted to important pests of American crops.

On Thursday morning, Dr. Felt (Connecticut) discussed the insect inhabitants of the upper air. His conclusions are that the presence of insects in situations far removed from their host plants is accounted for by casual drifting rather than purposeful migration. That the air is everywhere and all the time filled with insects is indisputable. Examples were given of the various species of insects recorded by observers in aeroplanes and captive balloons at considerable heights. Over one thousand species of insects have been taken on the roof of a New York skyscraper, many of the specimens being far removed from their normal food.

Another paper worthy of mention was read by Dr. Efflatoun Bey (Egypt) on the development of the entomological service in Egypt. After dealing with the ancient history of pests as recorded in ancient papyri, hieroglyphics on monuments and biblical records, the lecturer dealt with the organisation of the service. There are three principal areas, viz.: the Nile valley, the eastern and western deserts, and the coastal strips on the north. Five branches have been formed: they are fumigation, spraying and dusting, general control (*e.g.*, hot air installation for Cotton seeds), plant quarantine and finance.

Dr. Marlatt (Washington) followed with a discussion on the plant immigration restrictions imposed by the United States for the purpose of excluding new and dangerous pests. These regulations came very late and long after European countries had adopted similar measures against such pests as Phylloxera and the Colorado beetle. Congress withheld the Quarantine Act fourteen years before it was passed, so that in the interval several serious pests of crops got in, including the European cornborer, Oriental fruit moth, Japanese beetle and Citrus fruit canker. Legislation had been set up between States against the introduction of the San José scale so long ago as the late 'eighties. The various pests introduced from Europe and the southern frontier of the United States were discussed.

The only time that Section 8e met was on Thursday afternoon. Dr. Ross (Ontario) opened the session with a paper on the control of Pear psylla (Psylla pyricola) by the use of oil sprays. This pest, which is three- to four-brooded, is particularly prevalent in Canadian orchards. The most successful spray for combating this pest is a three per cent. Bordeaux oil emulsion, the Bordeaux mixture acting as the emulsifier for a lubricating oil of low volatility. The oil kills both by contact and by the production of an oily film on the leaf surface, which kills those individuals untouched by the spray. This wash is not an ovicide, but acts as a deterrent to egg-laying by over-wintering females.

Professor de Ong (California) followed with a technical account of the composition and uses of oil sprays. The various types of oils used in spray fluids were discussed and exhibited. The favourite type used on the Pacific coast is known as the "mayonnaise." The effect of an oil wash on plants is a physiological one, for the leaf is temporarily immersed in a "bath" of oil. Some of the effects of oil washes on immature fruits is to hinder ripening (Citrus) and to cause a decrease in size and sugar content (Prunes), while certain oils kill shoots of fruit trees. Information is required on the following points before an oil can be used as a plant spray: they are (1) the specific gravity, which is of minor significance; (2) the flash point, which is an indication of the proportion of volatile oils present; (3) colour, shade and tint are not of great importance; (4) sulphur content (one-five-hundredth part of one per cent. is injurious to plant tissue); (5) distillation; (6) acidity—a small amount of organic acids is removed in filtration; (7) volatility, and (8) viscosity—a most important factor in determining the type of oil, as penetration is dependent on the viscosity figure. An oil of 35-40 viscosity is useless against red scale, whereas it is efficient against black scale. The technique used in determining the penetration of oils into the tracheae of insects and the tissues of plants was discussed.

Mr. Campbell (Washington) described a quantitative method of estimating the relative toxicity of stomach poison insecticides in order to discover the factor of safety between mammals and insects. Mulberry leaf "sandwiches" were sprayed with various stomach poisons and their effect on silkworms was studied in Petrie dishes.

Dr. Roark (Washington) spoke on his work of collecting information from chemical journals of organic and inorganic substances which would act as guides to entomologists seeking new stomach poisons for insects.

Mr. Kelsall (Ontario) dealt with the use of precipitated lime-sulphur washes in Nova Scotia. The most satisfactory combined wash for use against fungous diseases, leaf-eating insects and sucking insects was the addition of aluminium sulphate crystals, calcium arsenate and nicotine sulphate to lime-sulphur solutions.

Dr. Leiby (North Carolina) described, with the help of lantern slides, the efficiency of cold-stream spraying machines. The advantages of this type of sprayer are the elimination of pumps and intricate machinery; less labour and material; the spray can be thrown to greater heights; quicker working; and the more toxic effect produced through the fineness of the particles distributed over the foliage. A great disadvantage is the cost of the apparatus. A gasoline burner produces the necessary steam which is ejected in a fine stream along with the insecticide. The result is that an area can be covered with the wash in a far shorter space of time than with an ordinary sprayer.

There were no papers of outstanding interest to horticulturists under Section 4 on Friday morning. On Friday afternoon, Dr. Tillyard (Australia) dealt with the biological control of noxious weeds in Australia and New Zealand. The chief pests to be contended with are Blackberry, Gorse, Ragwort, St. John's Wort (Hypericum perforatum), Viper's Bugloss and Prickly Pear (vide *The Gardeners' Chronicle*, Vol. LXXXIV, August 18, 1928, pp. 121-122). Each promising species of insect has to undergo exhaustive laboratory tests—oviposition and starvation tests—before it is considered as a probable beneficial insect. Needless to say only the most highly specialised insects are able to pass the tests. In New Zealand, the only species of insect which has shown no desire to change its food plant is the Cinnabar moth (Tyria jacobaeae). The careful work necessary to breed promising species of insects free from their parasitic enemies was explained.

Dr. Imms (Rothamsted) followed with a similar discussion on the question of supplying our colonies with those species of insects which have shown themselves adapted for the control of weeds. The preliminary investigations with weed-feeding insects are carried out at Rothamsted prior to their dispatch overseas. Great promise is shown by the weevil, Apion ulicis, which has been found to feed exclusively on the seeds of Gorse, even after its subjection to the most stringent starvation tests. The chief problem is the control of the Blackberry by phytophagous insects, this fruit being closely allied to Loganberry and Raspberry.

The last business on the agenda of the Congress was the report of the Executive Committee, and the selection of the place for the fifth Congress, which is to be held in Paris in 1923 in order to coincide with the centenary of the Entomological Society of France.

Through the courtesy of the United States Department of Agriculture, motion pictures pertaining to insect life and insect control were shown in the University Theatre on three evenings. Some of the subjects were: Aeroplane dusting versus power dusters against the Cotton boll weevil, the life history of the Corn borer and the Japanese beetle.

Several excursions were arranged to places of local interest, such as the beautiful Finger Lakes region, wild life preserves, forests and fish hatcheries.

Prior to the Congress, the British, French and Spanish delegates spent five days in New York, where a comprehensive programme of sightseeing had been arranged by a local committee. At the New York Botanical Gardens, the splendid collections of Nymphaeas and Cannas were seen in full flower. The Rose garden had suffered from a period of excessively hot and dry weather and, consequently, did not reach the standard expected.

The time spent at the Boyce Thompson Institute was all too brief and a cursory inspection of the activities there carried out had to suffice. The work covers a large field, and exhibits were arranged to show some of the results already obtained with (1) the breaking down of the dormant period of Irish Potatos by means of chemical solutions, and (2) the excellent work which has been done by Dr. Kunkel and his staff on Aster "yellows"—a virus disease transmitted by the jassid, Cicadula sexnotata.

Following the Congress, an extensive tour of the eastern States was arranged for the delegates. The party proceeded from Ithaca to Buffalo and Niagara, where the round trip was made in reserved cars. One day was spent in Pittsburgh, where business was combined with pleasure in the form of an inspection of the rich entomological collections in the Carnegie Museum and a tour of the city, its parks and environs.

The party proceeded to Washington where four days were profitably spent in visits to the National Museum, the Department of Agriculture, the Bureau of Entomology, Plant Quarantine Station, Zoological Park and Plummer's Island in the Potomac River, on which a remarkable mixture of southern and northern forms of insect life occur.

Three days were spent in Philadelphia where, among other places of interest visited, the delegates inspected the Japanese Laboratory at Moorestown. The field station was set up a few years ago to inquire into the habits of the recently introduced oriental pest (Popillia japonica), and here work is proceeding along lines of both chemical and biological control. Work on the Oriental fruit moth (Laspeyresia molesta) is also being conducted in a part of the grounds.

The last part of the programme had been arranged in Boston, where visits were made to the Arnold Arboretum, the Bussey Institute and the Museum of Comparative Zoology. At the last place some time was spent inspecting the incomparable Ware collection of glass flowers, made by the late Herr Blaschka. The Arnold Arboretum, with its magnificent collections of trees and shrubs, was a source of great interest.

Motor trips were made to Melrose Highlands to see the work carried out at the Gypsy Moth Laboratory, and to Arlington to inspect the Corn Borer Laboratory. An exhibition of high-powered spraying of forest trees was arranged at the former place so that visitors could see the ease by which seventy feet high trees were sprayed with a wash containing lead arsenate and fish oil. For forest penetration, the machine is capable of supplying one mile of hose with spray fluid so that a pressure of 175-225 lbs. to the square inch issues from the Worthley nozzle.

At the conclusion of the tour, most of the delegates left for their European destinations, while a few visited laboratories and institutions in the middle and far West.

The foreign delegates were unanimously agreed that the Congress was a most successful one, both from the standard of the papers submitted, and for the opportunity of meeting fellow workers from all parts of the world so that an interchange of ideas was rendered possible. The highest praise is due to the various Committees who looked after the welfare of the foreign delegates at Cornell and at the various points touched in the tour of the eastern States.
G. F. W.

SOCIETIES.

ROYAL HORTICULTURAL.

The Vegetable Show.

As stated in our previous issue, the Royal Horticultural Society's annual Vegetable Show was held in conjunction with the annual Fruit Show on October 9. There were three extremely fine non-competitive exhibits staged in the hall proper, two consisting of mixed vegetables, by the Hon. Vicary Gibbs and Messrs. Sutton and Sons, respectively, and one of Potatos, by Messrs. Dobbie and Co., and each was awarded a Gold Medal by the Council of the R.H.S. The majority of the exhibits in the competitive classes were staged in the restaurant, owing to lack of space in the hall; competition in most classes was very keen, and in general the quality of the vegetables very high.

The exhibits in the four classes for collections of vegetables were staged on the dais, while the collections of saladings, Potatos and Onions, and the twenty-nine classes for single dishes of specified vegetables were all arranged in the restaurant in the basement. The exhibits were not so numerous as at some former vegetable shows, but the quality generally reached a high standard of excellence.

Viscount Hambleden (gr. Mr. W. Turnham), Greenlands, Henley-on-Thames, won the first prize in the class for twelve kinds of vegetables with an admirable collection. The principal items were Giant White Celery, Selected Musselburgh Leek, Tender and True Parsnip, New Red Intermediate Carrot, Ailsa Craig Onion and Best of All Tomato. In a very good second prize collection, shown by Sir Randolf Baker, Bt. (gr. Mr. A. E. Usher), Ranston, Blandford, Dorset, there were exceedingly good specimens of Ailsa Craig Onion, New Red Intermediate Carrot, Phenomenal Pea and Autumn Giant Cauliflower. A good collection from the Cheadle Royal Mental Hospital (gr. Mr. A. Falconer), was third in this important class.

The class requiring nine kinds of vegetables was open only to those amateurs who have not more than six employees in their gardens. Here the exhibits were also of high quality and well set up. The best collection was shown by Lord Riddell (gr. Mr. A. Payne), Walton Heath Golf Club, Tadworth. Surrey, who included excellent examples of Early Autumn Giant Cauliflower,Exhibition Celery, Tender and True Parsnip and Everyday Cucumber. The Rev. Roland Smith (gr. Mr. H. Bates), Hertingfordbury, was second and his outstanding kinds were Prize-winner Runner Bean, Autumn Giant Cauliflower and Best of All Tomato. R. Chetwynd Stapylton, Esq. (gr. Mr. W. Meyer), Headlands, Great Berkhamsted, was third.

There were two classes each requiring six kinds of vegetables; one was open to amateurs who have not more than three employees in the garden, and the other was open to amateurs who employ no gardener and to those who employ a single-handed gardener only. In the former class the first prize was won by C. Ward, Esq. (gr. Mr. A. G. Law), Murrea, Ware, Herts., whose best items were Autumn Mammoth Cauliflower and Ailsa Craig Onion. R. H. Lang, Esq. (gr. Mr. D. W. Bedford), The Braes, Berkhamsted, was second, and he showed good examples of Ailsa Craig Onion and New Red Intermediate Carrot. The Rev. F. G. Wyatt (gr. Mr. J. E. Shirley), Little Haywards, Horley, Surrey, was third. In the class for vegetables from smaller gardens, W. Sinfield, Esq., Brighton, was first, and he showed very good Premier Onions, Michaelmas White Cauliflowers, Tender and True Parsnips and New Red Intermediate Carrots.

The two collections of six kinds of salad vegetables were set up attractively. Viscount Hambleden, who was first, showed Giant Celery, Ideal Lettuce, Best of All Tomato and Ideal Cucumber. R. Chetwynd Stapylton, Esq., was awarded the second prize, and he included Best of All Tomato and Ideal Lettuce of good quality.

The exhibits of one dish each of twelve varieties of Potato filled considerable table space and were of excellent quality generally. W. H. Henderson, Esq. (gr. Mr. F. S. Pike), Newbury, was awarded the first prize for rather large, but shapely tubers. His chief varieties were Majestic, Arran Comrade, Abundance and Di Vernon. Viscount Hambleden was placed second, and he had an admirable collection of such sorts as The Bishop, Arran Comrade, Witch Hill, King Edward, Cardinal and Catriona

Varieties immune to Wart Disease were not equal in merit to the foregoing. Six varieties selected from the list published by the Ministry of Agriculture were required. Viscount Hambledon was first and he showed dishes of Di Vernon, Majestic, The Bishop, Witch Hill, Catriona and Arran Comrade. The second prize appeared to have been withheld.

The Collections of Onions generally did not equal the high quality of most former years. One dish each of six specified types were to be shown. Sir Randolf Baker, Bart., was first with a good exhibit which included Ailsa Craig, A. J., White Seringathan, Sutton's Globe and Red Globe. Viscount Hambleden was second, and he had good dishes of Ailsa Craig and Giant Red Rocca. R. Chetwynd, Stapylton, Esq., was third.

Single Dish Classes.

Many fine examples of vegetables were staged in these classes, and in many of them it must have been extremely difficult for the judges to award the prizes.

In the well-filled class for Scarlet Runner Beans, H. R. Bolton, Esq., Uxbridge, was deservedly placed first, while in the classes for climbing French Beans and dwarf French Beans, Dr. J. A. C. Roy (gr. Mr. Allan Falconer), Cheadle Royal Mental Hospital, Cheadle, Cheshire, and Captain H. E. de Trafford, were first prize winners respectively.

Dr. J. A. C. Roy was also successful in several other classes, *i.e.*, for a white variety of Celery; for Cucumbers, which were of very fine quality; for Mushrooms, although in this class there were but few exhibits; for Peas, with good pods of Selected Gladstone; and for Turnips—a yellow-fleshed variety—with well-grown specimens of Orange Jelly.

In the classes for long-rooted and Globe Beetroots, competition was very keen, resulting in R. Chetwynd-Stapylton, Esq., Great Berkhamsted, being placed first in the former class, and R. Thomson, Esq., Fort William, placed similarly in the latter. R. Chetwynd-Stapylton, Esq., was also first in the well contested class for Brussels Sprouts; and his roots of white-fleshed Turnips were the best of the many exhibits displayed. Captain H. E. de Trafford showed the best Cabbages, and W. H. McAlpine, Esq., Nutfield, Surrey, was first for Cauliflowers, which in most instances were excellently shown; while C. Hanbury, Esq., Dorchester, received the first prize for Celeriac, and Lord Riddle, Tadworth, was successful with his Celery, of a red variety.

Leeks were shown well by a large number of exhibitors, and many of the specimens staged were of exceptional quality, those by H. E. Phillips, Esq., Wood Green, being adjudged the best, while E. H. Sykes, Esq., Ingatestone, received the first award for Marrows.

Among the successes registered by Sir Randolf Baker were first prizes for Onions, in the classes both for bulbs from seeds sown in the open during the current year, and from seeds sown last autumn; and for Tomatos, both red and yellow sorts. His red-fruited variety of Tomato was Best of All, while the yellow-fruited sort with which he succeeded was Golden Nugget.

Viscount Hambleden, Henley-on-Thames, secured a first prize for excellent specimens of Onions from seeds sown under glass; and was also placed first for tubers of a round variety of Potato, in this instance Arran Comrade. Sir D. Watson, Bart., Groombridge, was first for Parsnips, with excellent roots of Tender and True; R. Thomson, Esq., showed the best Carrots in the class for long or intermediate-rooted varieties; and W. H. Tyzack, High Wycombe, was first for short-rooted Carrots, with good roots of the variety Favourite.

T. Barratt, Esq., Eltham, Kent, showed the best tubers of a kidney-shaped Potato, his variety being Bishop; while in the class for any vegetable not included in the single-dish classes, Gourds, Shallots, Savoys and several other vegetables were shown, the first prize going to Sir William Lawrence, Bart., Burford, Dorking, for good fruits of Aubergine New York Purple.

Non-competitive Groups.

Seldom has such a magnificent display of vegetables been staged as that set up by the Hon. Vicary Gibbs (gr. Mr. Edwin Beckett), Aldenham, upon the occasion of the vegetable show held in conjunction with the Royal Horticultural Society's Autumn Fruit Show, and the Gold Medal, with special congratulations, awarded to the Hon. Vicary Gibbs for the display was well deserved. There were Cauliflowers of wonderful quality, Brussels Sprouts in fine condition, Cabbages, Tomatos, both red- and yellow-fruited sorts, in variety, giant Onions, such as Premier and Selected Ailsa Craig, together with several smaller varieties; in fact, it seemed that no class of vegetable or salad had been neglected. Cucumbers there were of fine shape; perfectly formed long-rooted Carrots; various varieties and types of Potatos; Beans and Maize, while among uncommon salad and other culinary plants we noticed several sorts of Sweet Potato, the Red Currant Tomato, Capsicums in variety, Scorzonera, Dandelion, Aubergines and Red Sorrel. A really magnificent and extremely comprehensive collection.

Messrs. Sutton and Sons were also responsible for the staging of a very representative collection of vegetables, for which they also were awarded a Gold Medal. The group was arranged in the manner which one associates with Messrs. Sutton and Sons, and contained many fine heads of Cauliflowers; Cardoons in variety; Capsicums, Brussels Sprouts, Potatos, Beans, Onions. Celery and many other vegetables, all in several sorts and of excellent quality.

The other non-competitive group of outstanding merit, which also well deserved the Gold Medal awarded to it, was a magnificent collection of Potatos, set up by Messrs. Dobbie and Co., embracing numerous varieties for all seasons. Potatos with coloured tubers were well represented, for we noticed excellent specimens of Mauve Queen, Mr. Breese, an early, pink-coloured sort; The Cardinal, Edzell Blue and Red King, while other varieties well shown were Eclipse, Golden Wonder, Arran Comrade, Midlothian Early, King Edward, Great Scott and Sharpe's Express.

MYSORE HORTICULTURAL.

The Summer Show, held at the Lal-Bagh, in Bangalore, on August 4 and 5, was an unqualified success, in spite of the heavy winds and scarcity of rain during the season. "We have not seen a show like this for many years," was the remark made everywhere in the show hall. The weather, although it was threatening now and then, was favourable towards the afternoon and the gathering was large. There were many distinguished visitors, among whom may be mentioned the Hon. Mr. Crump, the British Resident in Mysore, who kindly gave away the prizes, and Amin-Ul-Mulk Mirza M. Ismail, the Dewan of Mysore.

The number of exhibits was greater than during the past few years. They were so numerous that some hardy plants had to be staged outside the Glass House. The chief exhibitors were His Highness the Maharaja of Mysore, The Hon. Mr. Crump, Mrs. Mirza M. Ismail, Mrs. A. J. Cowdrey, Miss Berry and Mrs. Venkoba Rao.

His Highness the Maharaja's Challenge Cup was secured by Mrs. Cowdrey, she having won it at three consecutive shows. Miss Berry has also won Mrs. Pear's Cup for the highest aggregate marks in the foliage, perennial and annual flower sections. Our hearty congratulations go to them.

In the foliage section the first prize for the large group arranged for decorative effect was won by the Lal-Bagh, and the second by the Bangalore Palace Gardens. Among the perennial flowers, the most striking exhibits were Roses and Chrysanthemums shown by Mrs. Cowdrey, Mrs. Mirza M. Ismail and Mr. Crump; and the tuberous-rooted Begonias and Dahlias exhibited by the former two ladies. Mrs. Cowdrey's exhibit of tuberous-rooted Begonias won the Cup presented by a "Garden Lover," from Ooty, for the best cultivated group of flowers in the whole show.

Among the exhibits in the small gardens section, mention should be made of the Roses shown by Miss Berry and Mrs. Venkoba Rao; Ivy-leaved Pelargoniums, Chrysanthemums and Heliotropes by Captain Saunders; double Pelargoniums by Mr. C. L. Dias, and Violets by Mr. V. S. Thiruvengadaswamy Mudaliar and Rajkumar Desaraj Urs.

In the section for annual flowers, the noteworthy exhibits were of Asters and Pinks, shown by Rajkumari Lalithammaniavaru and Rajkumar Desaraj Urs; Phloxes and Balsams by Mr. Crump and Mrs. Cowdrey; Pansies from the Palace and Ballabrooie, and Verbenas from Mrs. Cowdrey and Mrs. Mirza M. Ismail. Among the small exhibits, Miss Berry's Asters, Phloxes and Verbenas, and Mrs. Venkoba Rao's Pinks and Pansies secured first prizes.

The cut-flower section was well represented under all items. Mrs. Cowdrey's collection of cultivated flowers, Roses, Chrysanthemums, Dahlias, Gladiolus, Gloxinias and Begonias won prizes.

The judges remarked that button-holes were rather large, but sprays were fairly good.

The arrangement of flowers in a vase by Lt.-Col. Siera, and that in a basket by Mrs. Toomy, won first prizes. Both of these exhibits were artistic. The table decorated by Mrs. H. C. Javaraya with pink Roses, which stood out beautifully, won a first prize; and one from Miss Davis gained second prize. Miss Parodi was awarded a special prize for originality, as she used a white lace table-cloth with a large bowl of Antigonon flowers raised in the centre on a high black pedestal. The judges suggested that a class for children's exhibits, vases and baskets should be instituted.

The exhibits in the fruit section were very satisfactory, especially Figs, Guavas and Apples. White Grapes were good, but the purple variety was below the average. The private collection of Grape Fruits, Oranges, Lemons, Shaddocks and Pineapples grown at Gangenahalli estate by Mr. A. T. McIsaac was awarded a Silver Cup.

Among vegetables, some exhibits were below the average, due to the lack of timely rains, while other kinds were good. The exhibits from the Government Horticultural Farm were comprehensive and of the usual high standard.

The medicinal herbs collected by Mr. Narahari Rao won a first prize. Rao Saheb H. Chennaiya's exhibit of Radishes secured an Award of Merit, as also did a collection of sauces, pickles and chutneys made of Indian vegetables, shown by Madame Dorine.

The garden competition was held on July 30 and 31, and special mention may be made of the following gardens:—

The Residency and Carlton House, under "Official Residences"; 10/1st Madras Pioneers and United Service Club, under "Clubs and Messes." Under "Large European Gardens," Mrs. Cowdrey, Countess Skipwith and Mrs. P. A. Barton obtained first, second and third prizes, respectively. Mrs. Cowdrey's garden, which was magnificent, had a ten per cent. handicap over other gardens. Under "Small Gardens," Miss Ross Thompson won first prize, and Mrs. H. Gill, second prize. Both these gardens were beautiful pictures. Under "Large Indian Gardens," Mr. Thiruvengadaswamy Mudaliar's garden, which was beautifully arranged, won the first prize; while Mr. K. S. Gopalaswamy Iyengar's garden, won second prize. The "Small Indian Garden" maintained by Mr. Santhoje Rao was scrupulously clean as well as pretty.

The grateful thanks of the Society are due to His Highness the Maharaja of Mysore, Mrs. Pears, Mr. and Mrs. Cowdrey, Messrs. Spencer and Co., Messrs. Wrenn Bennet and Co., Messrs. Marlam and Co., Messrs. C. Krishnaiya Chetty and Co., and other donors of cups and prizes. *H. C. Javaraya.*

NORTH OF ENGLAND HORTICULTURAL.

The autumn show of the above Society held at Harrogate, in connection with the Harrogate Agricultural Society's exhibition, and which extended over three days, was in every way a great success.

The numerous exhibits were of very high standard, the displays of Roses being very popular, notably the one set up by Messrs. W. and J. Brown, Peterborough, who had excellent blooms of Lady Margaret Stewart, Dame Edith Helen, Lady Inchiquin, Princess Elizabeth, Shot Silk and Lady Sylvia; while Messrs. Samuel McGredy and Son also staged an attractive group, including good specimens of Portadown, Mrs. A. R. Barraclough, and Cherry.

A choice collection of Orchids was shown by Messrs. A. J. Keeling and Sons, Bradford, consisting of several fine Cattleyas and Cypripediums, and numerous other sorts; while Messrs. Mansell and Hatcher, Rawdon, also staged a fine group in which various Cattleyas were the dominant features.

Mr. J. E. Hathaway, Baldersby, won the Ogden Trophy for a fine collection of fruits; and Messrs. Gibson and Co. showed a good new strain of Iceland Poppy, with glowing orange-coloured flowers.

One of the finest and most spectacular exhibits of the show was the display of Dahlias arranged by Messrs. Dickson and Robinson, while an attractive sunk garden, surrounded by herbaceous borders and shrubs, laid out by Messrs. Kent, Brydon and Haigh, was another important feature.

Large Gold Medals were awarded to Messrs. Dickson and Robinson, Manchester, for Dahlias; Messrs. Kent, Brydon and Haigh, Ltd., Darlington, for a sunk garden; Messrs. Samuel McGredy and Son, Portadown, for Roses; and to Messrs. Pennell and Sons, Lincoln, for a collection of fruits.

Gold Medals were secured by Messrs. W. and J. Brown, Peterborough, for Roses; Messrs. Daniels Brothers, Ltd., Norwich, for a collection of fruits, etc.; Messrs. Dobbie and Co., Edinburgh, for Potatos and Dahlias; Messrs. Percy Gardner, Ilkley, for a rock and water garden; Messrs. G. Gibson and Co., Bedale, for a group of herbaceous flowers; Messrs. A. J. Keeling and Sons, Bradford, for Orchids; Messrs. Mansell and Hatcher, Rawdon, Leeds, for Orchids; Mr. Thomas Robinson, Nottingham, for Roses; Mr. W. Wells, Junr., Merstham, for herbaceous flowers; and by Messrs. Whitaker and Wilson, Collingham Bridge, for Gladioli.

Large Silver-gilt Medals were awarded to Messrs. Backhouse Nurseries, Ltd., York, for a table rock garden; Messrs. C. Engelmann, Saffron Walden, for Carnations; Messrs. G. Gibson and Co., Bedale, for shrubs, etc.; and to Messrs. W. H. Simpson and Sons, Birmingham, for herbaceous flowers; while Silver-gilt Medals were presented to Messrs. Bakers, Ltd., Wolverhampton, for herbaceous flowers; Messrs. H. Clarke, for a miscellaneous group; Messrs. Harkness and Sons, Bedale, for herbaceous flowers; and to the Yorkshire Supplies, Ltd., Huddersfield, for Gladioli.

Large Silver Medals were won by Messrs. W. Braithwaite, Leeming Bar, for herbaceous flowers; Mr. J. Hathaway, Baldersby, Thirsk, for fruits; and Messrs. H. H. Maw and Son, Pontefract, for a miscellaneous group.

Silver Medals were secured by Capt. Compton, Newby Hall, Ripon (gr. Mr. A. Mason), for fruits; Messrs. J. E. Dalgliesh, Market Weighton, for a miscellaneous group; Messrs. S. Gardner, Leeds, for herbaceous flowers; Messrs. F. E. Green, Leeds, for topiary work and shrubs; Messrs. W. Kershaw, Saltaire, Bradford, for herbaceous flowers; Messrs. Maxwell and Beale, Dorset, for a table rockery; Messrs. O. Milne-Redhead, Clitheroe, for aquatic plants, etc.; and Messrs. A. H. Moorton, Ltd., London, for garden ornaments. A Large Bronze Medal was awarded to Messrs. S. Gardner, Leeds, for a rock garden; and a Bronze Medal to Messrs. T. Greenwood, Knaresborough, for a paved garden.

Messrs. Mansell and Hatcher won the Lady Kathleen Pilkington Cup outright; Messrs.

PENNELL AND SONS, Lincoln, secured the Penrose Green Cup; Mr. J. E. HATHAWAY, Baldersby, Thirsk, the Ogden Cup; Messrs. KENT, BRYDON AND HAIGH, LTD., the Whitehead Cup; Messrs. DICKSON AND ROBINSON, the Ashworth Cup; and Messrs. SAMUEL MCGREDY AND SON, the Corporation of Harrogate Cup.

MORAY FIELD CLUB.

WITH the September outing, the members of this Club concluded a highly successful summer season. True, on occasions the weather was not quite what would be called propitious, but nevertheless, the members have always returned from their rambles wiser and with a keener zest for the beauties and natural history of Morayland. Ideal weather favoured the last ramble which was along the banks of the river Lossie and in the famous Oak Wood, so well-known to the inhabitants of Elgin. Attention was first attracted to the markings made by leaf-miners on the leaves of the Honeysuckle, Buttercup and Cow Parsnip.

The glorious old Oak Wood was then visited, and the interest centred here on the apparently endless variety of galls found. We are told that the majority of these abnormal growths are due to hymenopterous insects known as Cynipidae. The female gall-fly pierces the growth with her ovipositor and deposits her eggs. Swelling of the surrounding plant cells follows; hence the galls. The members had recalled to them the wonderful discovery by Dr. Adler in 1875 of what is termed alternate generation. The doctor made a series of experiments with spangle gall-flies, which he hatched near young Oak plants in a greenhouse. In time they passed through the pupal stage, and the perfect insect appeared, but, wonderful to relate, it was quite different from the parent insect. By and by, this insect laid its eggs, and instead of giving rise to spangle gall-flies it produced spherical ones, beautifully coloured like Currants, and known as Currant galls. These, in their turn, gave rise to flies like the original spangle gall-fly and, sure enough, they laid their eggs on the leaves, which gave rise to spangle galls, thus completing the cycle of development known to scientists as "alternate generation," in which one creature is the facsimile of its grandparents, but totally unlike its parents, both in colour and shape.

The problem was happily phrased to members by the query: Why should this particular, abnormal, elaborate and beautiful growth, so absolutely different from any part of the plant on which it grows, thus spring up at the point where a particular insect lays and seals up its eggs? Is it the egg in its development or the sealing matter, or both, or rather some hidden unknown power that gives rise to this fleshy gall that provides suitable food for this particular larva by the time it is hatched? Answers to these queries are awaited with very special interest.

There were many specimens identified by the scientists of the party, including Dryophanta scutellaris, Andricus gemmatus and Neuroterus lenticularis, in many varieties. Naturally, much comment was made on the beauty of the various species and the final ramble of 1928 must surely be regarded as one of the most instructive and enjoyable held under the auspices of the Club.

THE ORCHID CLUB.

THE first meeting of the Orchid Club for the session 1928-29, held in the Houldsworth Hall, Manchester, on October 12, showed signs of the changing season; while Cattleyas were still in evidence, the useful, if less showy, Cypripedium was to the fore again.

DIPLOMAS OF MERIT.

Cypripedium Onward, Oaklands var. (*C. King George V × C. Dixon Thorp*).—A medium-sized, well-balanced flower. The round dorsal sepal is white, heavily flushed pink, with a large, dark green luna. The well-shaped petals and lip are green, shaded with brown. Shown by A. T. CUSSONS, Esq.

Cypripedium Chrysostom var. The Prince.—A pleasing and refined form of this well-known hybrid. The flat dorsal sepal is of good form, white with a large green luna covered with numerous brown dots and lines. The broad, well-balanced petals and lip are green, flushed with chestnut. Shown by Sir WILLIAM THOM.

Cypripedium Minnesota (*C. Bianca × Nirvana*).—A charming new hybrid exhibiting all the best qualities of its parents in a marked degree. The well set up dorsal sepal is clear pure white, of great substance, with a very small pale green luna. The petals and lip are chrome-yellow, overlaid with ochre. Shown by Dr. CRAVEN MOORE.

GROUPS.

Dr. CRAVEN MOORE (gr. Mr. Gilden) exhibited a group of high-class Cypripedium hybrids. The group also included several specimen plants of C. Fairrieanum, bearing from six to ten flowers each, together with a large range of the old-time primary hybrids and a few modern secondary and tertiary hybrids of this delightful little species.

A. T. CUSSONS, Esq. (gr. Mr. Dalgleish), had a large group of Cattleyas and Cypripediums. The former included large plants of an exceptionally fine variety of C. Bowringiana, together with a selection of Cattleya hybrids. Among the Cypripediums was an interesting collection of the various forms of Cypripedium Maudiae, showing a wide range of form, size and colour. Mrs. HARDY showed a small group of high-class Odontoglossums, all with full spikes, including a beautiful variety of O. Pyramus and several excellent varieties of O. crispum. F. T. PAUL, Esq., staged two beautiful plants of the rare and fine Cypripedium Charlesworthii, Merle Dene var., and a pretty C. niveum hybrid. Great credit is due to Mr. PAUL for his success in growing the more difficult species of Cypripedium, such as C. Charlesworthii, C. niveum and C. bellatulum, of which he makes a speciality.

B. J. BECKTON, Esq. (gr. Mr. Stewart), showed a few Masdevallia hybrids and species, including M. Imogen, M. Measuresiana and its variety alba, together with spikes of the rare Mormodes Buccinator and Angraecum Ellisii var. grandiflorum.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE monthly meeting of this Society was held in the R.H.S. Hall on Monday, October 8, Mr. Charles H. Curtis presiding. Five new members were elected. One member over the age of seventy years was granted 5s. per week for life, and one other member was assisted from the Distress Fund.

The sum of £93 5s. 8d. was passed for payment to five members from their deposit accounts, and the sum of £68 18s. 7d. was passed for payment to the nominee of one deceased member. The sick pay on the ordinary side was £77 16s. 2d.; State Section, £72 15s. 8d.; Maternity Benefits, £7.

The sum of £42 6s. 9d. was granted to fourteen members towards optical and dental treatment, and twelve other cases were considered.

The members of Committee and other members and friends dined together at the Tufton Hotel, Westminster, after the meeting. Mr. C. H. Curtis presided, and a very enjoyable evening was spent. Mr. Curtis referred to the great work the Society was doing, and its splendid financial position. Several friends contributed musical and other items to the great entertainment of all present.

NATIONAL CHRYSANTHEMUM.

ONLY two novelties were placed before the Floral Committee on the occasion of its meeting at Vincent Square on October 8, and one Certificate was granted.

FIRST CLASS CERTIFICATE.

Red Rover (II. 1c.).—A deep, rich chestnut-coloured variety, free-flowering and bright. The flowers are rather small and very double, as though a Pompon variety had been concerned in its parentage. The narrow florets have deep gold bases. Shown by Mr. H. SHOESMITH, junr.

ANSWERS TO CORRESPONDENTS.

CHRYSANTHEMUMS DISEASED.—*Urgent Inquirer.* Your Chrysanthemums are badly attacked by thrips and Chrysanthemum rust, which probably obtained a firm footing during the recent dry weather. Frequent syringings with clear water may check the thrips, after which the plants should be dusted with sulphur powder to check the rust.

CHRYSANTHEMUM LEAVES DISCOLOURED. — *G. J. W.* The leaves show the effects of a very bad attack of mildew; they also show traces of rust disease and attacks of thrips. The dry weather is no doubt largely responsible for these attacks, and the trouble has been aggravated by lack of care in watering. The plants should have been sprayed with insecticides and fungicides at a much earlier period as prevention is far better than cure.

DAHLIAS DISQUALIFIED.—*R. E. S.* If the schedule required three vases of Dahlias, six blooms each of three varieties, then obviously, if an exhibitor showed six blooms representing as many distinct varieties of Cactus Dahlias, and similarly, six varieties each of Paeony-flowered and six of Decorative sorts, the judges would have no option but to disqualify the exhibit, because it contained eighteen blooms in as many varieties instead of six blooms each of three varieties. Perhaps the disqualified exhibitor confused "varieties" with "sections" or "divisions."

NAMES OF PLANTS.—*G. H. C.* 1, Cornus alba; 2, Smilax aspera; 3, Quercus Ilex var. rotundifolia; 4, Salix vitellina (Golden Osier); 5, Salix candida; 6, Ilex aquifolium var. heterophylla; 7, too withered to identify; 8, Pentstemon, garden variety; 9, Eucalyptus urnigera; 10, E. Gunnii.—*H. G. M.* 1, too withered to identify; 2, Viburnum hupehense; 3, Pyrus arbutifolia; 4, Cotoneaster Henryana; 5, C. salicifolia var. floccosa.—*K. of K.* Griselinia littoralis.—*B. C.* 1, Desfontainia spinosa; 2, Polygonum cuspidatum.—*Mrs. L.* Haemanthus puniceus.—*T. S.* Fuchsia Andenken an Heinrich Henkel; looks as though it has been attacked by earwigs.—*C. D.* The plant is Paronychia argentea (Silvery Nailwort); it grows all round the Mediterranean region.

NAMES OF FRUITS.—*W. F. & Co.* 1, Radford Beauty; 2, Harvey's Wiltshire Defiance; 3, Northern Greening; 4, Beauty of Hants.—*N. B. C.* Small's Admirable.—*P. H. R.* Colmar d'Ete.—*H. W.* 1, Thompson's; 2, Triomphe de Vienne; Crab Apple Dartmouth.—*L. B.* 1, Bramley's Seedling; 1b, Lord Lennox; 1c, Yorkshire Beauty; 2, Warner's King; 2b, Golden Noble; 2c, Hormead's Pearmain; 3, Pott's Seedling; 3b, Fearn's Pippin: 4, Sheep's Nose; 4b, Westling; 5, Lord Derby; 5b, Newton Wonder; 6, back tree, Yorkshire Greening; 7, wall tree, Lewis's Incomparable; end, Chelmsford Wonder.—*F. L. K.* Hormead's Pearmain.—*R. S.* 1, Flemish Beauty; 2, Knight's Monarch 3, Olivier de Serres.—*R. G.* Jolly Beggar.—*E. A.* Brockworth Park (yellow).—*H. W. B.* 1, Mabbott's Pearmain; 2, Cox's Orange Pippin; 3, Ribston Pippin; 4, Golden Noble; 5, Williams's Bon Chrêtien; 6, Souvenir du Congres.—*R. M.* Pears: 1, Marie Louise; 2, Doyenné du Comice; 3, Vineuse; 4, Marie Benoist; 5, Marguerite Marillat; 6, Josephine de Malines; 7, Louise Bonne of Jersey; 8, Pitmaston Duchess; 9, Beurré Hardy; 10 Duchesse d'Angoulême; 11, Beurré Bosc. Apples: 1, Fearn's Pippin; 2, Adams' Pearmain; 3, Rymer; 4, Golden Harvey; 5, Court Pendu Plat; 6 and 7, Lane's Prince Albert.—*D. A.* 1, Mank's Codlin; 2, English Codlin; 3, Bedfordshire Foundling; 4, Lemon Pippin; 5, Norfolk Stone Pippin; 6, Northern Greening.—*Tooting.* 1, Winter Hawthornden; 2, Hambling's Seedling; 3, Dean's Codlin; 4, Baxter's Pearmain; 5, Claygate Pearmain; 6, Washington.

Communications Received.—F. W. K.—M. W. A.—T. B.—R. E. A.

MARKETS.

COVENT GARDEN, Tuesday, October 16th, 1928.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz. ...	10 0–12 0
—elegans ...	10 0–12 0
Aralia Sieboldi	8 0—9 0
Araucarias, per doz.	30 0–40 0
Asparagus plumosus ...	12 0–18 0
—Sprengeri ...	12 0–18 0
Aspidistras, green ...	16 0–60 0
Aspleniums, doz.	12 0–18 0
—32's	24 0–30 0
—nidus ...	12 0–15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Chrysanthemums per doz. ...	15 0–24 0
—white, per doz.	15 0–24 0
—yellow, per doz.	18 0–24 0
—pink, per doz.	21 0–24 0
—bronze, per doz.	12 0–18 0
Crotons, per doz.	30 0–45 0
Cyclamen, per doz.	24 0–36 0

	s. d. s. d.
Cyrtomiums ...	10 0–12 0
Erica gracilis, per doz. ...	30 0–36 0
— — 60's, per doz.	15 0–18 0
— — 72's, per doz.	8 0—9 0
—nivalis, per doz.	30 0–36 0
— — 60's, per doz.	12 0–15 0
— — 72's, per doz.	8 0—9 0
Kochia, per doz.	15 0–18 0
—60's	9 0–12 0
Lilium longiflorum, 48/32's ...	— —
Nephrolepis in variety ...	12 0–18 0
—32's	24 0–36 0
Palms, Kentia,	30 0–48 0
—60's	15 0–18 0
Pteris in variety	10 0–15 0
—large, 60's ...	5 0—6 0
—small... ...	4 0—5 0
—72's, per tray of 15... ...	2 6—3 0
Solanums, per doz.	12 0–15
— 60's, per doz.	9 0–12 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Acacia (Mimosa), per doz. bun.	— 12 0
Adiantum decorum, doz. bun.	9 0–10 0
—cuneatum, per doz. bun. ...	6 0—8 0
Anemone, St. Brigid, per doz.	4 0—8 0
Arums (Richardias), per doz. blooms ...	5 0—6 0
Asparagus, plumosus, per bun., long trails ...	2 6—3 0
—med. sprays	2 0—2 6
short ,,	— 1 0
—Sprengeri, bun. long sprays...	2 0—2 6
med. ,, ...	1 0—1 6
short ,, ...	0 6—1 9
Asters, white, per doz. bun. ...	4 0—6 0
—pink, per doz. bun.... ...	4 0—5 0
Autumn foliage, various, per doz. bun. ...	6 0–12 0
Carnations, per doz. blooms	2 6—4 6
Chrysanthemums—	
—white, per doz. blooms ...	2 6—5 0
—yellow, per doz. blooms ...	2 6—6 0
—bronze, per doz. bunches ...	6 0–10 0
—bronze, per doz. blooms ...	2 6—4 6
—pink, per doz. bunches ...	9 0–12 0
—pink, per doz. blooms ...	3 0—6 0
Cornflowers, blue, per doz. bun.	2 6—3 0
Croton leaves, per doz. ...	1 9—2 6
Fern, French, per doz. bun.	10 0–12 0
Forget-me-nots, per doz. bun.	10 0–12 0
Gardenias, per doz. blooms	4 0—9 0
Heather, white, per doz. bun.	9 0–12 0
Lily-of-the-Valley, per doz. bun.	18 0–30 0

	s. d. s. d
Lilium longiflorum, long, per bun.	4 6—5 0
— — short, per doz. blooms...	— 5 0
—speciosum, long, per bun. ...	4 6—5 0
— — — short, doz. blooms ...	4 0—4 6
—speciosum rubrum, long, per doz. ...	3 6—4 0
— — — short, per doz. ...	2 0—2 6
Marigolds, per doz. bun. ...	3 0—4 0
Michaelmas Daisies, per doz. bun.	6 0–10 0
Myrtle, green per doz. bun.	1 6—2 6
Orchids, per doz.	
—Cattleyas ...	36 0–60 0
—Cypripediums	10 0–15 0
Physalis, per doz. bun. ...	18 0–30 0
Roses, per doz. blooms—	
—Mme. Butterfly	2 6—4 6
—Columbia ...	2 6—3 6
—Golden Ophelia	2 6—3 6
—Richmond ...	3 0—3 6
—Aaron Ward	1 6—2 0
—Roselandia ...	2 6—3 6
—Hoosier Beauty	3 6—4 6
—Molly Crawford	2 6—4 0
Scabiosa caucasica, per doz. bun.	5 0—6 0
Smilax, per doz. trails ...	4 6—5 0
Statice sinuata, blue, per doz. bun.... ...	4 0—6 0
— — white, per doz. bun. ...	4 0—6 0
— — pink, per doz. bun. ...	4 0—6 0
Stephanotis, 72 pips	2 6—3 0
Stocks, white, per doz. bun. ...	6 0–10 0
— mauve, per doz. bun. ...	6 0—8 0
Violets, Prince of Wales, per doz. bun.... ...	2 6—4 0

Remarks.—The general demand has been somewhat varied during the past week. The arrivals of Chrysanthemums have been much heavier, more especially spray varieties, and only the very best grades have realised normal prices. Among disbudded blooms the most prominent sorts are Blanche Poitou, Debutante and Sanctity, with white blooms; Cranford Yellow and Yellow King; Alcalde, Almirante and September Glory, bronze varieties; and Delight, Uxbridge Pink and Profusion, pink-flowered sorts. Carnations, Roses, Lily-of-the-Valley and Violets have been more than sufficient to meet the moderate requirements now prevailing. Supplies of Lilium longiflorum and L. speciosum album are now very much reduced and prices have advanced. Richardias of good quality are in demand, and a few boxes of St. Brigid Anemones are now arriving in good condition. More Orchids have been on sale during the past fortnight, consisting of Cattleyas and Cypripediums. The French season appears to have commenced rather early, for small consignments of the following have arrived:—Acacia (Mimosa), Carnations, Capsicums, Myrtle, Mahonia and Eucalyptus.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples, English—	
—Cox's Orange Pippin ½-bushel	8 0–15 0
—Lord Derby, per bushel ...	5 0—7 0
—Bramley's Seedling	6 0–10 0
—Lane's Prince Albert ...	5 0—8 0
—Warner's King	5 0—7 0
—Newtown Pippin	12 0–13 0
—Charles Ross, ½-bushel ...	5 0—7 0
—Blenheim Pippin, ½-bushel	3 6—5 0
—King of the Pippins, ½-bushel ...	3 0—5 0
Apples, Nova Scotian—	
—Cox's Orange Pippin, ½-barrel	30 0–35 0
Bananas, per bun.... ...	12 0–21 0
Figs, hothouse, per doz. ...	3 0—3 6
Grapes, English—	
—Muscat of Alexandria, per lb.	2 0—5 0
—Alicante ...	0 8—2 0
—Canon Hall Muscat, per lb.	2 0—5 0
—Black Hamburgh, per lb. ...	1 0—1 9
—Gros Colmar...	2 0—3 6

	s. d. s. d.
Grape Fruits—	
—Porto Rico ...	30 0–37 6
Grapes, Guernsey—	
—Almeria, per barrel ...	18 0–22 0
Lemons, Messina and Palermo, per case ...	30 0–35 0
—Naples ...	35 0–40 0
Melons, hothouse, each...	1 0—4 0
—Cantaloupe, each... ...	1 6—3 0
—Valencia, 24's and 36's ...	15 0–17 0
Oranges, Valencia Lale ...	20 0–25 0
Peaches, hothouse, per doz.	6 0–30 0
Pears, Californian—	
—Beurré Hardy	18 0–20 0
—Doyenné du Comice, ½-case	12 0–12 6
—Fertility ...	4 0—6 0
—Conference ...	4 0—7 0
Pears, English—	
—Doyenné du Comice, ½-bushel case ...	7 0—8 0
Pineapples, each	2 0—5 0
Plums, English,	
—Damsons ...	10 0–11 0
—Prunes ...	8 0–10 0
—Coe's Golden Drop... ...	18 0–20 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans—	
—French, ½-bush.	4 0—7 0
—Guernsey, per lb.	0 9—1 6
—Scarlet Runner, half-bag ...	5 0—7 0
Beet, per bag ...	5 0—6 0
Brussel's Sprouts, ½-bag ...	4 0—6 0
Cabbage, per doz.	2 0—4 0
Cauliflowers, per doz.	2 6—3 6
Celery, washed, per doz. ...	18 0–24 0
Cucumbers, doz. 36's, 42's, 48's	12 0–16 0
Lettuce, Cabbage, English, doz.	2 0—3 0
—Cos	2 0—3 0
Mint, per doz. bun. ...	1 0—1 6

	s. d. s. d.
Mushrooms—	
—cups... ...	2 6—3 6
—broilers ...	1 6—2 0
—"field," per lb.	0 6—1 0
—trays, per doz.	2 0—4 0
Peas, English—	
—flats, special	18 0–22 0
Potatos—	
—English, cwt.	5 0—8 0
Savoys, per doz.	2 6—3 0
Tomatos, English, pink... ...	2 6—5 0
— — pink and white ...	2 6—4 6
— — white ...	2 6—3 0
— — blue ...	2 6—3 0
—Guernsey ...	2 0—4 0
—Jersey ...	1 0—2 6
—Canary Island, per bundle ...	10 0–12 0

Remarks.—Trade generally is moderately good. The volume of produce passing through the market is not heavy, but sufficient for requirements at the present selling levels. The Grape section reports quiet conditions, with a tendency towards lower prices. Hothouse Peaches are in good demand and prices remain comparatively high. Apples from North America are arriving in increased quantities, but the trade for home-grown Apples remains steady for best dessert varieties and large cooking Apples. English Pears of the first quality are meeting some keen competition in Doyenné du Comice Pears from California, and selling levels are inclined to be rather disappointing from the English producer's view point. A few Prunes from the Aylesbury district are still arriving and sell quite well. There is rather a better tone in the English Tomato market. The Jersey crop is drawing to a close, which is helping prices of English New Crop Tomatos. There are already some Tomatos from Teneriffe available. Some good Beans from Guernsey are now arriving and selling well, in addition to some from Madiera and France. Cultivated Mushrooms are increasing in supply, but prices are keeping up well, in spite of plenty of field Mushrooms which are now coming to hand. Cucumbers are not plentiful and business is firm in that section. Green vegetables maintain a satisfactory selling level, and salads continue to be popular. The trade in old Potatos is rather on the quiet side.

GLASGOW.

Irregular price movements characterised the trading in the cut flower market during the past week. Business was slower than formerly, and while prices for disbudded Chrysanthemums reflected an easier tendency, special blooms of Pink Profusion realised 8s. per dozen on Friday. In Memoriam declined to 5s. to 6s., and other quotations were as follows:—Pink and Bronze Consul, 2s. to 2s. 6d. for 6's; Salmon Profusion, 2s.; Pink Delight and Cranford Yellow, 1s. 6d. to 2s.; Debutante, 1s. 9d. to 2s.; Belle Mauve, 1s. 6d. to 1s. 9d.; Almirante, 1s. 3d. to 1s. 6d.; Sanctity, 1s. to 1s. 4d.; Phoenix, 10d. to 1s.; Betty Spark, 8d. to 10d.; Alcalde, 1s. 9d. to 2s. per dozen; and Holecot Bronze, 1s. 4d. to 1s. 6d. Sprays were worth from 3d. to 6d. per bunch. Carnations ranged from 1s. 6d. to 4s. per dozen; Roses 1s. 3d. to 3s. 6d.; and Richardias 5s. per bunch. Michaelmas Daisies were plentiful and sold at 6d. to 9d. per bunch for double-flowered sorts, and 4d. to 6d. for singles. Smilax made 1s. to 1s. 3d., and Asparagus Fern 6d. to 9d. per bunch.

The business transacted in the fruit market was of an average volume and without special feature. Peaches were worth 1s. 6d. each; Pineapples, 4s. to 4s. 6d.; Melons, 3s.; Green Figs, 1s. 3d. per box; Muscat Grapes, 4s. 6d. to 6s. per lb.; Gros Colmar Grapes, 3s. to 3s. 6d.; Anjou Pears, 20s. per case; Winter Nelis Pears, 10s. to 11s. per half-case; Doyenné du Comice, 13s. to 14s.; and cooking Apples, 3s. to 3s. 6d. per stone. American Apples were cheaper, Wealthy declining to 10s. and 11s. per case; Jonathan, 11s. 6d. to 12s. 6d.; McIntosh Red, 13s. to 14s., and York Imperial, 25s. to 30s. per barrel. Late consignments of Victoria Plums were worth from 3d. to 6d. per lb. for dessert; and 1½d. to 2d. for preserving. Damsons made 5d. to 6d.; and Blackberries, 6d. Oranges sold at 26s. per case, and Grape Fruits fluctuated between 25s. and 28s.

Tomatos were steady at 6d. to 7d. per lb.; Celery, 2s. to 3s. per dozen heads; Lettuce, 1s.; Cauliflowers, 3s. to 5s.; Cucumbers, 3s. to 6s.; and Mushrooms, 2s. 6d. per lb.

CATALOGUES RECEIVED.

Frank Woollard, 53, Lewes Road, Brighton.—Roses.

Bone and Co., 172, Easter Road, Edinburgh.—Liliums.

Wm. Artindale and Son, Sheffield and Boston.—Hardy plants.

McHattie and Co., Nurserymen and Seedsmen, Chester.—Roses, and fruit trees, etc.

Wm. Watson and Sons, Ltd., Killiney Nurseries, Killiney, Co. Dublin.—Ornamental shrubs, Conifers, climbers, Roses, and fruit trees.

George Jackman and Son, Woking Nurseries, Surrey.—Plants.

Foreign.

L. Späth, Grossbetrieb für Gartenkultur, Berlin-Baumschulenweg.—Trees and Shrubs.

Rivoire Père and Fils, 16, Rue d'Algérie, Lyon, France.—Roses, etc.

H. Correvon, Floraire, Chêne-Bourg, Geneva.—Trade list of alpine and herbaceous plants.

Herm. A. Hesse, Weener/Ems, Hannover.—Trees and shrubs.

L. Férard, 20-22, Rue de la Pépinière, Paris.—General.

SCHEDULES RECEIVED.

Watford and Home Counties Horticultural Society.—Exhibition to be held in Clarendon Hall, Watford, on November 6 and 7.—Secretary, Mr. W. E. Cheeseman, 16, Addiscombe Road, Watford.

Gainsborough Chrysanthemum Society.—Exhibition to be held in the Town Hall, on Wednesday and Thursday, November 14 and 15.—Secretary, Mr. H. L. Rowntree, Windy Ridge, Hawthorne Avenue, Gainsborough.

THE WEATHER IN SEPTEMBER.

September was an extremely pleasant and, indeed, beautiful month, an unusually high and steady barometer giving rise to quiet, dry and sunny weather, greatly favouring invalids, holiday-makers, gardeners and farmers. The public parks and many gardens remained a mass of bloom, heavy crops of fruits ripened ideally, while arable farmers profited to nearly the fullest extent that nature can enable them to do in Lancashire. The winds were very variable, but mainly from southerly points during the greater part of the month, producing warm weather; and northerly to easterly, and therefore colder, afterwards. The mean temperature of the complete month was 55°, or nearly the normal for September. There was, however, only 1·31 inch of rain, or 1·82 inch less than the average; while 166 sunny hours were recorded or 27 more than the normal number. Wind velocity was unusually low. There was no thunder. *Joseph Baxendell, The Fernley Observatory, Southport.*

GARDENING APPOINTMENT.

Mr. Charles Harvey, for the past nine years and three months gardener to Sir Roger Gregory, Shoreham House, Shoreham, near Sevenoaks, as gardener to Mrs. Joy, Marylands, Bentley, Hants. [Thanks for 2/6 for R.G.O.F. Box.—Eds.

THE
Gardeners' Chronicle
No. 2183.—*SATURDAY, OCTOBER* 27, 1928.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 46·1°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, October 24, 10 a.m. Bar. 29·7. Temp. 59°. Weather, Sunny.

On Early Autumn Planting.

THE old adage, "man proposes, God disposes," is emphatically true of autumn planting as of so many other enterprises. Every nurseryman and every experienced gardener would, if conditions were propitious, choose the earliest autumnal moment after leaves had begun to change colour, for lifting or transplanting. But anxious although he rightly is to begin this work, the nurseryman must perforce wait until rains have moistened the soil sufficiently to render it workable; for otherwise the roots of the lifted plants might be mortally damaged. This need for delay is very general this year, at all events in the south of England. The surface soil is moist enough, but even the recent heavy, albeit sporadic, rains, have not sufficed to moisten the second and third spits. Yet, in the private garden, lack of rain at transplanting time should not excuse delay, except in those situations, and they are but few this year, where there has been no period of the summer when the soil has been dry enough for the bastard-trenching or other deep working of the soil, which operations are necessary and a much neglected part of autumn transplanting. Assuming that rainfall was sufficient during the summer to permit of the preparation of the ground, the private gardener need not wait—as must perforce the nurseryman—until deciduous-leaved shrubs and trees have become defoliated. If all is in readiness and the ground is moist enough, the work of transplanting deciduous shrubs and trees may be begun so soon as the leaves begin to take on autumnal tints. The new situations in which the transplants are to stand have been prepared well in advance; holes dug deep and wide to give the plants sufficient root-room both downward and laterally, and any additions to the natural soil have been already provided. If these preliminaries have been attended to, and the soil about the plants proves moist enough to permit of lifting, transplantation may proceed apace. Needless to state, attention should be paid to two, nay, three things; firm planting and immediate staking are the two things, the third is after attention through the winter. For no matter how well the work be done at planting time, frost will undo some of the firming of the soil, the soil about the roots will rise or sink, and these changes should be watched and the firmness of the soil restored. If the sun should shine strongly after planting, or if the soil be somewhat on the dry side, thorough watering, followed by an occasional over-head spraying, may prevent losses, which, were these precautions neglected, would inevitably befall the transplanted shrubs and trees. Similarly, forethought should, of course, be exercised by gardeners who are planting new subjects. When these latter may be obtained in pots, as is the case with Clematis and other climbers, the nurseryman needs no persuasion to send such plants in advance of the main order, and they may be planted forthwith. No one who has recently transplanted alpine and wall plants from the reserve of rooted cuttings, can fail to observe how quickly the transplants have settled down in their new quarters. The reason is not far to seek. Soil, although growing cold, is yet warm enough to encourage root action. Delay a few weeks and the low temperature of the soil will make it difficult for the roots of transplanted trees or shrubs, or herbs, to make that growth which enables them to obtain a good hold on the soil, thereby giving the pre-requisite condition for sturdy top-growth in spring. Plants difficult of transplanting, such as Willows and Oaks, are, in our experience, far more likely to make good if they are moved and planted at the earliest possible moment of autumn. Of evergreens, although speaking generally spring planting may be better, there are not a few which do best when moved in autumn—Rhododendrons for example. But in all cases it is desirable to give the transplanted shrubs a light, loose mulching so soon as they are in their new quarters. The mulching, however, should not be put on so profusely as to need removal in spring. Yet other subjects, Berberis for example, should be left until growth begins in late spring—then they must be lifted and planted quickly and every attention paid to ensure a sufficiency of water about the roots. Lastly, it cannot be too strongly emphasised that the holes dug to receive the plants should be so made, and the surrounding soil so treated, that they do not become sump-holes, into which surface-water drains during the winter. For assuredly, if that happens, the tree or shrub, although it survive, will never show that vigour which is the sign of the gardener's skill and the plant's contentment with its new conditions. Plants lacking this sign of harmony with their environment should be transplanted on the first occasion. Given another chance, a large proportion will show appreciation by complete reformation.

Hemerocallis, Lupin and Auricula Trials at Wisley.—The Royal Horticultural Society will carry out during the coming season a trial of Hemerocallis, perennial Lupins and alpine Auriculas, and will welcome varieties from growers for this purpose. Three plants of each should be sent to The Director, R.H.S. Gardens, Wisley, Ripley, Surrey, to reach him on or before November 30, 1928.

Theft at Kew.—Fortunately, visitors to the Royal Botanic Gardens, Kew, are mindful of their obligations as well as their privileges, consequently it is on very rare occasions that damage is done or thefts committed. Quite recently, however, Mr. Edwards, Assistant Curator, saw a visitor pull up a plant and pocket it; the culprit was summoned at Richmond Police Court on the 18th instant "for unlawfully plucking a plant at Kew Gardens." The Bench imposed the full penalty of £5.

How Birds are Protected.—A novel and interesting feature of the autumn number of *Bird Notes and News* (82, Victoria Street, S.W.,1s.) is a double-page illustration showing the Kestrel-hawk, the nature of its food (based on Dr. Collinge's investigations), and the amount of protection given to it in the counties of England and Wales. From this it appears that the bird is of definite service to man, as eighty-one per cent. of its food consists of mice, rats, and injurious insects; and that twenty county councils prohibit the killing of it by any person at any time of year. On the other hand, sixteen councils give this full protection during the nesting season only, and twenty-eight afford the bird no protection. A series of such pictures and diagrams should be valuable in demonstrating the economic position of various birds and the incidence of existing Bird Protection Orders. They would also serve to show the variations in local protection, and possibly suggest more considered and correlated action on the part of councils. As the accompanying article comments, "the fate of a bird whose protection is proposed or objected to is apt to turn on the personal views of, say, half-a-dozen men, sometimes of one or two"; and a firmer ground for such decisions is required both for the wise protection of wild birds and the effective working of County Council Orders.

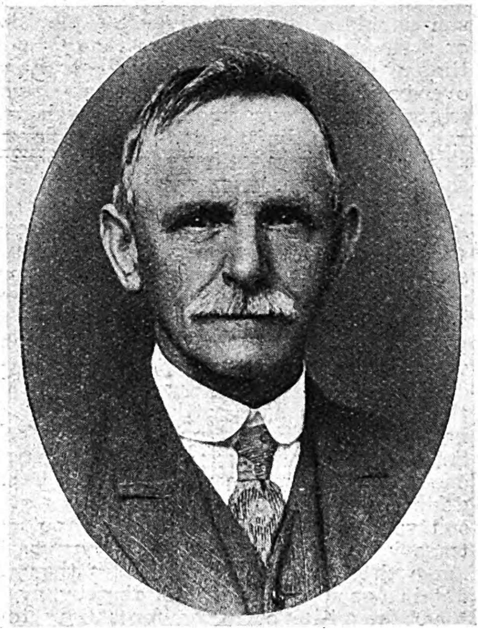
Preservation of Beech Leaves.—A method by which sprays of autumn-tinted Beech leaves may be made to remain ornamental and retain their colouring is described in *The Pharmaceutical Journal and Pharmacist* for October 20. The correspondent, Mr. R. W. Bowles, of Beaconsfield, states that glycerine should be mixed with an equal quantity of water, and the stems allowed to remain in the solution for three days, immersed to a depth of three inches. The best results are obtainable with branches bearing leaves which are just beginning to turn, and the immersion process should be carried out in a cool place.

National Bulb Society.—A new horticultural Society under the ambitious title of "National Bulb Society," has been formed under the auspices of the National Gardens Guild. Its aims and objects, as set forth in a prospectus submitted, are:—(1) To encourage, improve and extend the cultivation of all kinds of bulbs throughout Great Britain; (2) to organise central exhibitions and competitions both for amateurs and the trade; (3) to co-operate with existing horticultural societies throughout the country with a view of encouraging special exhibitions for local areas; (4) to grant medals and certificates for new varieties of British-raised bulbs; (5) to publish for presentation to members and for sale to others a "Bulb Year Book"; (6) to provide sets of lantern slides of bulb subject; for use by affiliated societies and others (7) to encourage the indoor growing of bulbs in industrial and populous centres; and (8) to organise lectures on the history and cultivation of bulbs. The minimum yearly subscription will be 5s. for amateurs and 10s. 6d. to the trade. Members will be entitled to:—(1) Exhibit at the society's shows and exhibitions; (2) advisory services by the society's panel of experts—problems of culture, diseases and nomenclature; (3) one copy of "The Bulb Year Book," to be published in September of each year and to include articles from experts on the history and culture of various bulbs, including notes on new varieties introduced; (4) two free passes for all lectures, exhibitions and flower shows arranged by the society; (5) submit any novelties to the Council for Cards of Commendation, Awards of Merit and First Class Certificates. Affiliated societies (minimum subscription 10s. 6d.) will, in addition to the above, be entitled to (6) services of speakers, lecturers and judges free or at reduced fees; (7) loan of lantern slides; and (8) one of the Society's Bronze Medals to be offered (to amateurs) as a prize in connection with the growing of bulbs. The Hon. Secretary is Mr. A. K. Lock, 9, Gower Street, Bedford Square, W.C.1.

A Roumanian Royal Garden.—On the picturesque so-called "Cote d'Argent" in Roumania, Queen Marie has had adapted to her own use an ancient house in Turkish style with a white minaret, the original features being preserved so far as possible and the alterations made in good and trained taste. The garden is not yet complete, but gives promise of great beauty. It is very steep, the house being perched on a hill, and the garden consists largely of terraces of varying sizes, many of them adorned by cascades of clear water. The retaining walls of the terraces harmonise with the natural rock, and there are infinite possibilities for clothing these walls with rock plants, which will give them the life and colour they need. An impetuous torrent with a magnificent cascade, surmounted by two stone bridges, separates the estate from that of the palace of the Prince-Regent Nicholas; two ancient mills, their wheels overgrown with wild, climbing plants and Brambles, add to the picturesqueness of the scene. Close to the house the available space is exceedingly exiguous, and the terraces are numerous and very narrow; little flights of steps lead from one to the other, some covered with a pergola of Roses, others with an arch of stone, while other steps lead upwards to the minaret, or downwards towards the intense blue of the sea. The climate being a Mediterranean one, attempts have been made to cultivate Cypress, Magnolias and Daturas; against the wall are large groups of Rudbeckia, associating with Larkspur and Clematis. All this work is in course of construction, and it is not yet possible to gain a good idea of the final effect; but when it is finished there is no doubt it will be a beautiful and interesting garden, marked by the good taste and sense of fitness which are the signs of every true garden-lover.

Sweet Peas for Garden Decoration.—The Sweet Peas recommended by the Floral Committee of the National Sweet Pea Society, as the best for general garden cultivation, are:—Avalanche, white; Black Bess, blue-black; Bluebird, blue; Bonfire, bicolor; Charming, deep cerise; Delightful, rose-cerise; Elegance, blush-lilac; Grenadier, scarlet-cerise; Ivory Picture, ivory; King Mauve, mauve; Magnet, deep cream-pink; Mrs. Arnold Hitchcock, pale cream-pink; Mrs. H. J. Wright, flushed, white ground; Olympia, purple; Picture, cream-pink; Pinkie, deep pink; Powerscourt, lilac-lavender; Sunset, rose; Supreme, pale pink; Sybil Henshaw, crimson; Warrior, maroon; Wembley, pale lavender; Youth, picotee-edged; and 2 L.O., scarlet.

Scotch Crops Reports.—The Board of Agriculture for Scotland in its monthly crop report states that Potatos grew well throughout September, and that the total yield is now likely to be heavier than usual. In a few districts the earlier varieties have become slightly affected by disease, but on the whole the crop is unusually healthy. In Dumbarton and Shetland the produce is estimated to be five per cent. below the normal; elsewhere the crop is expected to yield at least a full average, while in twelve districts a yield of ten per cent. above the normal is anticipated. The lifting of second early sorts is completed in the south-western districts, while in Stirling, the Lothians and Fife the work was well advanced at the end of the month, but the lifting of the main crop had not commenced on any extensive scale. A considerable acreage was sprayed in north-east and south-east Perth, but elsewhere the proportion sprayed appears to be almost negligible. Turnips and Swedes have developed into one of the best crops of the season. The reports on the Sugar Beet crop vary somewhat, but on the whole prospects may be said to have improved considerably during the month. The most favourable reports are those received from Fife, Berwick and the Lothians, where the crop is generally vigorous and healthy. In Perth, however, the roots are in most cases stunted, and a considerable number of the plants have run to seed.


MR. A. J. JOY.

Mr. A. J. Joy.—Gardeners do not often "settle down" near their birthplace; as young men of ambition, they move about the country, seeking experience in many districts, and usually obtain a position as "head" far from their native place. Mr. Joy, however, who has been gardener at Snowdenham Hall for thirty-one years, was born in Surrey, his father having been gardener at Fernside, Witley, for thirty years. Mr. A. J. Joy served his apprenticeship at Llanaway House Gardens, Witley, and commenced work at thirteen years of age. He served for two separate periods at Messrs. J. Veitch and Sons' Chelsea nursery, and was employed for some time in Lord Burnham's garden, at Hall Barn, Beaconsfield. For three years he was foreman at Ashley, Great Berkhamsted, and then became general foreman at Tring Park, where he remained until his appointment at Snowdenham Hall in 1893. It is not given to many men to see his own planning of forty acres of gardens and pleasure grounds grow to maturity, but Mr. Joy has had that pleasure, and many Conifers he planted are now seventy feet and eighty feet tall. Fortunately, his present employer, Theodore Pim, Esq.—who has owned Snowdenham for the past twenty years—is a keen gardener, and from him Mr. Joy has received every encouragement. That Mr. Pim appreciates Mr. Joy's services is indicated by the gold watch bearing the inscription "Presented to A. J. Joy by Mr. and Mrs. Pim, after twenty years services at Snowdenham, 1928." Mr. Joy has travelled in France and Italy for the purpose of adding to his horticultural knowledge. For thirty years he has been a member of the Guildford Chrysanthemum Society, and he took an active part in the formation of the successful Guildford Gardeners' Association. As a member of the Parish Council, Cricket Club and Working Men's Club at Bramley, Mr. Joy does not neglect his responsibilities in the district wherein he has lived so long, and where he is very highly esteemed, and acts as sidesman in the Parish Church. Formerly a good cricketer, Mr. Joy is now a good bowler and captain of the Bramley Bowling Club. In the garden at Snowdenham, in parochial duties and in sport, Mr. Joy lives up to his name.

Grants for Afforestation Schemes.—We learn that the Forestry Commissioners are prepared to receive applications from Local Authorities and other owners of woodlands, for grants for afforestation purposes, either limited to one season or extending over a number of years. £2 per acre is the limit fixed for planting Conifers, and £4 for Oak or Ash trees; £3 for Beech, Sycamore or Chestnut trees; and £2 for other approved hardwoods. Additional grants, up to £1 per acre (£2 in exceptional instances), are offered for clearing worthless scrub areas not less than fifty acres in extent, with a view to converting them into productive forests. It is suggested that these grants should induce greater activity in systematic planting by municipalities and others, and also provide increased employment, especially during the winter months. Applications should be submitted before January 1, 1929, on forms which, together with full particulars, may be obtained from the Assistant Forestry Commissioner, 1, Whitehall, London, S.W.1, or from the Assistant Forestry Commissioner, 25, Drumsheugh Gardens, Edinburgh.

Forms and Variations of the Banana.—In the *Bulletin of Miscellaneous Information*, No. 8, 1928, issued by the Royal Botanic Gardens, Kew, an account is given by Mr. F. N. Howes, of the forms and variations of the Banana in some tropical eastern countries, *i.e.*, British Malaya, Java, Siam, Burma, Southern India and Ceylon. These countries were visited early in the current year with a view to obtaining living material of some of the better cultivated forms of the Banana, the visits being carried out under a scheme organised by the Empire Marketing Board in connection with the campaign now being conducted against the Panama disease (Fusarium cubense) in the areas of the British Empire where Bananas are grown commercially, and from the material collected it is hoped to breed immune varieties of commercial standard. The article by Mr. Howes consists of a survey of the varieties collected; they are dealt with under their vernacular names, as, up to the present time, no systematic classification or botanical nomenclature has been drawn up for any of the countries visited. A point of interest is the widespread cultivation of the Cavendish or Canary Banana (Musa Cavendishii) in the east; it was encountered in all the countries quoted above, with the exception of Siam. In Malaya, the Banana goes under the name of "Pisang"; thirteen Malayan sorts are described, and five of them are excellently illustrated. Seven Siamese varieties are given, one, the Klui (Banana) nam wa, being figured; eight Burmese sorts are dealt with, the varieties illustrated being the Wet-ma-lut, and the Yakhine; while seven Southern Indian varieties are described, three of them being illustrated. Of the sorts grown in Ceylon, eight are included. A portion of the work is devoted to "Seeding Forms of Musa," and it is terminated by interesting notes on the cultivation, diseases, etc., of the Banana.

Inspection and Certification of Black Currant Bushes.—For the information of prospective purchasers of Black Currant bushes, a list has been published of the names and addresses of growers whose stocks of bushes have been certified under the Ministry of Agriculture's voluntary inspection and certification scheme. This scheme, which was instituted in 1927, provides for the certification of bushes which, on inspection, are found to be true to type and apparently free from reversion. Although stocks which lacked vigour, or showed symptoms of Black Currant mite infection, or of disease, were not certified by the Ministry's inspectors, the certificates which have been issued should not be regarded as guarantees of complete freedom from disease; they relate solely to the purity of the stocks and their apparent freedom from reversion at the time of inspection. Copies of the list may be obtained free of charge on application to the Ministry at 10, Whitehall Place, London, S.W. 1.

The 1928 Crop of Hops.—From the preliminary statement on this subject, recently issued by the Ministry of Agriculture and Fisheries, it would appear that the Hop crop for the current year amounts to 242,100 cwts., as compared with 255,500 cwts. in 1927. The area under Hops is given as 23,762 acres, against 23,004 in 1927, so that the estimated average yield per acre for 1928 is lower than that for the preceding year, *i.e.*, 10·2 cwts. against 11·1 cwts. This decrease in the average yield per acre indicates a continuation of the decline in the total production since the record year of 1924; against the decrease in the size of the crop, however, it should be borne in mind that this year's crop was picked under exceptionally favourable conditions, and the Hops, in general, are reported to be of exceptionally good quality.

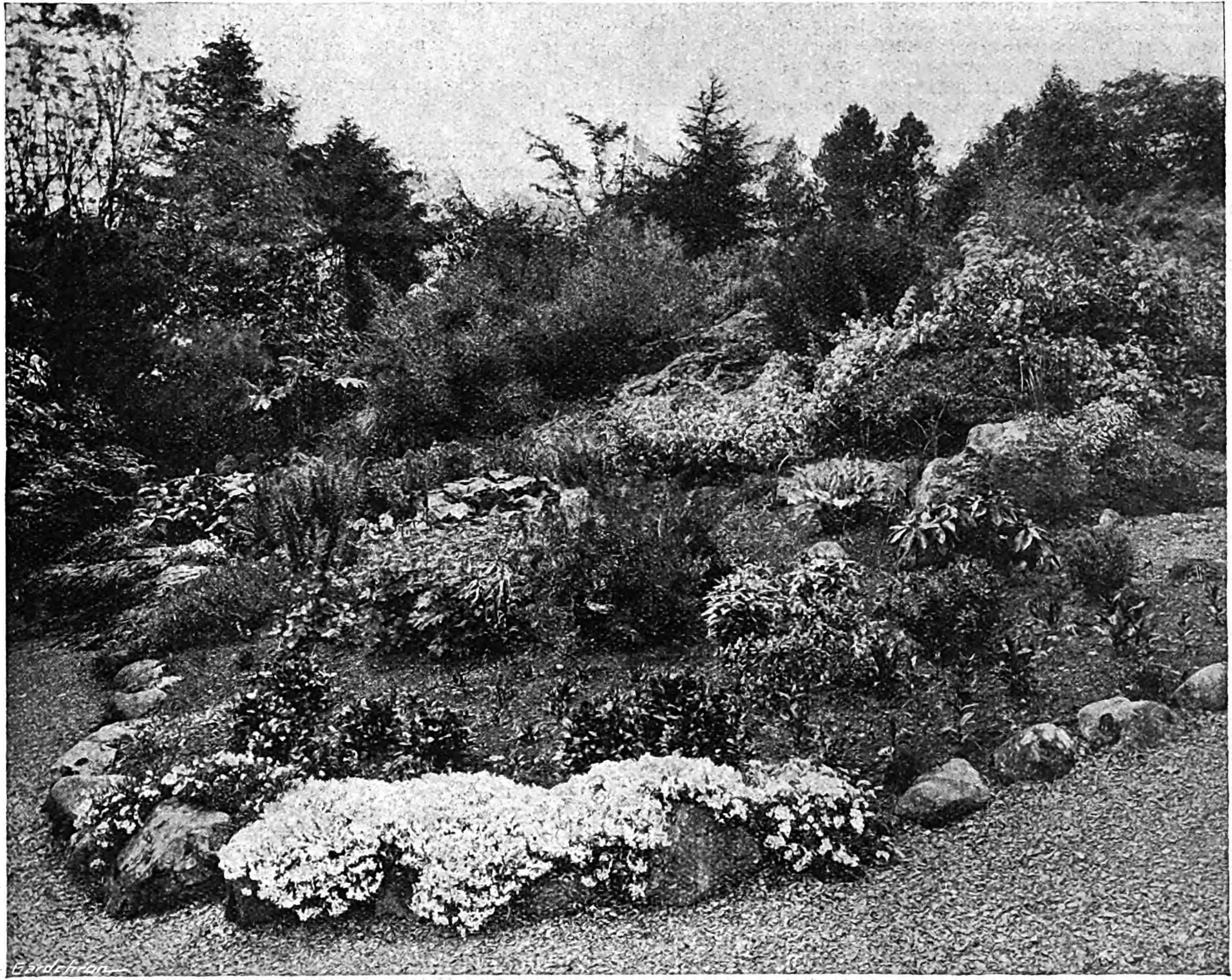


FIG. 151.—THE ROCK GARDEN AT ROWALLANE.

Rock Garden at Rowallane.—The many readers who were interested in the account and illustrations of Mr. Armytage Moore's garden in our issue of September 15, 1928, will, we feel sure, be pleased with the illustration of the Rock Garden at Rowallane, which appears on this page (Fig. 151).

Legacy to Gardener.—The Rt. Hon. Sir George Otto Trevelyan, of Wallington Hall, Cambo, Morpeth, Northumberland, who died on August 17, left a life annuity of £40 to his gardener, Mr. Edward Keith.

Horticulture in Roumania.—The Roumanian Horticultural Society is holding its annual Exhibition at Bucarest, from October 26 to 30, under the patronage of Her Majesty Queen Marie. Two provincial exhibitions will also be held at the beginning of November, which will mark an interesting epoch in Roumanian horticulture, this being the first occasion on which three autumn shows have been held. An arrangement has been arrived at with the Polish Government by which fruits of Roumanian origin are to be permitted to go through Poland to destinations in the north of Europe. This privilege will greatly facilitate the despatch of fruits to Scandinavian centres, where there is a good demand for Roumanian Grapes and Apples. Roumanian Chrysanthemum growers have been very unfortunate this year. The cold, wet weather which prevailed in the spring retarded planting, but vegetative growth continued luxuriantly until July; then, the great heat and subsequent dry weather in the middle of September caused a great deal of damage. Pests in especial have been rampant, and buds fell abundantly; it was impossible to keep the temperature down in the shelters even by copious watering, and when a few drops of rain did fall, after clouds of dust, the only effect was to stain and spoil such flowers as were produced. The total result is that really fine blooms are both rare and dear. The Bucarest Parks and Gardens Department has erected a magnificent nursery covering an area of thirty hectares, on the outskirts of the town. Among other inhabitants are the young ornamental plants and Conifers purchased in the spring from France and Germany, besides the seedlings and cuttings produced locally. In a few years the nursery, at present in its infancy, will be in a position to supply all the horticultural needs of the town, both present and future.

Stockholm College of Forestry Centenary.—The Swedish College of Forestry, at Stockholm, celebrated its centenary on October 15. The King and Crown Prince of Sweden were present, and the Rector of the College received congratulations from representatives of all the Swedish timber and forestry boards and associations, and from most of the famous universities throughout Europe. Professor Dawson, of Cambridge, supported by Professor Stebbing, of Edinburgh, and Professor Lloyd, of Oxford, conveyed congratulations from England.

Appointments for the Ensuing Week.—MONDAY, OCTOBER 29: Birmingham and Midland Gardeners' Association's lecture. TUESDAY, OCTOBER 30: Royal West Renfrewshire Horticultural Society's Council meets; Royal Horticultural Society Committees meet (two days). WEDNESDAY, OCTOBER 31: Bournemouth Horticultural Society's exhibition (two days). THURSDAY, NOVEMBER 1: National Chrysanthemum Society's show (two days); Henfield Chrysanthemum Society's show. FRIDAY, NOVEMBER 2: Bridport Chrysanthemum Society meets; Accrington Chrysanthemum Society meets. SATURDAY, NOVEMBER 3: Leigh-on-Sea Horticultural Society's exhibition; Blackburn Horticultural Society's meeting and lecture; Leeds Paxton Society's exhibition.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Corn Salad.*—In Paris two varieties are cultivated, namely, *Mâche ronde* and *Mache d'Italie*, or Italian Corn Salad. *Mache ronde.*—This is sown from August 15 till the end of October. It is sown broadcast; the seeds are raked in, a thin layer of vegetable mould is spread over, and water is given when necessary. The August sowing will be fit for use in autumn, the September one in winter, but this crop must be protected with long litter during severe frosts; and finally, the crop sown in October will be fit for use in spring. *Mache d'Italie.*—This is sown in October alone, or amongst the Mâche ronde, for this sort is later than the one last named, and forms a succession. It is sown thinly, and in exactly the same manner as the Mâche ronde. *Courtois-Gérard. Gard. Chron., October* 22, 1853.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

Calanthes.—Plants of the deciduous kinds of this useful winter-flowering Orchid are completing their growths and any feeding should cease as the flower buds form, or the colour of the flowers may be adversely affected. Only sufficient water is needed to keep the flower spikes growing. The plants should be arranged so that they receive all the available light and drier atmospheric conditions should be maintained as the blooms expand. Near large towns and in districts where injuriousfogs are prevalent, better results are obtained if the flowering of Calanthes may be retarded until January, when there is less danger of damage by fogs.

Phalaenopsis.—Many members of this genus flower at various seasons of the year, some during the winter and early spring months, when their graceful spikes are of great decorative value. Plants of P. amabilis, P. Stuartiana and P. Sanderiana are now showing flower spikes and protection is required to ward off attacks by slugs, which quickly damage the spikes at an early stage. Cotton wool placed around the base of each spike may prevent damage for a time, but if not frequently changed the rough surface which acts as a preventive is soon lost in the moist atmosphere. Suspending the plants from the roof or standing them over saucers of water are good remedies. Only strong, healthy plants should be allowed to flower. Overwatering should be guarded against, and a saturated atmosphere avoided at this season.

Autumn-flowering Cattleyas.—During the autumn months there is a great variety of Orchids in flower, of which the Cattleyas, both species and hybrids, are a prominent feature, for their large flowers of gorgeous colouring and fragrance make them attractive subjects for decoration and exhibition purposes. As the flower buds expand the plants should be placed in a light position in the house, which should be kept fairly dry to avoid disfigurement of the blooms by damp. As the shorter days approach, and consequently less light is available to assist the flower buds pushing through the thick fleshy sheaths, it is often necessary, especially in smoky districts, to give some assistance to the buds by carefully splitting the sheath part-way down. After the flowers are removed, the flower stem and sheath should be cut out fairly close to the base, and if any decay is noticed the affected parts should be dusted with powdered charcoal or sulphur. After flowering, only sufficient water is needed at the roots to keep the plants normal.

Odontoglossum citrosmum.—Specimens of this species are now completing their season's growth. It is one of the few Odontoglossums that require a decided rest when the pseudobulbs are matured. Very little water is required for several weeks; a little shrivelling of the bulbs does no harm, as they quickly swell again under growing conditions in the spring, when copious supplies of water may be given after the flower scape is observed in the young growth.

THE KITCHEN GARDEN.

By Allan Falconer, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Lifting Rhubarb for Forcing.—After the recent frosts, the Rhubarb leaves have died down sufficiently to allow for a small quantity of roots to be lifted in preparation for forcing. It is best not to lift more than the number required for the first batch, as the crowns will get riper and are better left in the ground for later batches. When lifting, if a good, long grafting tool is used, the ground may be properly dug at the same time, thus completing the two operations; carry the roots to a convenient spot near the forcing house. If the land is turned up roughly, the winter frosts and rains will put the ground into excellent condition for a Brassica crop next season, which follows Rhubarb admirably. As required, batches may be taken up a fortnight in advance of introducing them to the forcing house; complete all the lifting before Christmas, even if the roots are not required until March, as after exposure and the rest, the roots will force much better. Rhubarb does not force well unless exposed to frost, and I always endeavour to get some roots lifted so early as possible for that purpose, and directly it has been frozen, place a batch under the stages in a warm house having a temperature of 50° to 60°, packing between the roots plenty of half-rotted leaves and giving a good watering. When about four inches of growth has been made, a good watering with liquid manure will assist the crop, and does not in any way affect the flavour, but short stable litter, which is sometimes used, will give forced Rhubarb a peculiar taint which I am told affects the sale of this useful commodity in the markets. Royal Albert is an excellent variety for early forcing and is a good colour. Myatt's Linnaeus is good for a succession, while the newer variety, The Sutton, is of excellent quality, and striking appearance, and always commands a better price on the market than any other variety, no doubt because of its wonderful colour; I am so convinced of the fine quality of this variety that I am growing it in large quantities for forcing.

Vegetable Exhibitions.—It is very pleasing to observe the increased interest which is being taken in vegetables, and the very fine exhibits which have been staged at the leading exhibitions, especially at the recent R.H.S. show, where, in spite of the wonderful colouring in the fruit classes, the non-competitive displays of vegetables caused so much attraction by the wonderful blending of colours. The competitive classes also indicated the increased interest by the large number of entries, and I was glad to see that more gardeners are growing for exhibition. This will make for better quality all round. Friendly rivalry is also a fine incentive to good cultivation and causes the assistants to become more keenly interested in their work.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Early Vines in Pots.—If very early Grapes are required, preparations for forcing should be made without delay. Presuming that the vines have to be purchased for this work, they should be obtained at once from a reliable nurseryman, so that they may receive the necessary attention. Very little, if any, pruning is necessary when they arrive from a reliable firm, for this will already have been done, but where the lateral growths have been cut back to the main cane, it may be wise to cover the cut surfaces with styptic to prevent bleeding. This precaution is necessary, especially if any doubt exists with regard to the growth not having been ripened, otherwise bleeding is sure to take place immediately the sap begins to flow. Examine each pot for faulty drainage, for on good drainage success largely depends. Stand the receptacle on two bricks, allowing sufficient space between these for the water to pass away freely. Even where bottom heat is available from hot water pipes, I would strongly advise plunging the receptacles in sufficient leaves and litter for the purpose of ensuring humidity in the atmosphere which is essential to active growth in the early stages. Afterwards, apply a top-dressing of rich compost. Generally the receptacles are well-filled with roots to the rims when received, and very little room is left for fresh soil, but this may be overcome by placing pieces of rough turf around the pot rims to hold the finer compost. Tie the canes in a horizontal position to cause them to break more evenly than if they are arranged in positions in which they will eventually be grown. Unless the night temperature falls below 45°, it should not be necessary to employ fire-heat for a short time. On sunny days a little air may be admitted through the top ventilators for a very short time, and the house should be closed early, when the vines should be sprayed with tepid water.

Early Vines in Borders.—Where vines are planted out in borders to produce early Grapes, it is essential that they should be put in order at once. Prune all lateral growths back to one or two eyes with a sharp knife, and after each cut surface has become dry, cover it with styptic as a preventive against bleeding. It is also essential that both vines and the structure are free from insect pests. The rods should have all loose bark removed, but not skinned too severely afterwards; they should be washed with a strong solution of Gishurst Compound or some other suitable insecticide. Here, the vines were dressed last season with Morteg, with very good results. The freeing of the trees of mealy-bug is the most difficult, for this pest harbours in the roof, trellis and loose parts of the border, where it is most difficult to eradicate. The woodwork and glass should, if possible, be thoroughly washed and painted and the walls coated with lime to which a good proportion of paraffin has been added. Remove all loose soil carefully, afterwards top-dress the borders with rich, sweet compost. Growing conditions most suitable for these are as recommended for pot vines.

PLANTS UNDER GLASS.

By J. Coutts, Assistant Curator, Royal Gardens, Kew.

Violets in Frames.—These should be examined frequently for decayed leaves, which should be removed. The surface of the soil between the plants should also be kept stirred, as proper aeration of the soil is very important. Ventilation should be carefully attended to, and during bright, sunny spells the frame lights should be removed altogether. Where Violets are grown in pots, strict attention should be given to watering and the maintenance of moist and cool atmospheric conditions, for any neglect in this respect is certain to lead to attacks of red spider.

Tropaeolum tricolorum.—Tubers of this subject that were started into growth some time ago should now be producing growths which should receive timely support. Slender sprays of Hazel are most suitable for this purpose. This elegant climbing plant only requires a cool greenhouse temperature for its successful cultivation; dry atmospheric conditions should be avoided, as this plant is very subject to attacks of red spider. The beautiful blue-flowered Tropaeolum azureum succeeds under the same conditions, but, unfortunately, this species seems to be very rare in cultivation.

Eucharis grandiflora.—At one time a common and favourite stove plant, this subject is by no means so commonly grown at the present day. It is, however, very useful for producing a supply of white flowers, and by growing successional batches, plants may be had in flower more or less all the year round. Where required for winter flowering, plants that have been rested by keeping them on the dry side and in a lower temperature, may now be introduced to a warm house, plunging the pots, if possible, in a bed with ample bottom heat at command. Eucharis are very subject to attacks of mealy bug, and these should be guarded against; they are also subject to attacks of bulb mite. These attacks are, in my experience, usually induced by wrong methods of cultivation; such as drying-off the plants too much. This plant is really evergreen and should not at any time be completely dried off, but should be rested by keeping it in a lower temperature and slightly drier at the roots. E. grandiflora succeeds either grown in pots, or planted out in raised beds. When in full growth it enjoys a temperature of 65° to 70° and, when plunged, may be subjected to a bottom heat of 80° to 85°.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to the Duke of Devonshire, Chatsworth, Bakewell, Derbyshire.

Sowing Sweet Peas in Pots.—Many very successful growers and exhibitors have demonstrated very clearly the advantages of sowing and wintering Sweet Peas in pots, and the next week or two is probably the most suitable time for this operation. Autumn sowing of Sweet Peas is especially recommended when very early blooms are desired, and should certainly be carried out in the case of new and expensive varieties, as in this case, they are the more easily looked after and protected from enemies such as slugs, mice and birds. Any ordinary good soil is suitable, and they may either be sown singly in small pots; four or five in a five-inch pot, or, if space is limited, in ordinary seed-boxes, but singly is to be preferred. The seeds should be rolled in a preparation of red-lead, moistened with paraffin, which should keep mice and other vermin away. When the seeds are sown, the receptacles should be placed in a close cold frame until germination takes place, when abundance of air should be given during all but the most inclement weather. Coddling in any sense is unfavourable to healthy and sturdy growth. In certain warm soils, and in specially favourable climatic conditions, Sweet Peas may be sown out-of-doors in the autumn to stand the winter, but such should not be relied on too much, unless the grower has had previous experience of the soil and situation.

Senecio clivorum.—This is a capital plant for massing in swampy places in the wild garden, or by the side of a stream or lake. The showy, golden-yellow flowers are borne on strong stems, and stand well above the bold foliage. The latter, even when not surmounted by the flower spikes, is ornamental in itself. It is a very strong-rooting subject, and appears to thrive in any kind of soil, so long as it may obtain abundance of moisture at the roots. Flowering usually in July and August, it is a very effective plant when grouped in bold masses.

Turfing Operations.—Any alterations requiring the removal of turf, or the renovation of bad patches, should be done so early as possible in the autumn, when the ground is in a suitable condition, *i.e.*, sufficiently moist, after such a dry season. Frosts make it a more difficult operation if taken in hand later. By doing it early in the season and rolling it regularly, the junctions of the turves should unite quickly, and the whole settle down more satisfactorily than if left until the spring, when drying winds are very trying to newly-laid turf. Endeavour to keep fallen leaves removed from the gravel paths and lawns, collecting them for the production of leaf-mould.

HARDY FRUIT GARDEN.

By T. E. Tomalin, Gardener to the Earl of Bessborough, Stansted Park, Emsworth, Sussex.

Blackberries and Loganberries.—These and the several hybrid berries of the same family will by now have completed their growth, and the new canes should be trained into position before they become damaged by storms. The distance between the new growths must vary according to the relative vigour of the different varieties, but nothing is gained by overcrowding; nine inches to a foot of space is not too much to allow between the growths of the Loganberry, and more space than this will be necessary for some of the stronger-growing Blackberries. Before commencing to train in the young canes, all the old wood which has borne fruits should be cut out at the base. Jute twine is very suitable for tying in these Brambles, as it is soft to the young wood besides being strong enough to carry the heavy weight of fruits the following summer.

Raspberries.—Assuming that the old canes were cut out after the crop was over, the new canes may now be thinned out finally by the removal of the weakest. Those to be retained for cropping next season should then be tied in at about nine inches apart. The tips should not be cut off until February, for their removal now would render the canes more susceptible to damage from frost. The plantation should then be lightly hoed over to remove weeds and to obliterate footmarks, thus leaving all tidy for the winter.

Wiring of Walls.—The practice of securing the branches of wall fruit trees with nails and shreds has little to recommend it, but, on the contrary, a dozen good reasons against the system may be adduced, chief among which are, that it ruins the walls in time, provides nesting holes in plenty for many harmful insects, while the shreds provide ideal homes for earwigs during the fruiting season. Walls may be wired quite inexpensively nowadays, and by taking one well in hand each winter, the cost may be spread over a few years, while the work may be performed during hard weather when little else is possible in the fruit garden. Moreover, the initial outlay is soon recovered by the saving in time, cost of nails, etc., and the summer work on the trees is greatly simplified. Wire of No. 12 gauge is recommended, and it should be fixed so close to the wall as just to admit the passage of a finger when tying. If fitted at any greater distance from the wall loss of radiated heat would be occasioned, and a cold current of air between wall and tree may be set up. The simplest system of wiring walls for fruit trees is by driving in galvanised hold-fasts at each end of the wall. To one of these the wire is fixed, and, after being passed through eyes driven in at eight feet apart along the line, the other end is fixed to a straining bolt which passes through the eye in the other holdfast and is tightened up by a nut. Nine inches apart will be found a suitable distance for the wires to be placed for most kinds of fruit trees.

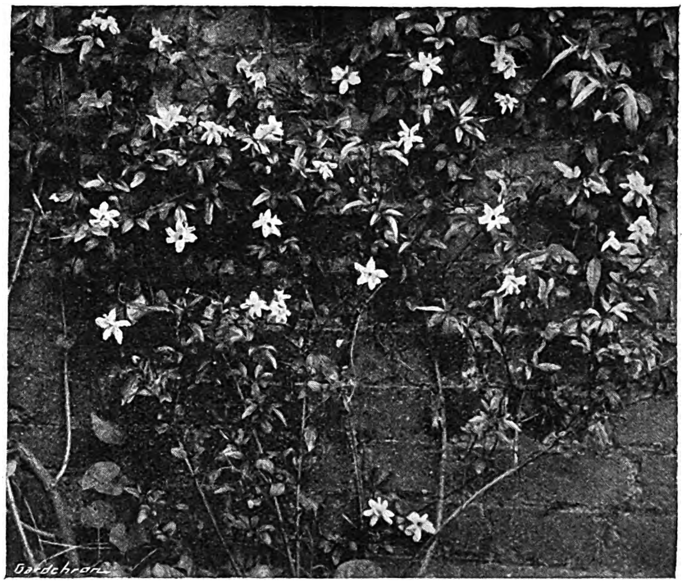


FIG. 152. JASMINUM PRIMULINUM AT WORMLEY BURY.

(see p. 326.)

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener at Jordanhill Training Centre, Glasgow.

Collecting Fruits.—The fruits of late-keeping varieties of Apples and Pears require to be stored, or otherwise disposed of, at an early date, and where the crop is a heavy one, and the fruit-room space available is rather limited; it often happens that many growers are disposing of the earlier fruits about the same time, with the result that the market becomes over stocked and prices become very unremunerative to the growers. A close study of the reports on the fruit crops, as published each year in *The Gardeners' Chronicle*, may sometimes help by showing which districts report that fruits are less plentiful, and if the transport charges by road or rail are not excessive, enquiries as to sales in these areas may be well rewarded. The grading of fruits for market is now receiving much greater attention, and if a standard is rigidly adhered to year after year, it soon becomes known, and, like the better-selected brands of imported fruits from other countries, the fruits command a higher price.

Planting Trees and Shrubs.—Although April and May are the best months in which to plant evergreen trees and shrubs of questionable hardiness, the present month is probably the best for planting well-tried hardy plants, and wherever possible this work should be carried on when outside conditions are favourable. Ground which has been prepared in advance and is in a moderately dry state allows the work to be expeditiously performed, although where pit-planting is designed it is no advantage to have the pits or holes opened much in advance as, should wet weather set in, they will probably be found half-full of water when planting time arrives. The drainage of sites for young plantations should be attended to well in advance, and where the fall of the ground permits, quite good results are obtained by means of open drains, which, of course, should be attended to and kept clear of overhanging growths and other obstructions. Where only young plants are being set out no staking is necessary, but if trees six feet or more in height are being planted on exposed sites, it is necessary to stake them so soon as planted. Ties should be secure, but at the same time not too tight, and for this purpose a patent tree band, invented by Mr. Edwin Beckett, probably meets the case better than any other. It is, or was, obtainable in a series of sizes, and lasts quite long enough to ensure the young trees being secure.

Spring Bedding.—So soon as the summer occupants of the flower garden have been damaged by frost, or their removal indoors made necessary, the beds should be prepared for the reception of spring-flowering subjects. Bulbs in variety are now easily procured and, where home-grown Narcissi, etc., may be obtained, they should be given a trial. Plants raised from seeds sown earlier and transplanted, such as Aubrietia, Myosotis and Wallflowers, should also be planted now in their final quarters, for by getting them thoroughly re-established before the severe weather sets in, they may be expected to come safely through the severest of winters. May-flowering Tulips should also be planted in quantity, as although these charming and useful flowers may remain on the same site for several years in suitable soils, there are also circumstances which make it necessary to lift them annually and replant. Crocuses and Winter Aconites are useful and early in positions where they get the sun; Scillas and Muscaris in variety give a touch of blue early in the season; while Snowdrops should never be omitted when planting early spring flowers.

TREES AND SHRUBS.

JASMINUM PRIMULINUM.

Of all the Jasmines grown in the open in this country, this is by far the most noble, although it is probably never seen at its best except in the south-west. It is a rather tender evergreen climber, but is apt to lose its leaves even on a south wall after more than 6° of frost—I do not consider that it is nearly so hardy as it is reported to be by some growers. I have grown it for a number of years on walls with various aspects, and although it has never been killed outright, I only succeeded last year in flowering it at all satisfactorily on a wall facing a little west of south (Fig. 152. p. 325). It is not particular as to soil and grows freely during the summer, but does not flower if it has lost too many leaves owing to frost.

Its native habitat is Yunnan, whence it was introduced as a living plant by Wilson in 1900; it does not bear seeds. The flowers are bright canary-yellow, and one-and-a-half inch across. This species is very commonly grown in the south of France and Italy, where it thrives very well and makes a fine display of flowers in early spring. *Albert Pam, Wormley Bury, Broxbourne.*

ESCALLONIA DONARD'S SEEDLING.

The Escallonia family contains several members of high value as decorative shrubs in the garden, and one of the most useful is this hybrid of E. Philippiana and E. langleyensis, which was introduced some few years ago by the well-known Donard Nursery Co. It possesses the freeness of growth which characterises the group and is, moreover, hardier than the majority of them, forming a fairly compact bush up to eight feet high, erect, but with attractively spreading branches which are set with glossy, rich green leaves, paler beneath, up to one inch in length, rounded in shape, tapering to the base, and with regularly toothed margins towards the apex.

It flowers from early July onwards; in fact, from the time it commences to bloom until severe frosts are experienced, it is always generously laden with flowers, which are produced in short clusters on the lateral growths of the current season's production. The flowers are rich pink when in bud, and when open, white, tinged with pink, the reverse sides of the petals being pinkish, so that it may be easily imagined how beautiful this shrub is when in full bloom; the flowers are also slightly fragrant.

E. Donard's Seedling is a valuable subject for the mixed shrub border, for it is seldom injured by hard weather, and then not severely. It grows freely in any ordinary garden soil so long as it is not too moist, and is, incidentally, as easy to propagate as any member of the genus, either by layering if large plants are required quickly; by cuttings of soft growths rooted during the summer; or by inserting ripened growths in sand in a cold frame during late autumn. These cuttings root quickly and soon form flowering bushes. *M. W.*

HYDRANGEAS FOR BEDDING.

There is every indication that Hydrangeas are coming into favour as subjects for bedding. They are especially suitable for planting *en masse* at corners, and in partially shaded beds, but it is a mistake to plant them in beds where they would be exposed all day to the sun, as under these conditions the heads are liable to suffer, and soon assume a faded appearance. A situation partially shaded is the better. The summer just ended has been almost too bright to permit the average Hydrangea to maintain its freshness for long if fully exposed. I used to consider the finest blue Hydrangeas were those to be found at Shanklin, Isle of Wight, but this year the colour was certainly inferior to that seen in 1926.

For bedding purposes, prepare the soil by adding plenty of well-decayed leaf-soil or spent Mushroom-bed material to the staple soil, and plant out at any time from the end of April to June.

With regard to varieties for bedding, my first choice is Parsifal. A bed of this reddish-pink variety, well-grown, is a beautiful sight. The "pips" are much like Primula flowers, fringed, and the heads are carried on stout stems. The foliage is small and dark green. The only fault I have to find is that it must be lifted in the autumn and kept in a well ventilated house with a little fire-heat, as it is very prone to damping at the tips. In short, it requires a little warmer and drier winter treatment than any other variety. Others, unless the situation is bleak, may remain outside provided a little Bracken and a bag or mat is tied around them. Parsifal is one of the easiest of Hydrangeas to propagate as it throws up numbers of strong shoots from the base, and if plants are started early the young growths may be removed in March or April and rooted in heat in boxes filled with loam, leaf-soil and plenty of sand. These, if heated well, will make ideal bedding plants the following year.

A seedling of similar habit, but of flesh-pink colour, named Venus, raised this year, won the approval of the late Mr. H. J. Jones when exhibited last June, and promises to be a good bedder. Rubis, purplish-pink, a remarkable variety, also does well, but its trusses are not so stiff-stemmed as those of Parsifal. Neige Orleanaise is the best white variety for bedding.

To obtain good blue Hydrangeas, special treatment is required over a period, but a very fine effect is produced by a bed of such plants, the best varieties being Niedersachsen, Madame Truffaut, Blue Prince and Vicomte de Vibraye.

Tall plants of Grevillea robusta planted among the Hydrangeas, give an added charm.

I consider varieties with the smaller "pips" or individual bracts, are the best for bedding. *G. W. Stacey, Chorleywood Cedars.*

COTONEASTER RUBENS.

Among the shrubs of value introduced from China during recent years, this Cotoneaster ranks with the foremost, for it is one of the most decorative berry-bearing shrubs of dwarf habit that we have. It is after the style of C. microphylla, but is quite distinct from this species and, like it, is a valuable subject for furnishing the rock garden or for planting in other positions where attractive subjects of low stature and evergreen nature are required; it is far superior to C. microphylla when in fruit.

C. rubens produces its dull-white flowers during June, in clusters of about five, but it is not for its blossoms that this Cotoneaster is valued. The flowers are followed by fruits which are ripe at the present time; they are large and rounded, flattened at the top and rich, deep crimson in colour, and are produced in indescribable abundance on all of the growths, so much so that, although devoured greedily by birds, they yet render the shrub attractive for some considerable time. A fair proportion of these fruits often contain fertile seeds, from which plants may be raised if the fruits are stored in sand throughout the winter, and in the spring the seeds are rubbed out and sown, either in pots or in the open ground. Cuttings are not easily rooted, but a fair proportion should strike if short, ripened growths, taken with heels, are inserted firmly in pots of sandy soil during the autumn. The best and easiest method of increasing C. rubens is, however, by layering; in fact, growths may sometimes be found which have rooted naturally, and have only to be severed from the parent to form new plants.

This shrub is not particular as to soil, is quite hardy and delights in a sunny position, where it fruits may be ripened and seen advantageously.

COTONEASTER SEROTINA.

This species belongs to the C. ovalifolia group, but is quite distinct, and only falls short of being a first-class ornamental shrub through the fact that if severe frosts are experienced early, the beauty of the fruits, which form its chief attraction, is impaired.

C. serotina is a native of western China and has not long been in cultivation, so that it is comparatively rare. It forms a handsome bush quite five feet high, with slender growths, arching gracefully from the stout main branches, when young, clothed with down, but later becoming glossy and reddish-brown. The leaves are rich green on the upper surface and grey beneath; they are from one-and-a-half inch to three inches in length, oval in shape and pointed, and are short-stalked. The flowers may hardly be considered attractive for they are dull white and are produced in flattened clusters two inches or so across during July, on short, lateral growths. They are, however, followed by clusters of small, globose fruits, described as sealing-wax-red in colour, but, so far as my experience goes, with a distinct bronzy tint.

These fruits are now almost ripe, and we may hope that frosts of unusual severity may not occur too soon to mar their beauty, for in fortunate seasons they often render this shrub resplendent in colouring until the end of November.

C. serotina is quite free-growing, but it would not appear to be so long-lived as many of the Cotoneasters, for after a few years it seems to become rather stunted in growth; however, possibly the defect may be remedied by pruning and by feeding. I have not been very successful with cuttings of it, but quite large branches may be layered if fresh plants are required, and it is quite happy in ordinary loamy soil. *Kent.*

NOTES ON THE GROWTH OF CERTAIN TREES AT VERRIÈRES.

In a communication to the French Dendrological Society, M. Roger de Vilmorin gave some interesting information on the growth of certain trees at Verrières. The previous measurements were published more than twenty years ago, when *Hortus Vilmorinianus* appeared, in 1906.

It may be interesting to note the growth of trees, then already old, during this period.

The most rapid development was observed in Abies grandis and A. lasiocarpa, which increased by nine metres in twenty years, *i.e.*, an average of 45 centimetres a year. The second-named increased its diameter a little more rapidly than the first (Abies grandis 15m. in height and 0·90m. in girth at 1m., as against 24m. and 1·75m. in 1927; Abies lasiocarpa 15m. and 1·50m. in 1906 as against 24m. and 2·50m. in 1927). Sequoia sempervirens, not one hundred years old, has a height of 21·50m., an increase of 4·50m. Quercus heterophylla has increased by 6m. in height and nearly 1m. in circumference.

Juglans Vilmoriniana (J. regia × J. nigra), aged 110 years, has now attained a height of 30·80m., and is still the tallest tree at Verrières, followed closely by the Pinus Laricio de Calabre (27m. in height and 2m. in circumference in 1906, as against 30m. and 2·65m. in 1927). Pinus Laricio is still of dominating character, but is now challenged in its supremacy by the great Cedar of Lebanon on the lawn, which reached a height of 25m. and a circumference of 4m. in 1906, and measured 29m. high and 4·90m. round in 1927.

As a contrast, the old specimens of Prunus Avium flore pleno and Cercis Siliquastrum have remained practically stationary, measuring 20m. and 1·30m. in 1906, against 20m. and 1·50m. in 1927 in the first case, and 20m. and 1·25m. in 1906, against 20m. and 1·90m. in 1927, in the second.

It is stated that Abies Pinsapo, a specimen dating from the introductions of Boissier, was 21m. and 2·20m. in 1906, and 25m. and 2·43m. in 1927; Abies Vilmorini (A. Pinsapo × A. cephalonica) 15m. and 1·50m. in 1906, compared with 21·50m. and 2·25m. in 1927; and Sequoia gigantea, 21m. and 2·75m. in 1906, 24·80m. and 3·80m. in 1927. Sorbus domestica, (1906 measurements, 18m. and 1·80m.), increased to 18·70m. and 2m. in 1927; and Zelkowa crenata, which measured in 1906, 21m. and 2·50m., increased to 22·50m. and 3m., respectively by 1927. *A. M.*

BARK-RINGING ORNAMENTAL SHRUBS.

Bark-ringing, if properly carried out, is a proved success with fruit trees. The operation, if properly performed, will ensure a plentiful supply of blossom, a big proportion of which, unless weather conditions are altogether unfavourable, will set.

With flowering shrubs it is not necessary that fruits should be produced; but unless flowers are produced in greater abundance the experiment is a failure. To be successful, the ringing should be carried out at the same period as with fruit trees. That is, at the time of flowering of the particular variety of shrub being dealt with. It is not necessary to ring-bark shrubs which already produce flowers in abundance. Those which produce few or no flowers should be chosen for the operation.

In the case of a Lilac which had never borne a single flower, and which was dealt with at the time of blossoming of the Lilac, a number of flower trusses were produced the following season. This is an isolated experiment, and it will be necessary to carry out many further experiments on many different varieties of flowering shrubs before it may be definitely stated that bark-ringing is advisable in the case of flowering shrubs. It will probably be found, after experiment, that with certain shrubs great benefit results; with other shrubs medium results are obtained; while with still other kinds no improvement in the amount of flowers produced is to be seen.

It will not be possible to lay down any definite rule as to which shrubs may and which may not be successfully treated, until exhaustive enquiries have been carried out. It does seem, however, that experiment on a rather wide scale is called for and will be of the greatest benefit, especially with certain shrubs which produce beautiful blossoms when they flower, but which flower only at long intervals or produce only a very small number of blooms.

With fruit trees, certain set methods of bark-ringing have been adopted, but with flowering shrubs, because of the great range of difference in the character of these, rather more elasticity will probably be necessary. When dealing with particularly choice or valuable shrubs, a good deal of caution will be desirable. In most cases it will be advisable to paint the wound which has been made when bark-ringing with some protective material. *J. W. Morton.*

ROSES IN POTS.

Whether for the embellishment of the greenhouse or conservatory, or for the purpose of furnishing cut flowers, there are few subjects more interesting or more thoroughly enjoyed than Roses in pots. It is very easy to have them in flower in April and May to precede the outdoor flowers, or they may be forced for flowering from February until April if the plants are properly prepared.

As a start has to be made by all who contemplate growing them, a good plan is to procure strong, stocky plants which have had one or two season's growth in the open border, so early in the month of November as possible. These may be on their own roots or on Briar or Manetti stocks, and they should be taken up with as little injury to the roots as possible and put into pots so small as practicable. The soil should be a good, stiff, yellow loam with a fifth part of well-decayed manure and a sprinkling of lime-rubble thoroughly incorporated with it. The plants should be plunged to the rims of the pots in a bed of cinder-ashes and left unpruned until January. The forcing of these in the first season is naturally out of the question, but they should be useful for flowering in an ordinary greenhouse temperature, to provide a few flowers before the outdoor season commences. After flowering, so soon as weather conditions permit, the plants should again be placed outside in a warm, sunny position and plunged in ashes to neutralise the drying tendency of hot weather during the subsequent summer months. Attention should be given to them with regard to watering and syringing, to keep them in a healthy, vigorous condition. It is better not to allow them to flower during the summer months, but to remove the buds as they appear, leaving all the young growths that are made as a nucleus of greater vigour and a more abundant display of flowers in the following season.

The best time to repot Roses grown permanently in pots is at the end of July or the beginning of August, and a heap of compost should be mixed earlier in the season in preparation for this work. Turn the plants out of the old pots and, with a pointed stick, remove so much soil as possible from the ball without injuring the main roots. Repot them firmly in clean, slightly larger pots, adding the compost a little at a time and ramming it well round the old ball until the pots are well filled. Where convenience exists, it is an excellent practice, especially in regard to Tea Roses, to plunge the pots to their rims in a mild hotbed. This, with the fine days and dewy nights of early autumn, should promote growth and the production of young roots, which aid in the formation of very fine flowers. Where fermenting material cannot be had, however, the pots should be placed on a cinder-ash bottom in the full sunshine, stable litter being filled in around the pots, by which means a more uniform amount of root moisture and temperature may be maintained. The pruning of pot Roses is an important operation, and it is desirable that it should be undertaken at the proper time and in accordance with the period when the plants so operated upon are intended to flower. For instance, when early forcing is contemplated, the plants intended for this purpose should be pruned about the first week in December, while for those plants intended for April and May flowering, the months of January and February should be early enough. The degree of pruning depends on the growth of the plant; when the heads are large and dense, two buds left at the base of each young branch should provide as many growths as can develop, while in the case of thin heads, strong young shoots may be left a goodly length, shortening the smaller growths to a couple of eyes.

Although Roses force readily, they should not be subjected to very high temperatures. The more important points in regard to the practice are, to commence the work very gradually, and to carry it on with the aid of abundant atmospheric moisture and all the light and air possible. Plants to be forced should be placed in an airy greenhouse until the buds begin to swell, when they may be introduced to a higher temperature. A temperature of about 60° by day and 50° to 55° by night should promote a vigorous, robust growth which will develop flowers of high quality. When growth is in progress occasional doses of liquid manure should be given until the plants show buds, when they may be removed to an airy greenhouse. Few insect pests attack these plants if a free use of the syringe is made, but if aphis becomes troublesome fumigation should be resorted to. *W. A.*

INDOOR PLANTS.

RAVENALA MADAGASCARIENSIS.

Ravenala madagascariensis is the Travellers' Tree of Madagascar, so called on account of its capacity for storing water in the receptacles formed by the sheathing of the leaf-stalks. For this reason it is said to be of great service to travellers in deserts. This supposition, however, is erroneous, because it does not grow in districts where water is scarce. Furthermore, during the dry weather the water collected in the leaf-bases becomes infested with the larvae of mosquitos and other insects.

The immense, distichous leaves are of somewhat the same shape as those of the Banana, but larger, and are arranged in one plane, like a gigantic fan. The seeds are edible and the blue, pulpy aril which surrounds them yields an essential oil. In Ravenala the sepals and petals are free from one another and rather similar, except that one petal is shorter than the other two.

This graceful tree which, like the Banana tree of the same family, appears to grow best in a hot, humid atmosphere, attains a height of thirty to forty feet. It is propagated by seeds and root suckers, but the latter method is usually employed here. *F. S. Banfield, Kuala Lumpur.*

HIPPEASTRUM (HABRANTHUS) ADVENUM MAJOR.

This Hippeastrum came into my garden towards the close of last century. The cluster here illustrated (Fig. 153) was raised from seeds, *ex. hort.* Elwes, nearly twenty years ago. It will sometimes flower out-of-doors against a warm wall. It did so at Isleworth in 1899, and it has done so this year at Kew. But I regard it as a cold house bulb. The three or four dark red flowers on each stem are very pleasing, but rather fugacious. The foliage will withstand about 10° of frost. The plant increases by offsets rather slowly, and flowers in clusters every August to September if left undisturbed. The illustration shows a group that flowered this season in a cold house. *A. Worsley, Isleworth.*

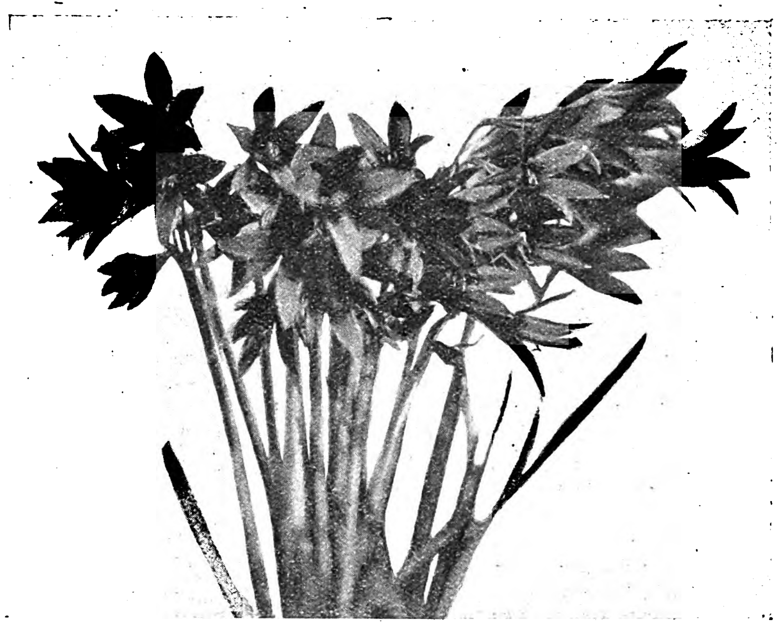


FIG. 153.—HIPPEASTRUM (HABRANTHUS) ADVENUM MAJOR.

ALPINE GARDEN.

AETHIONEMA IBERIDEUM.

Ignored by Farrer in his invaluable *English Rock Garden,* it must not be supposed that Aethionema iberideum is not a rock plant of desirable attraction. I am glad to observe that Mr. A. T. Johnson gives it a word of praise in *A Garden in Wales,* where he writes of it as "the earliest and easiest" of the Lebanon Candytufts, and tells us that it "sheets its blue grey mats with white flowers before March is out." This year, an unusually large number of alpines have deigned to flower a second time, due, probably, to the strange season we have had, and A. iberideum is one of the number. About the middle of September it opened its flowers once more. It makes a capital plant for the moraine, where I grow it, and where it is flourishing without the lime which it is said to desire. It has a pretty little mat of foliage and the white flowers show up well against the blue-grey ground of leaves. *S. Arnott.*

GENTIANA PRZEWALSKII.

Despite its name, this Gentian is very lovely and quite good-tempered. It is a prostrate plant, and produces in July and August, few-flowered clusters of large, azure-blue flowers. The plant is quite happy in cool, peaty soil, or in peat and loam, and with the better-known G. Lagodechiana, may be classed among the most satisfying members of a beautiful family. *Ralph E. Arnold.*

CONVOLVULUS MAURITANICUS.

This plant, a native of southern Europe, is surely to be reckoned among the most persistent flowering plants for the rock garden, for from the time it commences to produce its blooms, usually towards the end of June, there is a bountiful succession of the inch-wide, lilac-blue flowers until the arrival of hard frosts.

Usually, this Convolvulus is considered of doubtful hardiness, but it would seem that it is quite able to withstand a fair amount of frost, provided that it is placed in a dry and south-exposed position. The soil should be of a very porous nature, and the plants placed in well-drained pockets, so situated that the growths may tumble over rocks; for this subject is by nature a trailer. It may readily be increased by division at the present season, or by cuttings taken in summer and inserted in a sandy compost.

This note is prompted by seeing a batch of these plants in the Cambridge Botanic Gardens carrying a wealth of clear blooms early in the present month. *W. Howell.*

THE GENUS PRIMULA.

(*Continued from p.* 313).

FASCICULATA (Balf. f.). Fasciculate P. (Farinosae).

A very dainty, dwarf, perennial species allied to P. tibetica, remarkable for producing its blossoms in the axils of its leaves. The rather thick leaves, in rosettes, have oblong-elliptic or rounded-oval blades, with blunt, rounded tips and entire, cartilaginous margins; upper surface usually smooth, underside more or less mealy; the blade tapers to a winged stalk, dilated and clasping at the base, in all about one-and-a-half inch long. Flower stem obsolete; flowers about half-an-inch across, solitary, on slender stalks about two inches long from the leaf axils. Corolla deep rosy-pink, with an orange-coloured eye; divided into five flat, egg-shaped, notched lobes; tube cylindric, about a quarter-of-an-inch long, with an obscure ring at the mouth. Flowers in May.

The plant is abundant in bogs on the Chungtien plateau, south-eastern Tibet, from 11,000 to 12,000 feet above sea-level.

Culture: Plant it in peat and Sphagnum-moss, in a sunny part of the bog garden, with less water in the winter.

FEA (Ward.) Burmese Cliff P. (Soldanelloideae.)

A very beautiful little species from the Burma-Tibet Frontier, with tiny rosettes of spathulate or broadly lance-shaped leaves about half-an-inch long, gradually tapering to a winged stalk about equaling the blade in length; margins edged with narrow, pinnatifid teeth; upper surface clothed with white down. Flower-stem thread-like, about one-and-a-half-inch tall, bearing one or two nodding, stalkless flowers, blue in the bud, mauve when fully expanded, with a crimson tube; calyx almost purplish-black, powdered with greenish-yellow meal. Corolla bell-shaped, about half-an-inch long, and the same width, with oval, entire, or irregularly incised segments; tube funnel-shaped, gradually merging into the corolla.

Grows in moss and Lichens in crevices in granite cliffs, also on very steep rocky slopes in short turf, on the Seinghku Wang, in north-eastern Upper Burma, at 14,000 to 15,000 feet above sea-level.

Culture: Good fibrous loam and peat, in an open spot well supplied with moisture when in growth, with protection from wet in winter, should suit it.

FEDTSCHENKOI (Regel). Fedtschenkov's P. (Nivales.)

This handsome species has very richly-tinted blossoms. It produces a rosette of thin, oblong leaves one-and-a-half inch to two-and-a-half inches long, broadening at the tip and tapering at the base into a short, winged stalk, or is nearly stalkless; margins coarsely toothed or scalloped; upper surface smooth, green, underside sparsely mealy. Flower stem three to nine inches tall, mealy among the blossoms, which are of a deep, rich violet colour, borne in few, or many-flowered umbels. Corolla about three-quarters-of-an-inch across, flat, divided into five elliptic or oval, blunt, entire segments; tube cylindrical, twice or three times as long as the calyx. Introduced in 1884. Flowers in June.

Grows on the mountains of Turkestan in damp places, up to 6,000 feet above sea-level.

Culture: Good, somewhat heavy loam and sand, and a damp, half-shady spot, should suit it.

FILCHNERAE (R. Knuth). Filchner's P. (Pinnatae.)

This remarkable and very distinct species produces a tuft of hairy, Carrot-like leaves of a pale glaucous-green colour, on slender, minutely hairy stalks, in all from three to five inches long; the blades are oval in outline, much cut and divided, the divisions being irregularly and sharply toothed. Flower stems numerous, up to seven inches tall, slender, minutely hairy, each bearing an umbel of six to eight purple or lilac blossoms, on stalks about half-an-inch long. Corolla nearly one inch across, divided into five broadly heart-shaped lobes, cleft to the middle; tube cylindric, as long as the calyx. Flowers in February and March.

The plant is found in damp shady situations, usually in Bamboo thickets, on the Tsinling mountains, in Shensi, central China, and requires protection from damp and frost in this country.

Culture: Plant it in fibrous loam, leaf soil and sand, and treat it as a frame or cool greenhouse plant.

FILIPES (Watt.). Chuka P. (Obconica.)

This fragile little plant is one of several species of microforms which connect P. obconica and P. Listeri. It is a deciduous perennial with a rather long, horizontal rootstock of considerable size for so small a plant; it produces a loose tuft of oval or oblong, thin, sparsely downy leaves, with blades one to one-and-a-half inch across, on very slender stalks one to one-and-a-half inch in length; the blades are heart-shaped at the base and have lobed or coarsely-toothed margins. Flower stem one to one-and-a-half inch tall, slender, bearing from six to eight flesh-coloured blossoms in a drooping umbel. Corolla about half-an-inch across, divided into five egg-shaped, bilobed segments; tube cylindrical, longer than the calyx. Griff., *Ic. Pl. Asiat,* t. 485, f. 1.

Grows on damp rocks in somewhat shady spots in the Bhutan Himalayas, near Chuka, at 6,500 feet above sea-level.

Culture: This plant is not in cultivation. It should succeed in this country under the same conditions as P. obconica.

FIRMIPES (Balf. f.). Robust P. (Sikkimensis.)

A handsome, somewhat strong-growing perennial species with sparsely mealy, papery, oval or elliptic leaves about six inches long, blunt or pointed at the tip, heart-shaped at the base, borne on long stalks; margins furnished with coarse, saw-like teeth or small lobes. Flower stem about six inches tall, erect, bearing an umbel of four to five fragrant yellow blossoms on erect stalks about one-and-a-half inch long. Corolla about one inch long, concave, divided into egg-shaped, notched lobes; tube funnel-shaped, with a mealy ring in the throat. Flowers in July.

Grows in damp soil near Tsarong, on the Salween Kiu-chiang Divide, in south-eastern Tibet.

Culture: Rich loam and peat, kept saturated when the plant is in growth, are the conditions required. *A. W. Darnell*

(*To be continued.*)

FLOWERS IN HOLLAND.

On a recent visit, where I was taken mainly off the usual tracks—Zeeland, North Brabant, Gelderland, Overijsel, Dreuthe, Friesland—conspicuous everywhere were the gardens, brilliant and glowing with colour. I say "conspicuous," but Holland, if you travel at speed, seems to be a continuous flower garden interspersed with lines of trees. Choice collections of border plants, rockeries and other specialities of the amateur have their proper place, but here I write only of the common gardens in their September phase. They are everywhere, and glow with all imaginable colour schemes. No cottage is so humble but that it shows something that gives pleasure.

Like ourselves, the Dutch are individualists, but their individualism does not go so far as to hide up the garden. Boundaries of separate properties are just formal boundaries—low fences or railings—and there is no break in the general continuity. The ideal we strive after in garden villages and suburbs is everywhere realised in Holland. Floral and sylvan beauty, which after all are the expressions of the national genius, soil and sunshine, things transcending the individual, are not selfishly concealed behind walls, but blend into a continuous, artistic, pleasure-giving whole.

Of the plants grown, the following may be named as general favourites. First, the yellow and orange flowers (in a way the national colour), Calendula, Tagetes, Solidago (Golden Rod) always; Montbretias, annual and perennial Sunflowers—the former big-flowered, often in long rows among the vegetables, but for no economic purpose. Rudbeckia is frequent, especially the bronze variety. In other colours the Dahlia comes first. It is universal and in the greatest variety and profusion—Decorative, Pompon and Cactus varieties. A patch of Cosmos is often seen, and much use is made of tall scarlet Pelargoniums, Begonias and Hydrangeas. Ageratum, often in strips, is a favourite, while China Asters make a great display. Mention must also be made of the less opulent forms of Petunia. Climbers are not commonly grown on the houses themselves, but on pergolas, porches and accessory structures.

What is most striking is the high standard of cultivation—evidence of a nation of expert gardeners. Soil in Holland has been won at great toil and expense, and is fit only to produce the best.

Dutch children begin their gardening early. In every school in the country, after Easter, each child can obtain a set of "cuttings" and on a day in September has to exhibit the result in a town or village fête arranged for the purpose. Such an exhibition I visited one Sunday at Velp, near Arnhem. It was no doubt typical of what was happening everywhere. Each child brought five pots containing his five "cuttings" (which in this case were a Fuchsia, Tagetes, Begonia, a scarlet Pelargonium and Ageratum), and these were arranged along the sides of a garden in rows at right angles thereto, and in the same order, so that comparison was easy. It was wonderful how this test "separated" the exhibits. The judges had just awarded the prizes, about one in three of the entries being thus rewarded. For the unsuccessful competitors there were coupons for chocolates, sweets or ices. In connection with the show a fête had been arranged in which the children brought a variety of decorated objects—hoops, bicycles, prams, parasols, little trollies containing a baby or doll—indeed, anything that could be wheeled or carried. In this event also as great a range of taste and artistic ability was discernible as of skill in the raising of the plants. The whole of Velp turned out for the show, and, headed by a band, the procession, following a circuitous route, eventually reached the exhibition ground where the prize-winners were announced.

As these floral fêtes and exhibitions are national they must, in the aggregate, give a tremendous impulse to the propagation of horticultural skill as well as taste in using the results for decorative purposes. The standard reached in both departments showed high average merit; nor did the interest evaporate with the fête, for on leaving Velp next morning I glimpsed lots of children with wheelbarrows retrieving their exhibits. *F. W. Oliver.*

KENYA COLONY AND UGANDA.*

Entebbe has been noted as the seat of Government, and, perhaps, as befits such a charming settlement, it is nothing else. Kampala, situated twenty-three miles away, is the headquarters of everything else—missions of various denominations, traders, planters, banks and native government. Kampala can boast of little to interest the plant-lover, beyond a small experimental farm, where economic plants are being tested. Standing on the particular hill where the Europeans' houses are clustered together, and which, incidentally, is crowned by the prison! one looks towards similar hills each a mile or more away in different directions. Three of these hills are occupied by different missions, and a fourth by the palace of the native king. The buildings on the hill-tops are visible, but all between is a sea of Bananas, with just a Bark-cloth Ficus here and there. A walk into the Banana gardens reveals the native huts of which there are many thousands hidden by the tall growths. The Banana is cut green, boiled, and eaten as a vegetable, and is the staple food of the native.

From Kampala excursions may be made to the plantations round about, where Coffee and Rubber are being produced.

The next place of interest is Jinja, six hours away by steamer. This is a much-visited spot as it is the birthplace of the Nile. It is both hotter and drier than Entebbe, has no high forest within several miles, and, consequently little tree growth, beyond flat-topped Acacias and Euphorbia Candelabrum. A good deal of scrub abounds, and it is sufficiently varied to be interesting. There are many handsome flowering creepers and shrubs; Convolvulus, Bauhinia, Clerodendron, Plumbago, Carissa, Asclepiads and a shrubby Senecio. Several species of Lissochilus, that showy genus of African Orchids, are to be found here. A very interesting plant is Viscum nervosum, a red-berried Mistleto, growing on Acacias.

From Jinja, the visitor will probably proceed to Masindi on the Nile, by rail or steamer. The rail journey will be through country occupied by Elephant Grass, or thin Acacia forest. The steamer journey will be mainly through the Papyrus infested Lake Kioga. At Masindi, Cotton will be in evidence, for a good deal is grown in the provinces thereabout, and much will be seen under transport here. From Masindi it is a brief journey to Butiaba, where, one gathers, the Prince of Wales will stay for a rest. It would be difficult to find a place more likely to provide an interesting holiday. Butiaba is on Lake Albert and, as there is a large steamer on the lake, comfortable trips may be made across to the Congo State border, and down the whole length of the lake to where Ruwenzori, the "Mountain of the Moon," comes into view. A brief journey will take one to the Murchison Falls on the Nile, and close by is the Budongo forest, Uganda's largest and finest piece of woodland. The feature of Budongo is the preponderance of Meliaceous trees—the Mahogany Order. They are of the genera Trichilia, Khaya and Pseudocedrela, and are of magnificent growth and size. The forest was fairly rich in Rubber plants, Funtumia and Landolphia, and was exploited fully for this product years ago. It is a game reserve and abounds in elephant, buffalo and antelope. The forest is pathless and traversable only by following elephant tracks. This is sometimes a nerve-racking experience, intensified by the constant twilight which is all that filters through the dense forest roof, one-hundred-and-fifty feet above. This three-hundred-and-fifty square miles of unbroken forest must hold many unknown plants and even large trees.

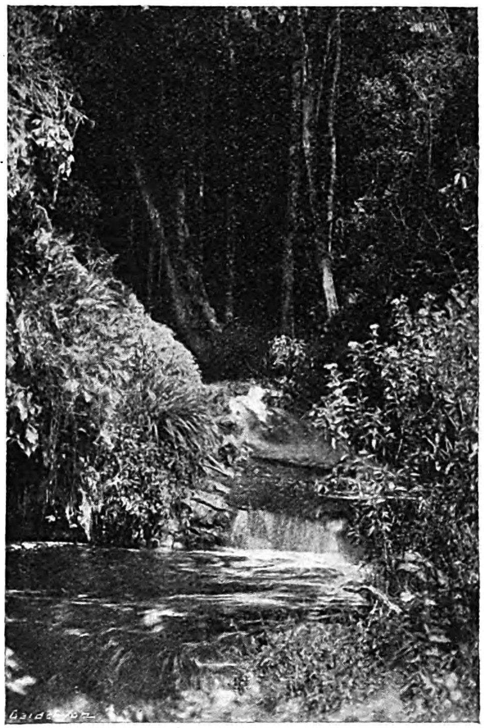


FIG. 154.—RIVER EMERGING FROM FOREST GLOOM IN UGANDA.

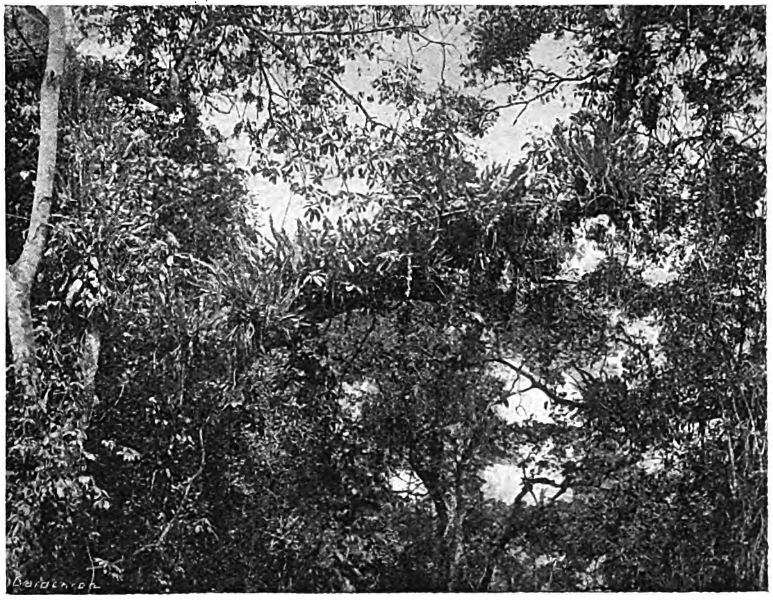


FIG. 155.—EPIPHYTIC FERNS IN UGANDA FOREST.

It may be said by the reader that this interesting part of Africa has given us singularly few notable plants for our gardens. This is true, but it must be remembered that, unlike many parts of the tropics, no collector has ever worked there. Such introductions as have been made were purely incidental discoveries. The resident employed out there, even if interested, has his time fully occupied otherwise, and collecting is certainly a full-time job. In Moschosma riparium, Clerodendron ugandensis, Pycnostachys Dawei and Leonotis Leonurus, Uganda has given us four useful decorative plants. These four may be picked up in ten minutes after landing at Entebbe. They may only be considered an earnest of what Uganda has to offer the searcher. *E. Brown, Hillside, Doddington, Sittingbourne, Kent.*

PLANTS NEW OR NOTEWORTHY.

BRUNSDONNA PARKERI ALBA.

The inflorescence figured on p. 331 is the one which received a First Class Certificate on September 11, 1928. In the first hybrid generation, B. P. alba first appeared. This albino was selfed and produced the plant here figured. The flowers are pure white, without a trace of pink, and the yellow base is clearly defined. They possess a hyacinthine fragrance, and last well. The inflorescence figured in *The Gardeners' Chronicle* of November 14, 1925, was of the first hybrid generation, but the one now given (Fig. 156) is of the second hybrid generation. From this it would seem that—as to colouring—this albino is probably a Mendelian species, and will, in this respect at least, come true from seeds. *A. Worsley, Isleworth.*

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* Previous articles on "Kenya Colony and Uganda" appeared in the issues for October 13 and 20, 1928.

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FLOWERS OF THE CRANNIED WALL.

In these days everyone is interested in the rock garden, the wall garden, and the plants which will grow in the crazy-work path or in crannies and crevices of every kind and description. And all of us love the lines—

> "Flower in the crannied wall,
> I pluck you out of the crannies;
> I hold you here, root and all, in my hand
> Little flower—but if I could understand
> What you are, root and all, and all in all,
> I should know what God and Man is."

What exactly was the plant, we ask, which Tennyson apostrophises in these well-known terms? We are told by his biographers and commentators much that is of interest respecting his love of nature and his acute powers of observation, but I have found no answer to this enquiry. Standing, a few days ago, at the foot of a supporting wall at the end of a hillside garden, the question once more came to mind. The smooth-faced stones were of the hardest description. They had been quarried from a mass of igneous rock which in earlier times was left untouched by the builders of the adjacent Priory, because such stone was not amenable to the softer tools which alone were then in use among quarrymen, and explosives were unknown. The joints also were well and carefully pointed, the crannies comparatively few and far between, and it seemed impossible that any plant above the rank of moss or lichen could find a place for the sole of its foot. Yet the number of flowers, Ferns and grasses was well-nigh incredible. Walking a length of fifty yards with pencil and paper, it was possible to make a list which could not fail to prove of interest to the wall gardener. Given a lodging place large enough to receive a spore or seed it would be seized upon and occupied by the living particle, and made the nursery ground of a thing of beauty.

Tennyson was not satisfied, apparently, with plucking the blossom and examining the flower head. Its roots and stem and leaves, if such it owned, were to him not less wonderful than the flowering portion. The words, "root and all," suggest that he pulled the plant bodily from its cranny and held it in its entirety in his hand, that every part of it might be scrutinised with care. Again, we ask—What was the plant which wrought so powerfully on the imagination of the laureate?

There are quite a number of plants which derive their name from their predilection for the wall. That which comes, by the law of association, most readily to the mind is the Wallflower. Did Tennyson know anything when he wrote these lines, of the Norwegian poet Wergeland, and his "Swan Song to the Wallflower"? Here are a few lines from the translation of the late Sir Edmund Gosse:

> "Let my last look rest on thy golden head!
> My soul would kiss thee before it flies
> To the open skies!
> Twice I am kissing thy fragrant mouth,
> And the first kiss wholly is thine."

But although the Wallflower, growing from the chinks or crannies of an old castle wall might easily be the poet's plant, I think we must look elsewhere. Where it seems impossible for the tiniest herb to find a rooting-place the hardy Snapdragon or Antirrhinum flourishes. Indeed, it was the sight of a cultivated form of this plant which had been "self-sown," and was holding aloft its richly-coloured spike of bloom, which put the poet's words in remembrance. This is not the flower which Tennyson examined, however, or he would hardly have addressed it as a "Little flower," unless he did so for poetic purposes. Nor is it necessary to think of the Snapdragon when so many other lesser plants haunt the crannied wall and could easily be held "root and all" in the hand. There are a number of plants which bear the botanical designation muralis—*mural*, of or pertaining to the wall—with such varieties as muralia and murinum, which has more than once been mistaken for murale. These include the pretty little native Fern known as Wall Rue, on account of its Rue-like fronds; and the Wall Barley, of which a quaint old herbalist writes: "It is called of the Latines Hordeum murinum, that is Wall Barley," although it seems to be the plant which Pliny describes as Lolium murinum, or Mouse Darnel.

We recall also the Wall Cress, a name given to the white-flowering Arabis, and Wall Rocket, which belongs to the Cabbage family (Brassica), and flourishes on old ruinous walls. Nor must we overlook the Wall Lettuce. In Cumberland, Yorkshire, Derbyshire and other counties, where the fields are divided by walls instead of hedgerows, the native flora of the crannies is exceedingly extensive and often very beautiful. Here grow the Stonecrops, one of which (Sedum acre, L.) is known, on account of its pungent qualities, as Wall Pepper. On turning up my *Devonshire Plant Names*, I find that this was familiarly spoken of fifty years ago around Newton Abbot as Wall Grass, whereas in Yorkshire it was called Wall Moss. This term, however, is very largely applied to the different species of Saxifrage, whose foliage often have a very mossy appearance. The name Saxifrage is derived from the Latin *saxum*, rock, and *frangere*, to break, because the plant originally so named was "supposed to disintegrate the rocks, in the crevices of which it grew, and so, on the doctrine of signatures, to dissolve stone in the bladder." We all know how well many of the Saxifrages thrive in rock gardens and on walls, and could easily imagine one of these being examined by the poet with admiration and wonder. The flowers of most of the species have an indescribable charm and beauty.

I think, however, that all the foregoing will have to forego their claim to be the plant on which Tennyson soliloquises. Doubtless he had often watched a humble-bee entering the Dragon's Mouth, or Snapdragon, where for a time it was lost to sight. But the wonderful mechanism of the flower is duplicated in that of its humbler relative, the Ivy-leaved Toad Flax, and I have a kind of intuition that this was the flower of the crannies. It loves an old wall where it can droop and ramble at will. Hence its popular names, Wandering Jew, or Wandering Sailor. It finds subsistence in the tiniest of crevices, and has a most ingenious way of feeling for a spot where it may secrete its treasures. The seed capsules are at the end of slender stalks which are capable of bending and twisting in every direction. When a slight depression or cranny is found the vessel worms its way into it, ripens, sheds it seeds, and then leaves them, exactly as a butterfly leaves its sculptured eggs, to the mercy of the thousand influences which, for good or ill, play around the germ, and either fan its life into a flame or extinguish it altogether.

There is yet another flower, however, which I can imagine the poet plucking "root and all" out of the crannies, and that is the Wallwort, or Wall Pennywort. A friend of mine recently saw it for the first time growing in the joints of an old wall, and went into ecstacies over it. By the botanist it is named Cotyledon Umbilicus, the specific name having been given to it on account of the peculiar shape of the fleshy leaves. One may travel far and never see it, but it abounds in certain localities, and is usually found growing out from the joints of walls and ruins. This plant is of quite exceptional charm in many ways. In the foregoing study we have all along assumed that it was a native plant which arrested the poet's eye. Needless to say, no attempt has been made to supply a florist's list of all the plants suitable for growing on a wall, and we have omitted all allusion to such foreign plants as may have been growing in the locality.

So great and many are the problems involved in the life and growth of a little flower from the finest crevice, that Tennyson looked on the plant with wonder. Just as in an orbed dewdrop is to be found an epitome of the laws which mould a planet, so here is hidden a key to all the mystery of life. He who could explain a flower would be able to solve the profoundest problems of nature, man, and even the Deity himself; but the poet, with all his wisdom, admits himself unequal to the task. And who, even to-day, is sufficient for this undertaking? This Veil of Isis still remains to be lifted. It is true that Coleridge once asked: "Is it then a mystery so great, what God and Man is, and the world?" His own answer was "No! But we hate to hear. Hence a mystery it remains." An unsatisfactory reply, but we leave it at that. *Hilderic Friend, Cathay, Solihull.*

FROM A RECTORY GARDEN.

In the nature of things we must be coming to the end of the finest summer weather that most of us can remember. Seven years ago we had a fine summer, but were so long without rain that we suffered from drought. This year there have been showers at intervals. The farmers have had a perfect time for getting in their hay harvest and their Corn harvest. Now—the middle of October—it is still warm enough to have most meals out-of-doors.

The bees are out-of-doors, too. It has been interesting to see which flowers in the later summer receive most of their attention, and bee-keepers might care to grow good clumps of those flowers. Heleniums have been prime favourites. Their rich reddish-brown and bright yellow flowers are ceaselessly searched by the honey-bees. Sedum spectabile and the form atropurpureum are loved by bees and butterflies. Borage, of course, is beloved. A couple of months ago, when Eryngium was at its best—a clump of it still strikes a note of sepia—the bees found much nutriment in its spiny flowers.

It is not altogether a welcome sight that the Roses should be coming into bloom now, if they are only anticipating next year's display. But they certainly are trying to make a show. A hedge of Penzance Sweet Briars has quite a sprinkling of flowers, Amy Robsart being particularly forward. Lord and Lady Penzance, however, are keeping themselves in reserve; not a bloom are they showing. The Tea Roses are, some of them, flowering, and the others covered with buds. Marie van Houtte has made vigorous growth and should, in a few days, be covered with flowers. The cheerful and faithful Zéphirine Drouhin is in flower, too. Zéphirine is always charming, but am I right in thinking that the colour in summer is a rather purer rose? Perhaps some quality in the autumnal light makes a difference.

Underneath an old tree has been standing for some time a pot with Lilium ochraceum in it.

The long stem of the Lily rests on a branch of the tree, and for two or three weeks supported one lovely pendant flower. This Lily is one of those which have a considerable length of stem above the soil bare of leaves, because, I suppose, in their life in the wild their lower part is in undergrowth. The bulb of this Lily was obtained in the spring of last year and was potted in leaf-mould and sand. A stem appeared in the following August and grew on through the winter, but produced no flower and, dying down, was cut away this summer. But early in June another stem appeared, and it was the bud of this which opened in September. Apparently the Lily, having been put out of its season by transplanting, has now got into a normal cycle again. I give these details for the benefit of other amateurs, as they are just the details which more expert growers usually do not give. The flower itself is remarkable and beautiful. The ends of the petals are of a delicate primrose-yellow of a singularly velvety texture, and the same colour is in the heart of the trumpet. But the middle of each petal is stained as if with port, which seems to show up the corrugation of the petals there. I have read that this staining is sometimes so heavy as to be unpleasing. It certainly is not in mine. As the Lily is variable and seeds are obtainable, there is an interesting possibility of different forms.

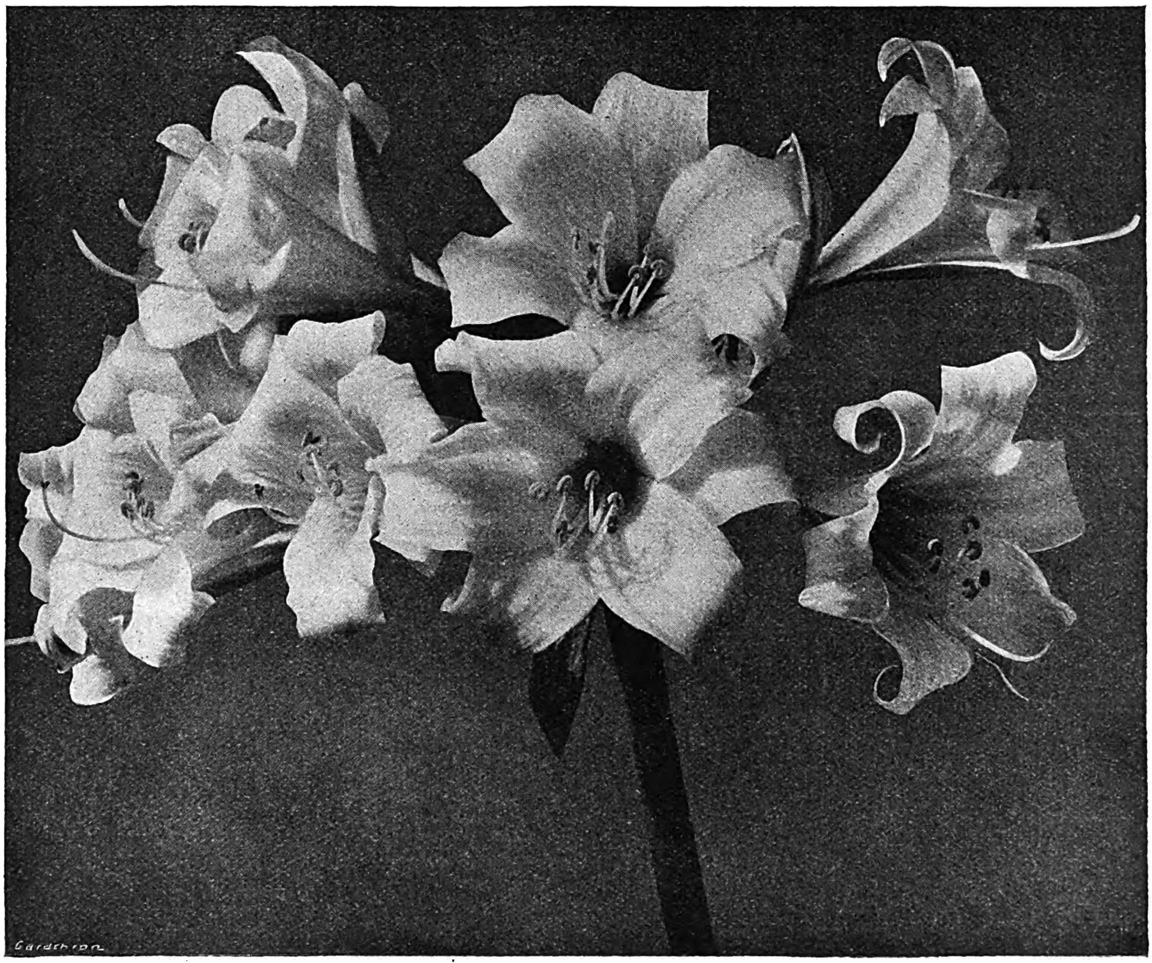

FIG. 156.—BRUNSDONNA PARKERI ALBA.

(see p. 329.)

If advancing autumn is indicated by the litter of leaves of the Fig trees, the turning of the Mulberry leaves, and the almost luminous yellow of a clump of Funkias, there is as yet no sign of it in the leaves of the Medlar. I regard the Medlar as one of the most beautiful of all fruit trees. An old one here is, in the spring, covered with its flat, white blooms; throughout the summer its foliage is —and is still—of a rich deep green; now the brown fruits are conspicuous, and, if we have some still autumnal weather the foliage will turn a golden-brown until a storm of wind and rain shakes the branches bare. Nor is the ancient Quince tree as yet much the worse for autumn wear. This is also a beautiful tree. Its soft yellow leaf-buds unfold in the spring, and its flowers are like pink butterflies; in the autumn it hangs out the golden globes of its fruits. These fruits are good stewed, or in marmalade, or just one in an Apple-tart. And Medlars, I may remark, are so much appreciated in this parish that last year my tree had the distinction of being robbed. Never, by the way, talk of a Medlar as having to be "rotten" before it is fit for eating. A rotten Medlar is dreadful. What a Medlar needs is, technically, "bletting," a process corresponding to the going sleepy in a Pear.

In a sheltered, southerly bed a Crinum or two is still in bloom, and there are a few spikes of Amaryllis Belladonna. Some years ago the Belladonna Lily flowered abundantly there. But the soil is heavy, and probably the bulbs have rotted in our damp winters. Watsonias, too, have not succeeded. The Crinums—C. capense, the C. Powelli hybrids, and one or two others—make good clumps, but suffer terribly from slugs and snails. Eucomis bicolor and E. punctata have blossomed near by, and E. punctata has set seeds. These are plants, perhaps, of the more-interesting-than-beautiful sort, but, anyhow, decidedly interesting with their spotted leaves and curious spikes of flowers with leaves at their tops—suggestive of Pineapples. No doubt these seeds will germinate easily.

Seeds of the less common bulbs have often that agreeable habit. Could anything be more facile than Anomatheca cruenta? Some which I raised in pots last year from seeds which were fresh, have bloomed this summer and are in turn scattering their little "Red Currants," which seem only eager to germinate so soon as possible. Last year a Hymenocallis (I think calathina) produced, as the achievement of its flower—that last thing in slender grace—three seeds, which, being sown at once, have produced three thriving seedlings. But seeds of such things are difficult to procure, and one has to take what one's own plants may produce. Sow at once, seems to be the rule. And I have only the windows or unwarmed rooms to raise such seedlings in.

Gentiana sino-ornata has been brilliantly in bloom. It is a plant which everybody notices for its brave little trumpets, produced so freely, are of a most attractive blue. I understand that G. Farreri is as lovely, but not as lovely for me, because it has not yet brought itself to the point of flowering at all. It lives, with Mentha Requieni and Primula involucrata, in a sort of peaty bog. This bog is contained in an old bread-pan, with the bottom broken, and sunk in the ground in a slightly shaded place. They all seem to be happy in the bread-pan, and the Gentian spreads its frail arms about and I cover them in with a little more peat-charcoal-sand mixture. No doubt in this it roots as it runs, and will ultimately show its appreciation by flowering. G. sino-ornata, by the way, seems to be bearing no seeds. In writing of blue flowers it would be ungrateful not to mention Ceratostigma Willmottianum, a beautiful and commendable shrub.

How cheering it is in these days, when one summer is going, to see the promise of the next. The sticky buds of the Chestnut tree can hardly escape observation, but many visitors are quite surprised to have next year's buds of Apple and Pear shown to them. The blue Primroses are beginning to bloom—a stray one here and there. And hale and hearty Scilla peruviana is well up.

I have written of the ancient Quince tree.

Many years ago one of our tempests blew it over. The consequence of having had to spend the rest of its life at an inclination of forty-five degrees does not seem to have troubled it. It sweeps the ground, and in so doing carries up into the sunlight two aspiring denizens of the bed below. (It also carries Calystegia sepium!). One of these is Tropaeolum speciosum, apparently satisfied with these quarters after refusing to be established in other positions, and still giving a few of its flowers as well as still producing its festoons of leaves. The other is the glory of the garden this autumn. It is Exogonium, (Ipomoea) Purga, the Jalap. In the summer of 1926 a tuber was put into a delectable mixture of loam, peat, leaf-mould, sand and broken brick, with stones. During the winters, two or three pieces of glass are inclined to cover the spot, to throw off the worst of the rain. Last year the plant blossomed, just to show what its flowers were, but not until the end of October, and bad weather finished off that attempt. Having learnt wisdom and acquired strength, the Jalap started betimes this year. During the early summer it climbed boldly up an outlying branch of the Quince tree, and in the beginning of August flowered. Since then it has been extending its territory and giving more and more lavishly of its rosy-purple blooms with their white tongues of stamens. Its long tendrils wave, seeking where to twine themselves, and all their length is full of buds. The flowers are on pedicels about two inches long, and usually have a bud half way down the pedicel, to follow the terminal flower in a few days. There seems to be no reason why, if the frost would keep away, more and more sprays should not be produced, with flowers *ad infinitum*. At any rate, Mr. Robinson's remark is justified that there is "none more beautiful among climbing plants." And, perhaps, one may hope—but touch wood—that this display shows that it is happy here and means to be permanent. I would just add a word of caution to anybody who has a Jalap plant and a gardener or any other zealous weeder. In the spring, when your Jalap plant is beginning to climb and is not yet near flowering, take your weeder to the spot and particularly point out that the Jalap is not to be confounded with the Great White Bindweed—that although there is indeed a considerable resemblance, yet the Jalap leaves are cut a little differently in the shank and, above all, that its stem is brown, not green. *North Cornwall.*

GARDEN LILIES.

In many cases a gardener's acquaintance with Lilies is confined to two or three of the more common species, *i.e.*, L. candidum, L. croceum or L. Martagon. These are very beautiful, but cannot be considered representative of a genus that should provide flowers in the garden from the end of May until the first frosts appear.

The idea that all Lilies are difficult to grow is still prevalent, and while it is true that some kinds do require very careful culture, the majority may be grown to perfection under commonsense treatment.

Culturally, Lilies are divided into three distinct groups: Stem-rooting, non-stem-rooting and swamp Lilies. The stem-rooting Lilies are those which produce a second, and distinct, root-system on the stem, above the bulbs. This set of roots supports the plants and inflorescence throughout the growing period, leaving the original roots to concentrate their energies on the bulb, and it is therefore obvious that such species will be benefited by deep planting, a fairly rich top-soil, and a little shade, such as would be afforded by dwarf shrubs. The non-stem-rooting Lilies will, for the most part, succeed admirably in ordinary garden soil; while the swamp Lilies require a medium that is always moist, but not stagnant; they prefer sandy peat of a fair depth.

Lilies do not like lime, but although some of the hardiest sorts are quite unconcerned as to its inclusion, the great majority, especially L. auratum, show an active dislike to it. The use of animal manure in the soil is a mistake. Liliums are not accustomed to rich soil, and where they are given such make very rank growth that is liable to disease. In leaf-mould, however, they revel, and too much of this material can hardly be used, especially so in the case of the stem-rooting kinds.

An important point in Lilium culture is drainage. Even with the swamp Lilies it should be perfect, and it is quite easily provided by a liberal use of sharp sand. The bulbs should be enveloped in sand to the thickness of about an inch, while a fair proportion may be, with advantage, worked into the soil. The ideal soil for Liliums, therefore, is one in which lime is not actively present, and which is made up of loam, leaf-mould and sand.

The depth at which to plant Liliums depends mainly upon the size of the bulb and the root habit. The stem-rooters should have at least six inches of soil above the top of the bulb, and that six inches should be good. For the others, a good rule is to plant to a depth of two-and-a-half times the size of the bulb, with the exceptions of L. candidum and L. testaceum; these two species require shallow planting; indeed, one often sees an established clump of L. candidum with the bulbs practically on the surface, and being an exceptionally hardy Lily it is not harmed by frosts.

The time to plant is undoubtedly in the autumn, just so soon as ever the bulbs may be obtained. Some of the Japanese bulbs which are imported each year cannot be obtained before January, which necessitates spring planting, but all the others should be in the ground by the end of November, and in the case of L. candidum, by the end of August. The Madonna Lily is almost evergreen and should be planted during that short interval when the bulbs are leafless.

L. pyrenaicum—the Button-hole Lily, as it is sometimes called—is generally the first of our hardy Lilies to flower. A native of the Pyrenees, where it is still collected, it has very dense foliage and dainty yellow flowers; the red form, L. p. rubrum, is identical except for its colour. This is shortly followed into flower by L. dauricum (syn. L. umbellatum), and its many varieties. For the most part these are of yellow, orange and red shades and are well described as dwarf editions of L. croceum—the common Orange Lily; incomparabile, Sappho, aurantiacum and Cloth of Gold, are some of the best varieties of this fine border plant.

Very similar in habit to the foregoing, but even dwarfer, is L. elegans, one of the smallest of Liliums—some of its varieties do not exceed six inches in height; Alice Wilson, alutaceum, Prince of Orange and atrosanguineum are fine examples of this species. A tall early-flowering species is L. monadelphum, a very fine yellow Turk's Cap. It needs to be established before giving of its best, and its variety L. m. Szovitzianum is to be preferred to the type on account of its deeper colour and scarlet anthers.

L. pomponium is a very old garden Lily that blooms about the middle of June. Its scarlet flowers are very similar to those of L. chalcedonicum, but open much earlier. Although a fine Lily for the open border, it may be found to be rather too strongly-scented for use as a cut flower. When purchasing bulbs of this variety care should be taken to see that a true stock is obtained, as L. pyrenaicum rubrum is sometimes sent out in its place.

About the end of June, the old favourite white L. candidum comes into flower. This species strongly resents disturbance, and where it grows well should not be interfered with. For the disease which sometimes affects L. candidum there appears to be no known cure; it is a fact that imported bulbs are much more prone to disease than those grown in this country, and it is therefore desirable to procure home-grown bulbs.

It seems hardly worth while to mention L. Brownii, as it is now exceedingly scarce, and very expensive. Most growers, however, are able to supply its variety Colchesteri, and although the flowers are not quite so large as those of the type, it may be counted as one of our best trumpet Lilies. Towards the end of June, the Orange Lily, L. croceum, comes into flower. Its admirable trait of flowering well the first year after planting makes it a most valuable garden Lily. Some of the American swamp Lilies, notably L. canadense, L. philadelphicum and L. columbianum, flower at this season, or a little later, as does the beautiful, but capricious Californian L. Humboldtii. This grows magnificently in some gardens without any special attention, while in others all the care given it has no effect. A moist atmosphere will help, so that success is most likely to be obtained on the west coast and in Ireland. Its variety L. Humboldtii magnificum is much superior to the type, both in colour and in freeness of flowering.

L. Hansonii is a fine Korean species. The reflexed, yellow flowers are of great substance, and are probably the most perfectly reflexed flowers in the Lily family. This species is the parent of many fine hybrids, notably of L. Marhan, a hybrid of L. Hansoni and L. Martagon album; and L. Dalhansoni, whose parents are L. Hansonii and L. Martagon var. dalmaticum. Of the two L. Marhan is to be preferred on account of its more vigorous growth and clearer colour. Mention may also be made of the fine seedlings raised by the late Mrs. R. O. Backhouse. Working with L. Hansonii and L. Martagon as parents, she was responsible for a number of fine varieties, among which are Brocade, Mrs. R. O. Backhouse, Sutton Court, and Sceptre. All of these are vigorous and free-flowering.

So many as sixty flowers may be produced on one stem of L. Martagon, and this species, with its various varieties, makes a fine show in July. The type is purplish or wine-coloured, with deeper spots, but varies greatly in colour, according to soil and locality; there is also a greenish-white form, L. M. album superbum. L. M. dalmaticum has flowers of a deep maroon colour, while L. M. Cattaniae is a rather rare form, with flowers that are almost black. Another good July-flowering Lily, and one of the few which require really deep planting, is L. washingtonianum, an American species, intolerant of cold and also of excessive moisture, and should therefore be planted to a depth of ten to twelve inches in gravelly soil. L. washingtonianum purpureum is much more vigorous than the type, and has the added attraction of more colour in the flowers.

L. regale is undoubtedly our finest hardy trumpet Lily. It is just as hardy as L. candidum and not in the least capricious, succeeding in almost any kind of soil. Where well-grown, it rises to a height of six feet, and carries so many as twenty flowers on one stem. It is, however, a mistake when dealing with L. regale to enrich the soil to any great extent. One cannot do better than quote its discoverer, Mr. E. H. Wilson, who "pleads with all who possess, or will possess, this treasure, not to ruin its constitution with rich food." The main colour of the flower is white, with a reddish-brown exterior and a yellow throat. This Lily is very easily raised from seeds, and may be had in flower in less than three years from the date of seed sowing.

Probably the quickest of all Lilies to flower from seeds is L. philippinense formosanum; I have seen this flower out-of-doors in a seed-box eighteen months after sowing. So far, it has proved quite hardy, even in Scotland, while as a cool greenhouse plant it has few equals. The wiry stems have dainty, grass-like foliage, and the pendant, trumpet-shaped flowers are nearly as long in the tube as those of L. Brownii. Pure white indoors, it has a delicate reddish flush on the exterior of the trumpet when grown outside.

L. pardalinum, the Panther Lily, is one of the few swamp Lilies which grow well in ordinary garden soil. It is most accommodating in this respect, and increases at a very rapid rate by reason of its rhizomatous habit. Another fine American Lily is L. Parryi. The flowers are funnel-shaped and of a citron-yellow colour, spotted with brown, and possess a very pleasing perfume. Peat and moisture are necessary if it is to be grown to perfection, but I have obtained very good results with it in ordinary garden soil. One of our finest hybrids, L. Burbankii, is said to be a cross between L. pardalinum and L. Parryi, and it certainly combines the good points of both, being free-flowering and carrying the lovely perfume of L. Parryi.

There are many who consider the colour of L. testaceum the most beautiful shade to be found among Liliums; it is described as Nankeen-yellow, but is really a beautiful apricot-flesh shade, enchanced by the vivid scarlet anthers. In habit and vigour this species lacks nothing, as it grows to a height of seven feet when properly established and combines the good points of its parents, L. candidum and L. chalcedonicum. The latter comes into flower round about the same time, and a brighter scarlet than its flowers show could hardly be found; the hottest sun will not affect its colour. L. c. maculatum is much superior to the type, being taller and stronger, and has much larger flowers, slightly spotted with black.

A newer Lily, but one which is sure to make a very favourable impression, is L. Willmottiae. It first came out under the name of L. warleyense, and as such received a First Class Certificate from the R.H.S. It is of very dainty habit, bearing up to fifty reflexed flowers, of a vivid orange-scarlet colour, on one stem.

There has always been some controversy as to whether L. auratum should be grown out-of-doors or in the conservatory, but it may safely be stated that, given proper attention, it makes a magnificent garden Lily. Too much sun it will not withstand. Not only should the roots be shaded, but the plant itself requires some shelter during the hottest hours of the day. As a semi-woodland plant it is ideal, and some magnificent clumps of it are to be seen in many gardens. Such a large inflorescence requires a good deal of support, and it is therefore a wise plan to enrich the top soil with leaf-mould. L. auratum platyphyllum is the most vigorous variety, and is easily distinguished by its broad, glossy foliage; Wittei and Virginale are varieties that have good lasting qualities, and the colour of L. a. rubro-vittatum is magnificent while it lasts.

The majesty of L. giganteum is appreciated during August and September. But for L. cordifolium—a smaller edition—the Himalayan giant would be quite unique. In height it is, of course, an easy first, reaching over twelve feet when well-grown. It has a peculiarity, however, in that when about to flower the whole centre of the bulb is pushed upwards, so that only the outer shell is left after flowering. Continuity is assured by the young bulbs which form at the base of the old shell. It is therefore a mistaken and expensive policy to purchase flowering-size bulbs of this species. Rather, procure young bulbs and allow them to become thoroughly established.

The Tiger Lily and its varieties are also valuable in late summer and early autumn, and their value is enhanced by the fact that they are easily grown. L. tigrinum, while good in itself, has neither the vigour nor the colour to be found in L. t. splendens, and there is also a double form, L. t. flore pleno—one of the very few double Lilies. L. tigrinum Fortunei giganteum—the Japanese type—is nearly a month later in flowering and, along with L. speciosum, finishes the Lily season. If the continental forms of L. speciosum are grown, there is much less danger of the blooms being nipped by the early frosts. The flowers are admittedly smaller and less brilliant in colour than those of the Japanese varieties, but they may be relied on to flower nearly a month earlier.

L. Henryi, the "yellow speciosum," is distinct, both in its colour and by its height—six to eight feet. It is a good garden Lily, but rather inclined to be of straggly habit.

Although for the most part used as greenhouse subjects, Lilies of the L. longiflorum group may also be grown in the open. Unless the soil is congenial, or made so, the bulbs are apt to deteriorate, necessitating renewal at set periods, but notwithstanding this, they are well worth a place. The Bermuda or Easter Lily (Harrisii) is the first to flower, and it is followed in due course by L. longiflorum formosanum and L. l. giganteum, in the order stated. *D. A. N.*

HARMFUL FORMS OF LIME.

WHILE realising that the question of adequate liming should be given prior consideration to other manurial treatment, the market gardener is not always aware that some forms of lime may cause more harm than good. A good agricultural limestone or chalk consists essentially of carbonate of calcium, while the burnt (quick-) and slaked (hydrated-) limes made from these are composed respectively of oxide and hydroxide of calcium with, perhaps, one per cent. to two per cent. of magnesia (oxide of magnesium).

Apart from its many other important functions in relation to the soil and added fertilisers, calcium, in certain forms of chemical combination, constitutes a valuable portion of the food of all plants. Although similar compounds of magnesium are found in traces in all vegetable matter, the presence of these in the soil, in more than the necessary mere traces, may exert a poisonous action, with consequent impoverished crops.

Magnesian or dolomitic limes, occurring as limestone in various parts of the country, may contain twenty per cent. to forty per cent., and even more, of magnesia and, while they make admirable building mortars, they are not to be recommended for agricultural use. Although they act chemically on the soil and its manurial components in the same manner as do the purer forms of lime, their indiscriminate employment may be the means of increasing the magnesia content of the soil beyond the point which the crop can tolerate.

Although they may be cheaper to buy, these limes are apt to work out more expensive ultimately, in the nature of poor crops, if they are applied too heavily or too frequently. While they may be used to advantage in the treatment of very sour soils up to a certain stage, the advisable liming beyond this point, which is required to create the valuable soil lime reserve so necessary for coping with future cropping and manuring, should be accomplished only by the use of good quality agricultural limes.

It is difficult to draw a hard and fast line as to how far the use of magnesian limes may be used with safety, for this depends both on the initial magnesia-content of the soil and on the quantity of lime which is being applied. The gardener is well advised, however, to avoid the use of limes which contain more than ten per cent. of magnesia; limes containing slightly under this amount should be applied only in the form of the ground limestone or carbonate, since in the burnt or slaked forms the magnesia is present in a much more potent condition.

Of the many soil samples with which the writer has from time to time been concerned, not a few have been representative of land which was in good tilth, contained adequate and readily available reserves of lime, potash, nitrogen and phosphate, and yet which gave poor results owing to what appeared to be the presence of too much magnesia in the soil as a result of applying limes rich in this toxic substance. Many garden flowers, in particular, cannot tolerate magnesia and, in a recent case, complete failure of Carnations was found to be due, among other things, to the use of builder's rubble (of high magnesia-content) in making up the pots. Such rubble and waste building mortar should, therefore, be used with caution; it need not be thrown away but should, preferably, be scattered thinly over a wide area rather than be concentrated on a particular small patch of soil. It should not be used for making up pot soils for young plants unless one is quite sure from previous trial that it contains nothing harmful.

There are other forms of "waste" lime which are obtainable, often for the simple cost of carting, from the gas works, tanneries, soap-works, etc. In some of these there are dangers associated with the presence of various sulphur, cyanide and other chemical substances, all of which cannot be eliminated by the usually recommended process of exposing to the air for some time before use; discussion of these harmful substances would be out of place here. It must be borne in mind, however, that these "wastes" may also contain magnesia, in that chemical and other works do not necessarily use the purer forms of lime in their processes. In the case of water-softening and purifying plants for instance, even where the purer limes are being employed, the resulting "wastes" may contain appreciable quantities of magnesia. The hardness of waters in some districts, where these softening methods are required, is due to a great extent to the presence of magnesian salts and these, as a consequence, are removed along with the exhausted lime. *A. C. Burns, M.Sc., F.I.C., Sutton Bonington.*

PARAFFIN WAX.

AN AID TO GROWTH IN TRANSPLANTED TREES AND SHRUBS.

AMONG the varied problems that confront the horticulturist, that of getting newly-planted trees to grow is one of the most common. This is particularly true of Sweet Cherry, Roses and Nut trees, but also occurs with some other kinds. Nurserymen likewise experience difficulty in storing and transporting trees or shrubs in good condition over long distances. These difficulties are due to various factors, but the principal one is believed to be drying out of roots and stems which takes place between the time of digging and replanting. Root drying may be prevented in the nursery by protecting the roots while in storage and by careful packing for shipment, and the planters likewise may do their part by carefully heeling in until ready to plant. It is not so easy, however, to prevent drying out of tops in storage or transit without undue expense or trouble, and consequently there is usually some loss due to this factor when trees are shipped long distances.

Believing that some form of protection for the stems and branches would be helpful in shipping trees to distant points, and in getting newly transplanted trees to grow, the writer conducted an experiment to determine the value of paraffin wax as one form of protection. The use of paraffin wax was suggested by the good results secured in sending scions to distant points and in storing scions of rare varieties of Nut trees for long periods of time.

Experiments which illustrate these points are described hereunder. On October 16, 1925, a fine young grafted Heartnut tree was blown down by a heavy wind, and in the ordinary course of events would have been lost, had not an attempt been made to save the variety by novel methods. The trunk and branches were cut into sections of about one foot in length, and these sections were entirely coated with hot paraffin wax. The waxed sections were then packed in moist sawdust and stored in a cool place. During the winter the package containing the scions was inadvertently taken out and left in the open, where it was fully exposed to the action of wind and frost for nearly three weeks. The package, when found, was returned to the store house and left there until spring. On May 14, 1926, the scions were unpacked and grafted or budded on to suitable stocks of seedling Japan Walnuts. Quite unexpectedly, a fair percentage of scions and buds started and grew well, and thus this rare variety was saved from destruction.

Equally good results were obtained in shipping waxed Walnut scions from Canada to England, and in transporting scion-wood of fruit and Nut trees from Poland to Canada. These latter, by the way, were cut early in the year and were carefully waxed according to the writer's directions before shipment. The scions arrived in Canada early in March and were held in storage until May 21, when they were grafted on to native Sweet Chestnut stocks. Some of the Chestnut scions were sent on to Gellatly Bros., in British Columbia, and were there grafted on to native Sweet stocks. Observations made just recently in Ontario and British Columbia show a high percentage of scions growing, thus affording another proof of the value of paraffin wax for preserving plant material.

It may be considered that scions would keep well without wax for long periods of time in moist sawdust, but experience shows that this is not necessarily true. The moisture content and temperature of sawdust varies considerably, in some cases too much moisture is present, or high temperatures occur, and injury to the buds takes place; while in others the sawdust may become too dry and the scions suffer by desiccation.

In the tree-planting experiment a number of Heartnut trees were dug and the roots packed in Sphagnum-moss. The trunks were then coated with a thin film of hot paraffin wax and the trees despatched for planting. After being on the way for several days the trees were planted and, according to observations and reports, all have started to grow.

Another interesting point showing the value of wax was seen on some of the waxed trees. On a few of the trees a section several inches long was purposely left unwaxed, and on these sections the buds were much slower in coming out than on the waxed areas. The unwaxed trees were likewise slower in starting into growth and fewer buds developed into shoots than was the case with the waxed trees.

In further and more definite support of the theory that paraffin wax is useful as an aid in getting newly-planted trees to grow, an interesting point was noticed in an orchard of Apple trees owned by E. V. Atkinson, of Whitby, Ontario. In this orchard there were thirty-six Apple trees and two Mulberry trees which had been planted on May 10, 1928. The results of this planting were not very satisfactory, in that the Mulberry trees and at least two Apple trees had failed to grow when my attention was directed to them during the latter part of June. The trees were carefully examined and were found to be badly dried out and sickly looking. The owner was advised to try the effect of a coating of hot paraffin wax on the trunks and main branches of these trees. He acted on this advice, and to the surprise of all concerned, the dormant trees started into growth, and have since grown very well.

While engaged in applying the wax, two of the trees were missed, and this oversight was not noticed until about July 21. One of these dried-out trees was then coated with wax and the other left for comparison. The late-waxed tree, like the others that had been previously waxed, came into leaf and has made fair growth, while the unwaxed tree made very little growth and is only just existing.

An interesting example of the effect of this wax on Roses was observed on the property of Dr. J. M. Baldwin, of Bowmanville. Early in May, Dr. Baldwin planted a number of Rose bushes which had been received in rather poor condition. From observations made on the effect of paraffin wax in protecting scions, Dr. Baldwin decided to experiment with paraffin wax on his Rose bushes. Two of the plants were waxed and one left for comparison. The waxed bushes came out into leaf nicely and the unwaxed bush, like the unwaxed Apple trees, made very little growth. The number of Rose bushes under observation is rather small, but the results were very good and thus indicate what might be expected with a larger number of plants under similar conditions.

The observations on Walnut and fruit trees have been limited to about fifty waxed trees and twenty-five trees without wax for comparison. Inasmuch as the number of trees under test is rather small, it is, perhaps, too early to say positively that paraffin wax should be generally used for this purpose. The results, however, were so good on the trees and bushes under observation that it would seem desirable to experiment further along this line.

In the case of the preservation of Walnut scions, and with experiments in top-working and propagating fruit and Nut trees, it has been found that paraffin wax is positively one of the most valuable protective materials used so far. The work done in grafting fruit and Nut trees has been under way for several years, and includes hundreds of trees. The results, moreover, have been so uniformly successful where paraffin wax was used, and so unsatisfactory without its use, that one is justified in the above statement. In view of the favourable results noted above and of the good effect which followed the use of paraffin wax on newly-planted trees, it would appear that this material is of decided value in preventing desiccation. The suggestion is therefore made that nurserymen, at the time of digging, try the effect of a thin coating of warm paraffin wax to the trunks of trees or shrubs to be shipped long distances, or which are difficult to transplant or carry over in storage. Fruit growers and others who plant deciduous trees or shrubs might also get better results by using paraffin wax on plants that have not previously been waxed. The hot wax may be applied easily and quickly with a small paint brush after digging or before planting, or one might plant the tree and apply the wax afterwards. The cost of this treatment is very small indeed, being less than a cent a tree for the wax. In any case, no injury is likely to occur and quite possibly good results would follow such treatment.

If further trials show that paraffin wax has has definite value for the purposes outlined above, it would be desirable to devise some means of quickly waxing the trees in nurseries. In all probability this could be done by means of a deep vat wherein the trunks and tops of small trees or shrubs could be dipped in the hot wax and quickly withdrawn. The optimum temperature of the wax has not been definitely ascertained, but it is known that woody plant material can withstand without injury a temperature of 160°F. It must be clearly understood that the trees should be immersed only for a moment—just dipped in the wax and then withdrawn quickly. *Jas. A. Neilson, B.S.A., M.S., Extension Horticulturist, Dept. of Agriculture, Port Hope, Ontario, Canada.*

INSECTICIDES AND FUNGICIDES.

In many quarters it was confidently anticipated that the poison gas chemistry of war would have a natural counterpart and give place to the development of a poison gas chemistry of peace; that out of the large number of toxic chemicals, the properties of which were studied so intensively from 1915 onwards, some, or their immediately derived or associated compounds, would prove of outstanding value as pesticides. The hope has not been fulfilled to any great extent.

With the exception of chloropicrin, which was a very successful war gas and which has found some use as a fumigant, practically no new compounds have been added to the list of effective insecticides or fungicides as a result of the world-wide research carried out in the sphere of war chemistry. Some of the swords may have been beaten into plough-shares, but the "dew of death" has so far refused to be metamorphosised into an effective plant medicine.

The reason for this failure may be partly ascribed to lack of systematic and painstaking investigation. It may be remembered that the most effective war gases—mustard gas (dichlordiethysulphide), phosgene (carbonyl chloride) and chloropicrin (nitrochloroform), were already well-known, almost common, chemicals. Of the remainder, the toxic smokes such as the chloroarsines were comparatively simple synthetic substances. The particular value of these materials as war chemicals was only determined by trial and by analogy. It may still be confidently anticipated, therefore, that among the many thousands of known chemical substances there will be discovered some which will prove of outstanding value in combating plant diseases and plant pests.

Systematic investigation is, however, no easy matter. There is very little whereon to base hypotheses as to the types of substances likely to prove effective, nor is there a range of standardised laboratory tests capable of being carried out on successive batches of insects or fungus cultures in such a way as to be translatable into large scale or field conditions. Without such tests investigations must be laborious indeed.

In 1922, Sir John Russell, writing in the *Annual Report* of the Society of Chemical Industry, announced that investigation on fungicides and insecticides would be carried out at Rothamsted on the lines of correlating pesticidal value with chemical constitution. This is a very sound policy and has a good scientific basis, but whether it is likely to bear any success within a reasonable time is not at all clear. Science, after all, is organised common sense, and it must be borne in mind that investigation into the relationship between physiological and pathological action and chemical constitution has only borne fruit in connection with very specialised activities, and where cognisance can readily be taken of definite body reactions. For the development of special drugs this fundamental method has had some success, notably in the production of more active or more suitable derivatives of known compounds. But the more general question of the chemical constitution of even particular classes of poisons is too involved for the application of this apparently fundamental method of attack. The most diverse toxic agents may have very similar effects and in searching for a new paralysant from first principles, for example, one would be faced with the difficulty of correlating the chemical constitution of, say, the cyanides, with that of some of the vegetable alkaloids.

The same argument applies to the insecticides and fungicides. What relationship can be established between lead arsenate and the oleo-resins of Pyrethrum or the active principles of Derris; or between the polysulphides of the lime-sulphur wash and the tar-oil emulsions? Apparently none; and much as the investigator may wish to depart from empirical methods, the search for new insecticides is not likely at the present time to be aided by guidance from the chemical structure.

A nearly analogous case has arisen during the last few years in the search for materials to prevent "pinking" in internal combustion engines. It was only after the laborious and painstaking examination of many thousands of chemical substances that Messrs. Midgely and Boyd, of the General Motors Corporation, discovered the value as an anti-knock of tetraethyl lead, the active component of "Ethyl." Other substances are known to have this effect in a lesser degree, notably coal tar benzol, some of the aromatic amines like aniline, and the carbonyls of iron and nickel. Even with this knowledge available and with a readily applicable test of the efficiency or otherwise of the materials to be tried, the most far reaching research throughout the world has failed to discover common chemical behaviour or a line for the fundamental search for new anti-knocks more suitable than lead for admixture with internal combustion engine fuels. That form of research which practically amounts to trial and error alone has been successful.

In the case of insecticides and fungicides the matter is more complicated by reason of the diverse effects to be produced and the varying susceptibilities not only of the pests themselves but of the plants to be treated.

These facts appear to emphasise the writer's opinion that the only procedure likely to lead to the immediate discovery of new pesticides of outstanding value is that which proved successful in the searches respectively for war gases and for anti-knocks, viz., the development, so far as possible, of standardised tests and the trial of all applicable materials irrespective of their apparent likelihood.

Tests for comparative work are essential. Some advances have been made in this direction by the entomologists and apparatus has been devised for spraying successive batches of insects under conditions biologically similar. In the case of liquid fly-killers the method is simple, "standard" flies being grown in one compartment of a box and admitted as required through a trap into another compartment with glass walls where they are counted and then sprayed under identical conditions. The numbers killed after a definite time are counted and used as an index. For other insects similar, modified, methods may in some cases be used. All, however, are subject to seasonal limitation and want much careful elaboration.

To develop such tests satisfactorily from the practical point of view it will first of all be necessary to classify the insects in the smallest number of divisions possible according to their susceptibilities. This in itself is a very big piece of work, but would appear to be essential if routine or even research testing of insecticides is to be reduced to the simplest form and if the tests are to have any general applicability. The same thing applies to fungicides. After suitable classification, it should be possible to devise for them comparative tests similar in type and applicability to the Rideal-Walker test for disinfectants. The actual relationships between such standard laboratory tests and the large scale or field effect is another matter and itself would require separate investigation.

The reason for the disappointing results in the search for new pesticides is not far to seek if the foregoing remarks on the need for systematic empirical investigation are correct. Until very recently one could scarcely state, even in the United States of America, that there existed an actual pesticide industry. The manufacture of such materials was generally an offshoot from some other activity, and this is still so in the majority of cases. Such circumstances are unfavourable either for the carrying out of extensive and expensive investigation, or the subsidising of research work at the academic centres as is done by the bigger and richer industries. *S. J. M. Auld. D.Sc.*

(*To be continued.*)

THE INFLUENCE OF AIR POLLUTION ON VEGETATION.*

(*Concluded from p.* 309.)

For example, anyone examining the display of Dahlia blooms in Heaton Park would almost certainly imagine that the colours of all the different varieties are as perfect as could be. This, however, is not so, for if a careful comparison is made between the blooms of any given variety grown in the smoky atmosphere of Heaton Park, with those of the same variety growing in the clear air of Wythenshawe, it will be found that the colour of the latter is of a greater brilliancy than that of the Heaton Park flowers.

It will be remembered that during the war, when every effort was being made to secure the heaviest Potato crops possible all over the country, the Ministry of Agriculture advised farmers and allotment holders to spray the leaves and stems of their Potatos at the height of their growing season with an approved fungicide. This was done with a view to warding off the destructive Potato disease. Spraying as advised proved an undoubted check to the disease itself, and glowing accounts of its beneficial effects on the weight of the crop were published by growers in many parts of the country. This, however, was not the experience of allotment holders in Manchester and other industrial areas, for it was discovered that the chemical spray acted as a check to the growth of the Potato haulm and retarded the development of the tubers.

Officials of the Ministry of Agriculture were greatly surprised at these untoward results, but after closely investigating them they came to the conclusion that the constitution of Potatos growing in the district was taxed to its utmost to overcome the ill effects of the smoke-laden atmosphere and the undoubted check imposed upon the tender growth by the strong chemical wash proved too much for the vitality of the young plants.

It may not be generally known that in order to prevent turf from being badly injured by atmospheric impurities it is the usual practice in cities to have all grass swards in the public parks mown closely immediately before the advent of winter. Where by any means this is overlooked it is almost invariably found that the long, dead stalks and leaves get matted together on the surface of the ground, and during the dark days of winter become thickly coated with a sooty and slimy substance which quickly rots the hearts of the dormant grass plants. This causes great bare patches in the turf in the spring, which, becoming moss infested, prove most difficult to re-cover with grass again. One who is inexperienced in such matters might very naturally be inclined to allow the grass growing on rough swards and fields to remain somewhat long, under the impression that he was taking suitable precautions to protect the turf from severe weather.

Coming now to the subject of the influence of air pollution on plants as it affects them through the medium of the soil in which they grow, we have a much more complex question to consider than that with which we have hitherto been dealing. As you may have perhaps observed, I was very careful in my introduction to mention only one known way by which soil is adversely affected by the impurity of the atmosphere, that is, when the accumulation of soot and other fine matter becomes so great that it fills up the interstices of the surface of the ground and thereby impedes the access of air to the roots of the plants. There are undoubtedly other and probably more potent factors responsible for making the soil injurious to vegetable life, which although combated more or less successfully by empirical methods, could hardly be defined or described by the ordinary practitioner. When plants of any kind do not appear to grow satisfactorily in a border or bed in a garden, it is usual for the gardener to attribute their condition to the soil being "sour." This is purely a generic term used by cultivators to cover a multitude of the sins and shortcomings of soils that cannot otherwise be explained!

There is no doubt in my own mind that in the course of time, if ground in an industrial town is allowed to remain fallow over a lengthened period, it becomes highly charged with acids which act as a poison to the tender growing-points of the roots of many kinds of plants. What these acids may be, or why they are less noxious to some plants than to others, I am not in a position to offer a theory. Nevertheless, from the result of repeated experiments, I am satisfied that soil which has lain dormant for some time, unless it is deeply tilled and thoroughly exposed to the weather for a month or two, is quite unfitted for the cultivation of plants. Deep tillage is the keynote to success in the cultivation of plants under even the most favourable atmospheric conditions, but where air pollution is rife it becomes actually a matter of life or death.

In addition to ground under such conditions requiring frequent trenching, the soil must receive dressings of lime—except where peat-loving plants, such as Rhododendrons are grown—more often than where the air is of a purer character. It is found in practice that shrubs of a size which might be lifted and replanted with impunity in a country district, when similarly treated in a large town like Manchester, are very loath to take root in their new quarters, and something like eighty per cent. of them die off as a result of their being transplanted.

Plants growing under glass in towns naturally suffer less from smoke pollution than do those planted out in the open. There are two reasons for this. The first and most obvious one is that a very large amount of the soot floating about in the air is kept away from the plants by the glass roof. The second reason is that the temperature of the glasshouses, being higher and generally of a more equable nature than that outside, the health and vigour of the plants are proportionately greater than in the case of those growing in the open. Yet in spite of the undoubted advantages enjoyed by vegetation which is protected and nurtured under cover, it is far from escaping the injurious effects of a grimy and acid-charged atmosphere.

Usually plants cultivated in hothouses and conservatories suffer greatest from atmospheric impurities during the winter and spring, when towns and cities are not infrequently enveloped in dense fogs.

At such times it would almost appear as if the higher temperatures of the houses were a disadvantage. So great is the injury on these occasions that many plants are completely denuded of their leaves and flowers in the course of a single night. The delicate blooms of Orchids, after a foggy day or night, are almost invariably completely ruined, and have the appearance of having been dipped in boiling water.

Apart from the wholesale damage caused by fogs, the vitality of plants living under these artificial conditions in winter is abnormally lowered on account of the soot deposit on the glass robbing them of such an amount of much needed daylight. So dense is the layer of soot that in the Manchester Parks the glass roofs of the hothouses have to be washed down regularly every fortnight throughout the winter and early spring. Even under the most favourable conditions the soot-stained glass is somewhat difficult to clean, but after a fog the deposit is of such an oily nature that on those occasions it takes almost double the length of time to remove it. Permit me, in conclusion, to say, that while it might have been possible for me to have presented my subject to you in greater detail, and to have cast, perhaps, a more lurid light upon my facts, I feel, nevertheless, that quite sufficient has been said to convince you that lovers of gardens and all who are in any way responsible for the care of living plants in cities, have every reason to pray most fervently for the speedy and ultimate success of the well-directed efforts of the Smoke Abatement League of Great Britain.

NURSERY NOTES.

MR. J. C. ALLGROVE.

It is one thing to see beautiful fruits and lovely Roses staged on the exhibition table by nurserymen who specialise in these subjects, but it is of considerably greater interest to see the plants on which they are growing, plants not specially grown for the production of exhibition fruits, but merely part and parcel of the general stock offered for sale. Such was our experience when we recently visited Mr. J. C. Allgrove's famous nurseries at Langley, near Slough, and spent a very enjoyable day inspecting the acres of fruit trees, Roses, shrubs, alpine plants and herbaceous subjects, all of which receive attention from Mr. J. C. Allgrove, who, although well advanced in years, still actively controls the working of the nursery, and it would seem that herein lies the secret of the success which Mr. Allgrove has obtained as the purveyor of high-class plants, and especially of fruit trees and Rose bushes.

The first points which we noticed about the fruit trees was their remarkable vigour, due to continued cultivation, and their freedom from insect pests and fungus diseases. The thousands of Cox's Orange Pippin trees, of various ages, from maidens to young trees bearing heavy crops, seemed to belie the acknowledged fact that this variety is not a vigorous grower, for every tree was a picture of robust health. Mr. Allgrove is justly proud of his Peach trees, and there can be no finer stock of trained Peach trees in the country. We were able to see many hundreds of these; some with just the foundation of the fan-shaped head formed, others, in their hundreds, fully trained and in full fruiting condition, many of these latter being in boxes against all available wall spaces, ready for immediate planting, to fruit the following season, so soon as required by customers.

Trained trees of all fruits, in all shapes, form an important part of the nursery stock, all the trees being transplanted every other year, and it would appear that this is the secret of their splendid cropping properties when offered to customers, for many hundreds of them, although late in the season, were bearing good crops and were also of very healthy appearance. In various sections of the nursery were seen large drifts of standard Apple, Pear and Plum trees; large beds of many hundreds of fan and espalier, and cordon, Apple and Pear trees; among the cordon Apple trees being many good specimens of such choice sorts as Cox's Orange Pippin, James Grieve and Ball's Pippin, a variety which originated at Langley and which, from the appearance of the trees seen, is an excellent cropper, producing late-keeping fruits of good size and well-coloured.

In connection with Apples, we were shown many hundreds of trees of the variety S. T. Wright, all cropping freely and producing fruits remarkable both for their size and richness of colouring. This variety is undoubtedly one

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*** A Paper read by Mr. W. W. Pettigrew, V.M.H., Superintendent of the Manchester Parks Department, before the Smoke Abatement League of Great Britain, at the Conference held at Harrogate, on September 29.**

of the best culinary Apples introduced during comparatively recent years.

In the days when these nurseries, together with much of the adjoining land, were owned by the firm of Messrs. James Veitch and Sons, Ltd., Langley was almost universally known as the home of the Gooseberry, and the reputation gained then for high-class bush fruits, and especially Gooseberries, is still fully maintained by Mr. J. C. Allgrove, who, incidentally, was for many years manager of the fruit section when the above firm led the horticultural world. Trained Gooseberries, especially double and triple-stemmed cordons, are grown extensively at Langley, where there are also several large beds of bushes of all the important varieties. There are also several thousands of trained Red and White Currants, and huge drifts of Black Currants, the latter looking extremely healthy, while we were also struck by the good appearance of the Strawberry plants, especially the many hundreds of the variety Royal Sovereign. So it was with everything, clean growth and perfect training were in evidence; no matter whether they were the Morello or Sweet Cherries, Quinces, Nuts in variety, Apricots, Walnuts, or even the Grape vines and Fig trees under glass, this same high standard of production was noticed.

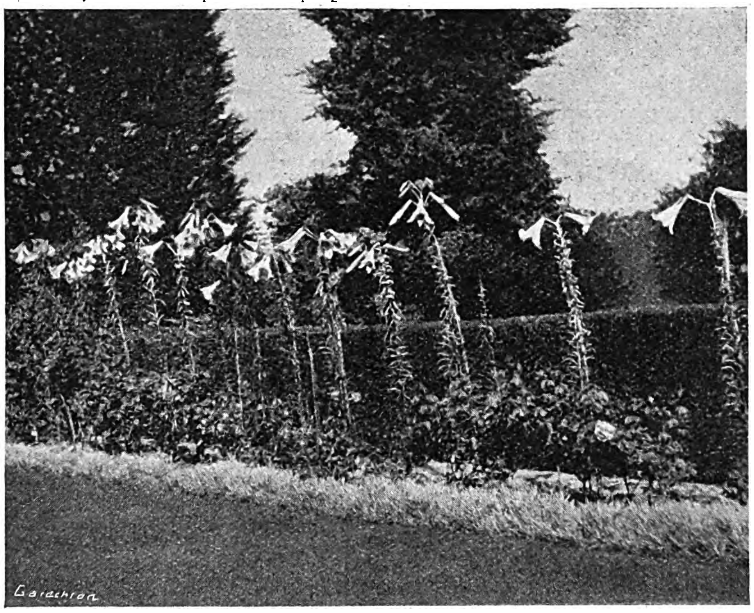

FIG. 157.—LILIUM SULPHUREUM AT THE SMALL HOUSE, LAVANT.

In writing of the Red Currants, we should have mentioned the variety La Constante, a variety of free-cropping propensities, sturdy and clean in growth, and disease resistant, which is considered by Mr. Allgrove to be one of the best. He also speaks very highly of the Hailsham Berry, an autumn-fruiting Raspberry of good quality, free-cropping, and pleasantly flavoured, while he considers Pyne's Royal to be the best of the summer-fruiting, red-fruited Raspberries, and Yellow Antwerp to be the best of its colour.

Space will not permit of a detailed account of the magnificent collection of Roses at Langley; suffice it to state that Mr. Allgrove has a fine selection of varieties of all classes; while he also specialises in hip-bearing species. His plants of Rosa Moyesii are the finest we have ever seen, while we also noted the attractive R. rubrifolia and R. Fargesii. Mr. Allgrove does not believe in using R. rugosa as a stock for Roses, and he emphasised the fact that this stock is never used in his nursery.

Naturally, the tour would not have been complete without visiting the herbaceous and alpine departments, and the sections devoted to choice shrubs and climbing plants, and in these sections were to be seen many novelties which we would have wished to describe more fully.

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for the opinions expressed by correspondents.*]

Table Decorations.—Under the heading "Table Decorations," on p. 232 of your issue of September 22, your correspondent "Formakin," is more amusing than instructive, for evidently what he saw at Glasgow was not at all to his liking. He first complains of the size of tables as being nine feet by four feet, and considers six feet by two feet as more appropriate; could anything be more absurd, whether for breakfast, lunch or dinner, than a table two feet wide? What space would there be for decoration of any kind if guests sat on both sides of a table of that width? As to the black cloth covering the tables, no doubt that was an oversight. As an old exhibitor, if tables were covered at all it was usually with green baize which only hung a short distance over, so that the white table cloth covered it. I cannot agree with "Formakin" that it should be left to exhibitors to state if their exhibits are intended for breakfast, lunch or dinner, as this would cause confusion—it may happen there is only one exhibit for breakfast, against several for lunch, and still more for dinner. Instead of that, if dinner table decoration was stated in the schedule, all would be judged on the same basis. I think it better to omit breakfast and lunch, as any good table decorator should know what was most suitable for the various tables, taking into consideration the season at hand. I, personally, am totally opposed to the exhibitor having to supply china, glass, plate and cutlery, and especially on the lines of placing cards of different tradespeople as supplied by. This was tried thirty years ago and proved a failure, as "Formakin" would soon discover if he tried it, taking into consideration the extra responsibility it places on exhibitors to prevent breakage and theft. *J. Prewett, High Street, Clacton.*

Lachenalias.—I am a lover of the Lachenalia, and was therefore much interested in the notes of your Reading contributor. Lachenalias are ideal plants for the cold greenhouse, and I have grown them successfully for several years in unheated structures. The only protection they have had during the severest frosts has been plenty of old newspapers wrapped well around them. I have had them frozen, and after thawing with cold water, have not had a loss, although it did not do them any good. I find that potting up during the last week of July gives the best results. The plants grow much more sturdily, and the variety Nelsonii will attain a height of fourteen inches when treated thus. Can your contributor, or any other reader, please tell me the best time to sow Lachenalia seeds, and under what conditions? I have succeeded in getting seeds, but so far have failed to make them grow. *George E. Whitehead, The Lodge, Cliff Coombe, Broadstairs, Kent.*

Late Peaches.—I note that in a recent issue, under "Fruits under Glass" (p. 244), Mr. T. Pateman gives a list of late Peaches. I think he has omitted one of the best varieties, *i.e.*, Lady Palmerston, which is well worth a place in any collection. It is a constant cropper, and one of the best flavoured Peaches in cultivation. I have grown the variety for the last twenty years, and never had a failure with it. During the past season, from a tree which bore one-hundred-and-fifty fruits, I picked several weighing nine ounces. I send you two or three fruits to test for flavour. Lady Palmerston Peach was raised by the late Mr. Rivers, from Pineapple Nectarine and partakes of its flavour. *Nat. Molyneux, Rookesbury Park, Wickham, Hants.*

[The specimens of Peach Lady Palmerston which Mr. Molyneux sent were of very attractive appearance, and the flavour, for this season of the year, very good.—Eds.]

Calcium Cyanamide.—I have read with very great interest the article entitled "Garden Manures for October," which appeared in *The Gardeners' Chronicle* for September 29, p. 254. In this article reference was made to the nitrogenous fertiliser calcium cyanamide, and it was stated that this material contains about nineteen per cent. nitrogen and up to sixty per cent. lime. It will doubtless be of interest to you to know that the nitrogen content of the material on the British market has recently been increased, and this season calcium cyanamide contains 20·6 per cent. of nitrogen. This increase has been rendered possible by improvements in the manufacturing process; at the same time the lime content, which is such a valuable feature of this fertiliser, remains about sixty per cent. as before. *A. R. K.*

Lilium sulphureum.—I enclose you a photograph (Fig. 157) of my Burmese Lilies (Lilium sulphureum) grown entirely out-of-doors. They are six feet to seven feet high and the blooms were wonderful and still fresh in flower at the end of September. I have been growing these Lilies most successfully for the past ten years. Last year the blooms were equally good. Is it not a record to grow and flower this Lily entirely out-of-doors? *(Mrs.) M. Buchanan, The Small House, Lavant, nr. Chichester.*

Gentiana detonsa.—The remarks by J. W. Besant, in his "Notes from Glasnevin" (p. 288), raises the rather vexed question as to what is the correct name of this attractive biennial Gentian. As stated by him, the *Kew Hand List* gives it as synonymous with G. serrata, whose habitat is given as Arctic Europe, yet I think I am right in stating that the G. detonsa, as grown in gardens at the present day, originally came from China, and the seeds were collected and sent over by one of the collectors of modern times—E. H. Wilson, the late Reginald Farrer, G. Forrest, or possibly F. Kingdon Ward? I have been to some pains to consult some of the standard horticultural works on the subject, but have received no enlightenment; in fact, the correct name seems even more obscure, unless it is that G. detonsa is the correct name, and the references to other specific names, such as the one in the *Kew Hand List*, are incorrect. For instance, Bailey, in his *Standard Cyclopedia of Horticulture*, gives both the type, and the variety barbata, as synonymous with G. serrata, and also states that the Gentian figured and described in the *Bot. Mag.*, t. 639, as G. ciliata, is really G. serrata; he concludes by suggesting that G. barbata is a trade name abroad for G. serrata. The origin of the name "barbata" is not so obscure, for in *Hortus Veitchii* a description is given of an erect-growing biennial Gentian, one-and-a-half foot to two feet high, with dark, violet-blue flowers one inch in diameter, under the name G. detonsa var. barbata, and it is stated that the bearded margin of the corolla lobe suggested the varietal name. It is stated, in connection with the description, that the type, *i.e.*, G. detonsa, is to be found in the Himalayas, while the variety, which flowered for the first time at Coombe Wood in 1905, is common in grasslands of the Chino-Tibetan border. Can it be that G. detonsa is the Asiatic form of G. serrata, which Bailey gives as native to wet lands of the Ural and Altaic Mountains, the Caucasus and North America? In the *Bot. Mag.*, in connection with the Gentian figured as G. ciliata, it is stated that it appears uncertain whether the European, American and Asiatic species are the same. The illustration depicts the Siberian form and is very similar, although I have had no opportunity of comparison, to the Gentian now known as G. detonsa. I grew this Gentian two years ago, but have since lost it, and my recollection of it is that it was of rather weak growth, attaining a height of about eighteen inches, but requiring the support of light, twiggy sticks to enable its flowers to be seen to advantage. I grew it quite successfully in a sunny bed of light loamy soil, containing plenty of, and surfaced with, granite chips, and it also flowered well in a pan in the alpine house. Finally, Farrer, in *The English Rock Garden*, is the only authority who gives G. detonsa as a distinct species. He refers to it as being close to G. crinita, and dismisses it as "best, therefore, not bothered with, any more than G. serrata and G. contorta." These latter species he gives as from the Himalayas and western China. He must have been unfortunate with this group under cultivation, for he writes of G. crinita as being closely related to G. ciliata, with "the same beauty, and the same tantalising intractability of temper." It may be seen, therefore, that the nomenclature of these biennial or annual Gentians is very confused, and it would be of value if an authoritative statement could be made by Kew, or some other establishment which possesses the material required, to clear up the confusion which now exists. *M. W.*

Moles in the Garden.—In an answer to a correspondent, on page 299, it is stated that care should be taken not to touch mole traps with the naked hand. Is this a matter of experience or a tradition? I think the point important, because I find success partly depends on, just before placing the trap, feeling with the finger both ways into the run and removing any earth, small stones, etc., which a mole might push before it and spring or choke the trap. This has to be done very gently, and by the sense of touch. For the past nine years I have trapped and caught moles whenever their presence has been evident in my garden (about thirty or more in all, three in the last week), and I have never used gloves. I set the traps, pat the floor of the run smooth and do anything else experience suggests with my naked hand. Most country gardeners must catch moles; what is their general practice in this respect? *M. I. W., Cornwall.*

Mealy Bug and Cyanogas.—*H. S.* inquires whether any reader has tried to destroy Mealy Bug on vines by using cyanogas. Last autumn I was called upon in an advisory capacity to see some vines, in the county of Anglesey, infested with mealy bug. The gardener informed me that he was unable to keep it under control with the usual washing. The Grapes were not fit to eat. I suggested that the vines should be pruned and all prunings burnt forthwith, and an application of cyanogas given at the end of December. Having received a supply of cyanogas for trial purposes, I took a quantity with me in December. The vinery, which measured two thousand cubic feet, was cleared absolutely of all plants, made perfectly airtight, and four ounces of cyanogas applied on the moistened path in the vinery. White papers were spread over the border, and it was astounding to see such a number of bugs on the papers next morning. Careful observations have been made throughout the present season, and only one mealy bug has been discovered. I can thoroughly recommend cyanogas for mealy bug. *W. Glyn Williams, Horticultural Superintendent, Shire Hall, Llangefni, Anglesey.*

REMARKS ON THE CONDITION OF THE FRUIT CROPS.

(See Tables and Summaries, Ante. pp. 112-118.)

(*Concluded from p.* 314).

ENGLAND, S.W.

Worcestershire.—The Apple crop is a good average crop, and on sprayed trees the quality of the fruits is good. Cox's Orange Pippin is above the average, but on unsprayed trees and older orchard trees the fruits are not quite so good. Pears are slightly under average in quantity, but the fruits appear to be clean and good, those of Doyenné du Comice and Williams's Bon Chrêtien being the best. Plums were an average crop, although a few varieties suffered from the late frosts, especially Victorias. Peaches and Nectarines bore good crops, but Apricots, which blossomed well, although protected, were badly injured by late frosts, and were a very poor crop. Small fruits were extra good, Black Currants especially so where sprayed and kept free from blight, although late frosts caught them in a few places. Strawberries were a good average crop, much better than in the previous season, but Nuts are a very short crop. The soil is very light, overlying a sandy, gravelly subsoil. *Henry Thomas Cheeseman, Strensham Court Gardens, nr. Worcester.*

WALES.

Cardiganshire.—All fruit trees and bushes flowered very profusely, but small fruits, especially Strawberries, suffered very much from early frosts and heavy rains. The following varieties are bearing good crops:—Pears, Williams's Bon Chrêtien, Doyenné du Comice, Clapp's Favourite, Pitmaston Duchess; Apples, Bramley's Seedling, Annie Elizabeth, Norfolk Beauty, Lord Grosvenor, Beauty of Bath, Duchess's Favourite, Gascoyne's Scarlet, King of the Pippins; Plums, Early Rivers, Victoria, Czar, Monarch, Early Transparent Gage. The soil here is heavy and cold, overlying slatey rock. *W. Phillips, Derry Ormond, Cardiganshire.*

Denbighshire.—During the early part of this year the weather proved very wet and sunless. Sharp frosts were experienced on several occasions. On the night of April 2 (following a hail storm), 11° were registered. A good deal of damage was done on this occasion, especially to some varieties of Apples, Pears, Plums, Black Currants and Raspberries, which were then in flower; Cox's Orange Pippin Apples are a good crop. The month of June showed a total rainfall of 4·65 inches, this, with a lack of sunshine, proved very disastrous to the Strawberry crop. Both insect pests and fungous diseases have been very troublesome and difficult to control. The soil here, for the most part, is heavy loam overlying clay. *R. H. Crockford, Horsley Hall Gardens, Gresford.*

——The fruit crops in this district are past my expectations, after the sunless, wet season of 1927. Some varieties of Apples are carrying heavy crops, the best being Lane's Prince Albert, Lord Derby, Bramley's Seedling, King of the Pippins and Worcester Pearmain. We have had heavy crops of Plums, which is very unusual for this district. Small fruits were plentiful. The soil in this district is rather stiff, overlying marl. *J. A. Jones, Chirk Castle Gardens, Chirk, nr. Wrexham.*

Flintshire.—Fruit crops this year are better than was expected. Apples are very good in places, while in others, however, on the whole, they are an average crop. Pears are better than expected. Plums and Damsons are patchy; Peaches and Nectarines, out-of-doors, bore excellent crops, and the quality of the fruits was good. Strawberries suffered from frosts in most parts inland, but on the sea-shore they gave an excellent crop. Small fruits were consistently good, but Nuts are very scarce and poor. The soil in this county varies very much. On the coal measure the soil is cold; in the limestone districts it is thin and soon dries out. The sandstone districts along the sea-shore are invariably fertile, and the crops grown on this formation levels up, in most years, the other districts. *H. L. Jones, Horticultural Superintendent, Padeswood Hall, Padeswood, nr. Mold.*

Glamorganshire.—Considering the lack of sunshine and the bad ripening of wood during 1927, the fruits generally in this district are an extraordinary success. Apples, and most Pears, in particular, have good crops of clean fruits, and there was a fair quantity of stone fruits, although a good deal of damage was done by the spring frosts. Gooseberries, Raspberries and Black Currants were plentiful and of good quality. All trees and bushes have been particularly free from insect pests, and disease. Strawberries were practically a failure owing to the severe frosts which entirely killed many young and old plants. The soil here is loamy, overlying limestone. *W. E. Wright, Tregarth Gardens, Creigian, nr. Cardiff.*

IRELAND, N.

Tyrone.—The fruit crop, on the whole, is the most satisfactory for several years. Apples carry a very heavy crop, notwithstanding the quantities that have recently fallen. The dry period in May caused many Pears, Plums and Cherries to fall, otherwise the crops would have been enormous. The continuous rain and cold weather of June spoilt many of the earlier Strawberries, causing them to rot when about half developed. Insect pests have not been so troublesome as in some seasons, due, I think, largely to the efficacy of the new winter spray washes. *Fred W. Walker, Sion House Gardens, Sion Mills.*

IRELAND, S.

Cork.—Pears and Plums are below average, but in spite of the unseasonable weather experienced during May and June, Apples are proving to be over average and the best crop since 1922. Generally speaking, all bush fruits finished up remarkably well considering the adverse season experienced. Gooseberries, Black Currants and Raspberries were about average, and the spell of fine, warm weather during July favoured the ripening of the fruits. Strawberries were also a good crop, but the cold, wet, sunless weather of June (during the ripening period) caused serious loss to growers. Apple scab and American Gooseberry mildew is still troublesome and difficult to control. *J. Dearnaley, 17, St. Patrick's Terrace, Magazine Road.*

——In spite of a plentiful display of blossom on the trees, fruit crops are patchy this season. Some cooking Apples, notably Bramley's Seedling, Newton Wonder and Grenadier, are very good, but dessert varieties are only fair. Pears are scarce, and Plums and Apricots were poor. Bush fruits were very good, and so were Strawberries, but wet weather spoilt the crop in Ireland, the weather conditions here not being so favourable as in England during the ripening period. Insect pests have not been troublesome, although big bud on Black Currants has been rather more prevalent than usual. The soil is a medium to light loam, overlying clay and limestone. *T. E. Tomalin, Bessborough Gardens, Piltown.*

PUBLIC PARKS AND GARDENS.

The Brighton Town Council has approved a scheme of improvements to Preston Park at a total estimated cost of £13,367.

The Chertsey Urban District Council will make application to the Public Works Loan Commissioners for loans of £506 and £1,700 for the purchase of land adjoining Victory Park, Addlestone, and laying-out and fencing, respectively, in order to form an extension of that recreation ground.

The Ashtead, Surrey, Privy Council has passed a formal resolution to make application for sanction to borrow £1,750 for the purchase of land for allotments.

The Gowerton Privy Council has under consideration the purchase of the twelve-acre site south of Cecil Road and known as Waunfawr, for a public park.

SOCIETIES.

ROYAL HORTICULTURAL.

Garden Design.

From October 17 to October 24, the Royal Horticultural Society held an International Exhibition of Garden Design at Westminster. Both halls were filled with exhibits of varied character, and at a Conference, spread over four days, there were twelve papers read and discussed.

This was the first exhibition of its kind ever held in this country, and its international character was sustained by contributions from Australia, Canada, South Africa, the United States of America, Belgium, France, Germany, Holland and Sweden. The principal features of the exhibition were: 1, A Retrospective Historical Section up to 1850; 2, Garden Planning for Town and Country; 3, Sculpture for Gardens and Its Setting; 4, Public Parks and Gardens; and 5, An Exhibition of Garden Ornaments and Decorative Garden Requirements."

The Council of the Royal Horticultural Society commended the exhibition "to the garden-loving public," but immediately on entering the new hall, which contained the greater portion of the exhibition, the visitor could not fail to be impressed by the importance, from the Society's point of view, of the architect's garden, which differs greatly from that of the landscape gardener's, to whom the garden is of supreme importance and not merely an adjunct of the house to contain lay figures. The main portion of the new hall was devoted to a formal garden of elementary character wherein were set excellent representations of the sculptor's art well worthy of a place in any museum or exhibition of sculpture. But, and as ever the inevitable "but" obtrudes, this was an exhibition of garden design. We were immensely relieved, although not surprised, to find, on reference to the official catalogue, that the exhibitor was a sculptor, and not one whose work is garden design. The garden-lover, to whom, as we have stated, the exhibition is specially "commended" by the Council of the R.H.S., must, at first, have been woefully disappointed and depressed. Even the padding of evergreen Box-edging, tall, straight specimens of Cupressus Lawsoniana erecta viridis, and woodland moss—which simulated greensward—must have failed to cheer the garden-loving visitor. The few groups of Dahlias and Chrysanthemums, and the bedraggled climbers on the lattice-work showed, increasingly as the days passed, how depressing was their environment.

It must have been a relief to the visitor to turn to the various galleries where were arranged wonderful collections of pictures, plans and books such as have never before been brought together. The galleries around the ground floor illustrated the international character of the exhibition. The many plans, photographs and pictures in the foreign sections showed what manner of gardens were those of yesterday and the long-ago in half-a-dozen countries, as well as those of to-day, and others to be made in the near future. They showed full well, what many already knew, that there is no type garden; that, as the "Old English Garden," so desired by some, never existed, neither is there a Dutch, a French, a Belgian, a German, or a Swedish Garden. But that while there may occasionally have been at brief intervals a few general characteristics, there always has been a pleasant variety in the garden-planning of all the countries, which is good and laudable and, we have no doubt, will continue.

The considerable space required by the plans and other representations of the gardens of this country and the dominions all told the same story—and, as a rule, told it equally well. It may be, however, that the present-day horticultural draughtsman, apparently in an anxiety to present his work in a novel manner, gives a suggestion that he lacks the artistic taste of his predecessor. Some of the most recent garden plans are garish in their fierce colouring, and at times, undue elaboration. But this, no doubt, is merely a phase that will soon pass away.

On the dais were arranged many plans and an occasional model from some thirty or more cities and corporations which amply indicated the immense importance which is now rightly attached to the proper planning and planting of the public parks and open spaces. What is perhaps, even more important, they also illustrate the increased areas of the grounds for public pleasure and enjoyment.

The new Lecture Room was not equal to the demands for the Historical Section, so the large Committee Room on the floor below was requisitioned. Here the student of the development of gardens found representations of immense value, passing through the ages, from the years 1500 to 1850; from the earlier gardens, which were literally enclosed places, to the ducal demesne and including the necessary medicinal gardens.

The floor of the old hall was set out in a sort of garden design, and here was a very extensive collection of garden seats, vases, sundials and other ornaments, with gates and railings, and almost every conceivable article of garden ornament and furniture. The admirable summer-house by the Orchid Annexe, and the excellent span-roofed greenhouse, with equally well-made garden frames, erected by the gallery stairs, made this a unique collection of things material that go to the making of a garden. To this section of the exhibition the principal contributors were Messrs. David Swain and Co.; Messrs. Wm. Wood and Son; Messrs. John P. White and Sons, Ltd., Messrs. Pulham and Son, Messrs. Wakely Brothers and Co., Ltd., Messrs. Sander and Co.; Messrs. Castles' Shipbreaking Co., Ltd., and The Dryad Works.

On the opening night of the Conference a dinner was given by the R.H.S., over which Lord Lambourne presided. There were about eighty guests present, the principal one being the Belgian Minister.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held in the middle of September, the members of Committee present were: Mr. J. B. Adamson (in the chair), Mr. A. Burns, Mr. A. Coningsby, Mr. A. Keeling, Mr. D. McLeod and Mr. H. Arthur (Secretary).

Award of Merit.

Laelio-Cattleya Serveno (*C. Venus* × *L.-C. Serbia*).—From J. B. Adamson, Esq.

Botanical Certificate.

Acineta Barkeri.—From J. B. Adamson, Esq.

Groups.

Messrs. A. J. Keeling and Sons, Bradford, staged Cypripedium Royal George, C. Bedfordiae, C. Redstart, C. A. de Lairesse and C. The Major; Odontioda Cooksonae and Miltonia Morelliana atrorubens. Mr. D. McLeod, Charlton-cum-Hardy, exhibited Cypripedium Royal George and C. Germaine Opoix.

At the meeting held on Friday, October 5, the members of Committee present were:—Messrs. H. Astley Bell (in the chair), J. B. Adamson, A. Burns, B. Collins, A. Coningsby, J. Evans, A. J. Keeling. D. McLeod, W. J. Morgan and H. Arthur (Secretary).

First Class Certificates,

Cypripedium Montcalm var. Mrs. Maybury; and *Cattleya Mrs. Medo var. Golden Dawn.*—From Mr. John Evans.

Cattleya Sylvia, Bolholt var.—From Captain W. Horridge.

Laelio-Cattleya Queen Mary var. Illuminata.—From Messrs. A. J. Keeling and Sons.

Awards of Merit.

Cattleya Queen Mary var. Moonbeam; *C. amabile alba var. Exquisita*; *C. Margaret Adamson*; *C. Edzell var. Lucifer*; *Laelio-Cattleya Mrs. Medo var. Bronze Queen*; *L.-C. Carmencita var. Golden Glory*; *Sophro-Cattleya eximia*; and *Odontoglossum Lilian var. magnificum.*—From J. B. Adamson, Esq.

Cattleya Cantuarie var. Stella; and *Sophro-Laelio-Cattleya Irene* (*C. Fabia* × *S.-L. Lacona*).—From Captain W. Horridge.

Cattleya Sir H. S. Leon var. pallida.—From the Hon. G. E. Vestey.

Laelio-Cattleya Talana (*C. Eleanor* × *L.-C. Schröderae*).—From Mr. John Evans.

Botanical Certificates.

Paphinia cristata (First Class).—From Mr. John Evans. Oncidium microchilum (Second Class); from Mr. J. B. Adamson.

Cultural Certificates.

To Mr. J. Howes, for Cattleyas; Vanda coerulea; Odontoglossum grande; Epidendrum vitellinum, and Cypripediums.

To Mr. A. Burns, for Odontoglossum grande and Catasetum Bungerothii; and to Mr. John Evans, for Vanda coerulea.

Groups.

J. B. Adamson, Esq., Blackpool, (gr. Mr. J. Howes), was awarded a Gold Medal for a group containing Cattleya hybrids in variety; Vanda coerulea, Epidendrum vitellinum, Cypripedium Boltonii, C. Tom Abbott, C. Beechense superbum, C. Earl of Chester, C. Bedfordiae, C. Germaine Opoix, C. Rosettii var. Goliath, and Odontoglossums in variety.

Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), exhibited a group to which a Silver-gilt Medal was awarded; this was composed of a number of plants of Odontoglossum grande, including O. g. aureum; and fine examples of Catasetum Bungerothii. The Hon. G. E. Vestey, Birkdale (gr. Mr. B. Collins), was awarded a Large Silver Medal for a group of Cattleya Sir H. S. Leon var. pallida, C. Lord Rothschild, C. Hardyana, C. Mona, C. Alphana and several Odontoglossums.

Mr. John Evans, Colwyn Bay, was also awarded a Large Silver Medal for a group containing Cypripedium Montcalm var. Mrs. Maybury, C. Sybil superbum and C. Farrieanum; Cattleya Mrs. Medo var. Golden Dawn, C. Wolteriana magnificum; Paphinia cristata, Cirropetalum refractum and Vanda coerulea. Messrs. A. J. Keeling and Sons, Bradford, showed Laelio-Cattleya Profusion and L.-C. Queen Mary; Cypripediums and Catasetum macrocarpum.

At the meeting held on Friday, October 19, the members of Committee present were:—Messrs. J. B. Adamson (in the chair), A. Burns, A. Coningsby, A. Keeling, D. McLeod, W. J. Morgan and H. Arthur (Secretary).

First Class Certificate.

Laelio-Cattleya Ivanhoe var. Desdemona.—A fine flower, of even colour, with large, serrated lip, three inches across; deep magenta with yellow lines in throat. From Captain W. Horridge.

Awards of Merit.

Cypripedium Baron Bulteel (*Gaston Bulteel* × *The Baron*).—From J. B. Adamson, Esq. *Cypripedium Earl Delhi* (*Delhi var. The Tank* × *Earl of Tankerville*).—From Mrs. Bruce and Miss Wrigley.

Botanical Certificate.

Barkeria spectabilis (Second Class). From Messrs. A. J. Keeling and Sons.

Cultural Certificates.

To Mr. A. Burns, for Oncidium cheirophorum, and Habenaria Roebelinii; and to Mr. J. Howes for Cattleyas.

Groups.

J. B. Adamson, Esq., Blackpool (gr. Mr. J. Howes), staged a group to which a Gold Medal was awarded; he showed Cypripedium Baron Bulteel, C. Juno, C. Ernest Read, C. Golden Gem, C. Queen Alexandra and C. Honorie; Cattleya Mantinii, C. Mrs. Myra Peeters, C. Pitt Portia; Laelio-Cattleya Queen Mary, L.-C. Profusion var. The King, and Brasso-Cattleya Monarch.

Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), were awarded a Large Silver Medal for a group containing Cypripedium Earl Delhi, C. Shogun, C. Dreadnought, C. Farrieanum, C. Dryad and C. Helena; Cattleya Portia and C. Armainvillierense; and Brasso-Cattleya Mrs. J. Leemann, Habenaria Roebelenii and H. rhodochiela pusilla. Messrs. A. J. Keeling and Sons, Bradford, were also awarded a Large Silver Medal for a display of Cypripedium Albert Fevrier, C. Baron Harefield, C. Gaston Bulteel, C. Sybil magnificum. and

C. King George V; Pleione maculata and Barkeria spectabile. Captain W. Horridge, Bury (gr. Mr. A. Coningsby), exhibited Laelio-Cattleya Ivanhoe var. Desdemona and L.-C. Othella.

The next meetings will be held at the Houldsworth Hall, 90, Deansgate, Manchester, on Fridays, November 2 and 30, 1928, and not on November 16.

NATIONAL CHRYSANTHEMUM.

As the exhibition of Garden Design was being held at Westminster, the Floral Committee of the National Chrysanthemum Society held its meeting at Essex Hall, Strand, on Monday, October 22. Nineteen novelties were submitted, and later, two belated varieties were also considered. The following awards were granted :—

First Class Certificates.

Beacon. II. 1.b.—Flowers a trifle flat but of fine substance; deep chestnut-red of a very attractive shade. Should prove useful for market or for cut flowers.

Flame. II. 1.b.—Another variety of good market type; golden-bronze, with gold tips, and showing the golden reverse colour prominently on the short central florets. Both these varieties were shown by Mr. H. Shoesmith, Junr.

Strephan. II. 1.b.—A beautiful variety of excellent form; colour deep pink. The florets are narrow but make up a very full flower. This variety is a sport from Iolanthe. Shown by Messrs. Cragg, Harrison and Cragg.

Edward Page. II. 2.a—This big incurving Japanese variety is well-known in Covent Garden Flower Market. It was, we believe, raised by the late Mr. Tom Page, and named after Mr. E. Page, of Messrs. J. and E. Page. The broad florets are ivory-white.

Freya. II. 1.a.—A very dainty flower with long, narrow florets. The colour is described officially as silvery-pink, but soft lilac is probably a better definition.

Corisande. II. 1.b.—A large decorative variety of good form; bright old gold and orange-fawn are two colour descriptions given officially and unofficially, respectively. These three varieties were shown by Messrs. Keith Luxford and Co.

Daily Sketch. II. 2.a.—A big, incurving, Japanese variety of exhibition size. The broad florets curl loosely, making up a bold bloom. The colour is rose, with silvery-pink reverse, and it is the reverse colour that is mostly in evidence.

F. P. Steward. II. 1.a.—A graceful exhibition Japanese variety, with long, drooping florets. It was exhibited as a plant carrying three fine blooms. The colour is, officially, wine-red; we prefer to call it soft purple, with heavy crimson shading, the crimson colour showing most prominently on the central florets. A very handsome variety.

Miss Eva Hudd. II. 1.b.—A very attractive decorative variety of fair size and brilliant colour. The florets present a velvety appearance and are of an unusually brilliant and "live" shade of crimson, with bright gold reverse. These three varieties were shown by Mr. H. J. Jones.

Iris Cross. II. 1.a.—A beautiful exhibition Japanese variety of graceful form and good size. The florets are a soft shade of white. Shown by Mr. W. Baxter, Lockerley Hall Gardens, Romsey.

GENERAL BULB GROWERS' OF HAARLEM.

The Gladiolus Committee made the following awards to varieties during its summer session, of 1928. T.G.C.=(Trial Garden Certificate).

First Class Certificates.

Gladiolus Baron van Wijnbergen.—Vivid salmon-pink, carmine spots. (T.G.C.)—From Mr. C. P. Alkemade, Heemstede.

G. Belinde.—Clear golden-yellow, changing into creamy-white; petals with somewhat folded margins. From Messrs. Graetz.

G. primulinus Copernicus.—Orange, with copper-yellow spots. (T.G.C.) From Messrs. P. Byvoet and Co., Ltd., Overveen.

G. primulinus White Lady.—Creamy, changing to white. From Mr. Th. Nieuwenhuyzen, Uitgeest.

Awards of Merit.

Gladiolus Aphrodite.—Bright cherry-red, with large, white spot. From Messrs. C. Blom and Son, Wijk and Duin.

G. Blue Triumphator.—Soft violet, with purple spot in the centre; has a broad spike, bearing very large, wide-opened flowers. From Mr. W. Pfitzer.

G. Brightness.—Pink, changing into white in the centre, with a yellow, red-speckled spot. From Mr. C. P. Alkemade.

G. Carolus Clusius.—Soft cattleya-rose. From Messrs. K. Velthuys and Co., Ltd., Hillegom.

G. Clara Butt.—Deep salmon-coloured, with scarlet-marked spot. (T.G.C.) From Messrs. P. Byvoet and Co., Ltd.

G. Commander Koehl.—Deep scarlet-red, shaded black. From Mr. W. Pfitzer.

G. Doris.—Apricot, with carmine stripe. From Mr. C. P. Alkemade.

G. Dr. Hans Pfitzner.—Soft pink. From Mr. W. Pfitzer.

G. Harmony.—Very soft rosy-white, with creamy-coloured, carmine speckled spot. From Mr. C. P. Alkemade.

G. Ingerfire.—Deep crimson-red. From Messrs. E. H. Krelage and Son, Haarlem.

G. Isabella.—Deep salmon-pink, with narrow scarlet-red spot.

G. Isolde.—Flesh-coloured, with soft, carmine-red spot. From Messrs. Konijnenburg and Mark, Ltd., Noordwijk.

G. Jacqueline.—Vivid strawberry-pink, with narrow, carmine-red marked spot.

G. Jupiter.—Vivid orange-scarlet, with narrow cream-marked spot.

G. Krassin.—Deep scarlet.

G. Los Angeles.—Soft, pure rose, with crimson stripe. (T.G.C.)

G. Lilac Perfection.—Violet-rose.

G. Marocco.—Deep purple, with shading of velvet-black. From Mr. W. Pfitzer.

G. Mont Cenis.—Pure white.

G. Mrs. W. J. Unwin.—Soft rose, with cherry-red flames.

G. Nelson.—Mauve, somewhat flamed. From Mr. C. P. Alkemade.

G. Non Plus Ultra.—Pure white; big spike. From Mr. C. P. Alkemade.

G. Norma.—Soft cherry-red, with large, white spot. From Messrs. P. Byvoet and Co., Ltd.

G. Peach Rose.—Peach colour with deeper-coloured spot.

G. Pelican.—Pure white.

G. Preciosa.—Cherry-red, with purple stripes, scarlet spot. From Mr. W. Pfitzer.

G. Princess Astrid.—Soft salmon-orange, with scarlet spot on creamy base.

G. Purpurea.—Purple. (T.G.C.) From Messrs. K. Velthuys and Co., Ltd.

G. Rheinwein.—Soft sulphur-yellow, with butter-yellow spot. From Messrs. Graetz.

G. Robin Hood.—Crimson-red. From Mr. W. Pfitzer.

G. Roi Soleil.—Primrose-yellow. From Messrs. K. Velthuys and Co., Ltd.

G. The Queen.—Soft satin-rose, with small, scarlet-marked spot.

G. Wagner.—Soft salmon-orange, with creamy red-speckled spot.

G. Wolfgang van Goethe.—Vivid raspberry-pink, with scarlet-orange spot. From Mr. W. Pfitzer.

G. primulinus Albertine.—Sulphur-white. From Messrs. E. H. Krelage and Son.

G. primulinus Amor.—Salmon-pink, with sulphur-yellow spot, carmine striped.

G. primulinus D. E. Wheeler.—Soft salmon, with creamy centre. (T.G.C.)

G. primulinus Fantasy.—Strawberry-pink. From Messrs. P. Byvoet and Co., Ltd.

G. primulinus Yellow Mask.—Clear sulphur-yellow. From Mr. W. Pfitzer.

Certificates of the Trial Garden.

Gladiolus Apricot: Golden-yellow with apricot shade carmine stripe; slender spike. G. Apollo: deep salmon, soft carmine-shaded. G. Aviso: apricot, with crimson-striped spot. G. E. J. Shaylor: Strawberry-pink with violet shade and purple stripe on the fall. G. Emma: pink with salmon-shade, carmine spots. G. Framboise: Raspberry-red, white-flamed, creamy-yellow spot. G. Heavenly Blue: China-blue and white, with silver shade. From Mr. W. Pfitzer.

G. Hobbema: Mauve and raspberry-red. G. L'unique: Cherry-red, with large, white, carmine-bordered spot; medium-sized flowers. From Mr. C. P. Alkemade.

G. Nancy Hancks: Soft salmon-orange, with stony-red stripe. (T.G.C.) G. Orange Blossom: Soft salmon-orange, with carmine-purple stripe in the centre. G. Rosary: Rose, with soft purple stripes. (T.G.C.) From Mr. C. P. Alkemade.

G. Rose Triumph: Peach-rose, carmine-striped, with creamy-white spots. G. Rudolph Valentine: Golden-rose with copper shade; orange-red spots. G. Sulphur Queen: Sulphur-white, with small creamy spot, carmine-striped, purple stamina; broad spike. G. Yellow Perfection: Butter-yellow, primrose-yellow-shaded spot. From Mr. W. Pfitzer.

G. primulinus Bianca: creamy-white. From Messrs. P. Byvoet and Co., Ltd.

G. primulinus Butterfly: Salmon-pink with yellow spot, carmine stripe in the centre. G. primulinus grandiflorus Salmon Beauty: Salmon, with yellow, creamy-striped spots. G. primulinus Sirene: Salmon, with yellow spots and carmine stripes. From Messrs. P. Byvoet and Co., Ltd.

Obituary.

W. A. Cook.—Formerly a frequent contributor to *The Gardeners' Chronicle*, and a man who held many high positions in the gardening world, Mr. W. A. Cook passed away on Saturday, October 20, in his seventieth year. In his earlier years, Mr. Cook was employed in the gardens at Shenfield Manor, Rayners, Woburn House and Norman Court, Messrs. Henderson's Pineapple Nursery, Battersea Park, and Messrs. Rochford's establishment at Broxbourne. He also spent some time in an Oxford Street florist's shop, and a short period at the Crystal Palace. He brought a wide experience to his duties when he became gardener at Holme Wood, Peterborough. Later, he was gardener to Major Heneage, V.C., at Compton Bassett, for thirteen years, and afterwards served in a similar capacity at Earlstoke Park, Wiltshire, and at Shirley Park, Croydon, but the crowning point of his career was his appointment as gardener to the late Sir Edmund Loder, at Leonardslea, Horsham. Ill-health, alas! attended his later years, and for the past seven years, he and Mrs. Cook have lived in the peaceful and beautiful Whiteley's Village, amid the Pine trees of Surrey. Quite recently he spent a holiday at the seaside, and appeared to benefit considerably thereby, but on Friday, October 19, he became very ill and was taken to the hospital attached to the Whiteley Homes, where he became unconscious and died the following day. Many of our readers will remember Mr. Cook's skill as a plantsman and fruit grower, and a few will have pleasant memories of his powers as a cricketer and his abilities as a musician.

TRADE NOTE.

The Covent Gardener, of which we have recently received the October issue, continues to proclaim the activities of the Sundries Department of Messrs. George Monro, Ltd., besides containing several articles of real value to horticulturists in general. The question of eelworms as associated with commercial horticulture is discussed very fully in a well-illustrated contribution by C. B.; Cyanogas is dealt with by W. H. Turner, and in an amusing fashion C. P. Chamberlain extols the virtues of the Simar Rototillers. "Zostra," we are informed, is not the name of a fair lady, but of a brand of seaweed recommended as much better than woodwool for packing purposes; Monro's Genuine "Sunset" Oiled Apple Wrappers are advocated for wrapping boxed Apples in for controlling Apple scald; Volck, undoubtedly a very valuable spray, is placed well to the fore, and Monro's Antimonial Hose receives a chapter to itself. We notice that the Appeal Department of the British Legion has again entrusted Messrs. Geo. Monro, Ltd., with the supply of the official Haig Poppies to the florists.

ANSWERS TO CORRESPONDENTS.

Brussels Sprout Leaves Spotted.—*R. S.* This subject was dealt with in our issue of October 6, p. 279.

Cupressus macrocarpa Failing.—*C. P. C.* There was nothing in the specimen of Cupressus macrocarpa, received for examination, to indicate the cause of the ill health of the plants. An examination of the plants and conditions under which they are growing would be necessary to determine the cause of the trouble. We therefore advise you to call in the aid of a tree expert to examine the trees and ground in order that he may give you the necessary advice.

Gardeners' Cottage.—*O. I. D.* If the employer is the owner of the cottage, and the occupation thereof was a term of the employment, then the tenancy ceases at the expiration of the notice given by the employer, and vacant possession must be given at such time.

Green Scum on Pond.—*R. M.* The green scum on the pond consists of some of the minute forms of green Algae, such as Protococcus vulgaris or Euglena viridis, which may have been gathered up by the surface water from the ground, or may have been blown directly into the pond by wind, and by rapid multiplication produced a green scum. If the pond is of moderate size, the simplest way to get rid of it would be to remove it now and again during summer with something like a butterfly net—with a shallow bag of thin material tied to the end of a long Bamboo cane. The low vegetation could be destroyed by means of sulphate of copper, powdered, put in a muslin bag and trailed through the pond at intervals until it is all dissolved. Half an ounce of the sulphate of copper would be sufficient for 3,125 gallons of water. To find the quantity of water in the pond, multiply the length by the breadth and that by the depth of the pond. This will give the cubic feet, and each cubic foot contains six-and-a-quarter gallons of water, so the cubic feet of water should be multiplied by six-and-a-quarter to give the number of gallons.

Names of Plants.—*G. R. T.* Epidendrum fragrans.—*W. S.* 1, Aster acris; 2, Spiraea discolor.—*S. H. H.* Everlasting Flower-Anaphalis margaritacea.

Name of Fruit.—*S. H. H.* Apple Emperor Alexander.

Communications Received.—M. W.—A. G. J.—W. A.—M. M. N.—J. S.—G. N. S.—W. G. C.—G. S.

GARDENING APPOINTMENTS.

Mr. J. H. Parr, for nearly six years gardener to Viscount Galway, Serlby Hall, Bawtry, Yorkshire, as gardener to H.R.H. The Duke of Connaught, Bagshot Park, Surrey. [Thanks for 2/6 for R.G.O.F. Box.—Eds.].

Mr. Thomas A. Wright, formerly gardener to Col. J, Reid Walker, for seven years at Ruckley Grange, Shifnal, Salop, as gardener to Captain J. H. C. Coulston, Hawksheads, Bolton-le-Sands, Carnforth, Lancashire.

Mr. J. M. Richards, for the past three years in charge of the extensive gardens at Cowley Manor, Cheltenham, and previously gardener to Colonel Fairfax Rose, of Rockhampton Park, as gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

Mr. W. Effamy, for the past two years gardener to The Right Hon. Earl of Arran, Thoby Priory, Brentwood, Essex, as gardener to W. H. Prescott, Esq., Highlands, Woldingham, Surrey. [Thanks for 2/- for R.G.O.F. Box.—Eds.].

Mr. Wilfred Knight, for the past three years gardener to I. Wartski, Esq., at Derwen Deg, Bangor, as gardener to Dr. A. L. Ritchie, at Blacklands Hall, Cavendish, Suffolk. [Thanks for 1/- for R.G.O.F. Box.—Eds.]

CATALOGUES RECEIVED.

Elisha J. Hicks, Hurst, Berkshire.—Roses.

Wm. Power and Co., 25 and 26, King Street, Waterford.—Trees and shrubs; forest trees and hedge plants.

Watkins and Simpson, Ltd., 27, 28, and 29, Drury Lane, W.C.2.—Vegetable and flower seeds.

Foreign.

A. Grunwald, Wiener-Neustadt, Austria.—Forest seeds, etc.

Chester Parker, East Coast Nurseries, Oulton, Lowestoft.—Roses, hardy plants, fruit trees.

MARKETS.

COVENT GARDEN, Tuesday, October 23rd, 1928.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz. ...	10 0–12 0
—elegans ...	10 0–12 0
Aralia Sieboldi	8 0—9 0
Araucarias, per doz.	30 0–40 0
Asparagus plumosus ...	12 0–18 0
—Sprengeri ...	12 0–18 0
Aspidistras, green ...	16 0–60 0
Aspleniums, doz.	12 0–18 0
—32's	24 0–30 0
—nidus ...	12 0–15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Chrysanthemums per doz. ...	15 0–24 0
—white, per doz.	15 0–24 0
—yellow, per doz.	18 0–24 0
—pink, per doz.	21 0–24 0
—bronze, per doz.	12 0–18 0
Crotons, per doz.	30 0–45 0
Cyclamen, per doz.	24 0–36 0

	s. d. s. d.
Cyrtomiums ...	10 0–12 0
Erica gracilis, per doz. ...	30 0–36 0
— — 60's, per doz.	15 0–18 0
— — 72's, per doz.	8 0—9 0
—nivalis, per doz.	30 0–36 0
— — 60's, per doz.	12 0–15 0
— — 72's, per doz.	8 0—9 0
Kochia, per doz.	15 0–18 0
—60's	9 0–12 0
Nephrolepis in variety ...	12 0–18 0
—32's	24 0–36 0
Palms, Kentia,	30 0–48 0
—60's	15 0–18 0
Pteris in variety	10 0–15 0
—large, 60's ...	5 0—6 0
—small... ...	4 0—5 0
—72's, per tray of 15... ...	2 6—3 0
Solanums, per doz.	12 0–15 0
— 60's, per doz.	9 0–12 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Acacia (Mimosa), per doz. bun.	— 12 0
Adiantum decorum, doz. bun.	9 0–10 0
—cuneatum, per doz. bun. ...	6 0—8 0
Anemone, St. Brigid, per doz.	4 0—8 0
Arums (Richardias), per doz. blooms ...	6 0—8 0
Asparagus, plumosus, per bun., long trails ...	2 6—3 0
—med. sprays	2 0—2 6
short ,,	— 1 0
—Sprengeri, bun. long sprays...	2 0—2 6
med. ,, ...	1 0—1 6
short ,, ...	0 6—1 9
Autumn foliage, various, per doz. bun. ...	6 0–12 0
Carnations, per doz. blooms	2 6—4 6
Chrysanthemums—	
—white, per doz. blooms ...	2 6—5 0
—yellow, per doz. blooms ...	2 6—6 0
—bronze, per doz. bunches ...	10 0–12 0
—bronze, per doz. blooms ...	2 6—4 6
—pink, per doz. bunches ...	9 0–12 0
—pink, per doz. blooms ...	3 0—6 0
Cornflowers, blue, per doz. bun.	2 6—3 0
Croton leaves, per doz. ...	1 9—2 6
Fern, French, per doz. bun.	10 0–12 0
Forget-me-nots, per doz. bun.	10 0–12 0
Gardenias, per doz. blooms	4 0—9 0
Heather, white, per doz. bun.	9 0–12 0
Lily-of-the-Valley, per doz. bun.	18 0–30 0

	s. d. s. d.
Lilium longiflorum, long, per bun.	4 6—5 0
— — short, per doz. blooms...	— 5 0
—speciosum, long, per bun. ...	4 6—5 0
— — — short, doz. blooms ...	4 0—4 6
—speciosum rubrum, long, per doz. ...	3 6—4 0
— — — short, per doz. ...	2 0—2 6
Marigolds, per doz. bun. ...	3 0—4 0
Michaelmas Daisies, per doz. bun.	3 0—6 0
Myrtle, green per doz. bun.	1 6—2 6
Orchids, per doz.	
—Cattleyas ...	36 0–60 0
—Cypripediums	8 0–15 0
Roses, per doz. blooms—	
—Mme. Butterfly	2 6—4 6
—Columbia ...	2 6—3 6
—Golden Ophelia	2 6—3 6
—Richmond ...	3 0—3 6
—Aaron Ward	1 6—2 0
—Roselandia ...	2 6—3 6
—HoosierBeauty	3 6—4 0
—Molly Crawford	2 6—4 0
Scabiosa caucasica, per doz. bun.	5 0—6 0
Smilax, per doz. trails ...	4 6—5 0
Statice sinuata, blue, per doz. bun.... ...	4 0—6 0
Stephanotis, 72 pips	2 6—3 0
Stocks, white, per doz. bun. ...	6 0–10 0
— mauve, per doz. bun. ...	6 0—8 0
Violets, Prince of Wales, per doz. bun.... ...	2 6—4 0

Remarks.—Owing to quiet conditions generally, supplies have been more than sufficient to meet requirements during the past week. Lily-of-the-Valley and Lilium longiflorum are somewhat limited in quantity; other lines are similar to last week's quotations. Among Chrysanthemums, bunches of sprays of white sorts were a trifle better trade towards the week-end. Outdoor blooms are becoming somewhat inferior in quality. The newest arrivals are a few disbudded blooms of single bronze and pink sorts; these have also been offered in sprays, but are only medium in quality at present. Small quantities of Cornflowers, Nigella and Scabious have been on sale in good condition, also some St. Brigid Anemones from Guernsey. Single Violets have been arriving in large quantities and are in finer condition. The latest arrivals in the French flower department were a few bunches of Parma Violets, but they had suffered in transit, owing to the long journey and the mild weather conditions. A few yellow Marguerites have also been received from this quarter, but at present the blooms are very small. Other lines are mostly foliage of Berberis, Ruscus, Myrtle, and Nandina; also pads of Solanum berries and Chilies, which are too early for decorative purposes and therefore do not meet with much demand at present.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples, English—	
—Cox's Orange Pippin ½-bushel	8 0–15 0
—Lord Derby, per bushel ...	5 0—7 0
—Bramley's Seedling	6 0–10 0
—Lane's Prince Albert ...	5 0—8 0
—Warner's King	5 0—7 0
—Californian Newtown, per case	9 0–10 0
—Oregon per case	14 0–14 6
—Charles Ross, ½-bushel ...	5 0—7 0
—Blenheim Pippin, ½-bushel	3 6—5 0
—King of the Pippins, ½-bushel ...	3 0—5 0
Apples, Nova Scotian—	
—Cox's Orange Pippin, ½-barrel	22 0–25 0
—Ribston Pippin, per barrel	18 0–21 0
—Blenheim Pippin, per barrel	18 0–22 0
—King of the Pippins, per barrel ...	20 0–24 0
Bananas, per bun.... ...	13 0–25 0

	s. d. s. d.
Grapes, English—	
—Muscat of Alexandria, per lb.	3 0—6 0
—Alicante ...	0 9—2 6
—Canon Hall Muscat, per lb.	2 0—5 0
—Gros Colmar...	1 6—3 6
Grapes, Almeria, per barrel ...	10 0–21 0
Grape Fruits—	
—Honduras ...	— 35 0
—Jamaica ...	— 32 6
—Porto Rico ...	— 35 0
Lemons, Messina and Palermo, per case ...	26 0–47 6
—Naples ...	35 0–40 0
Melons, hothouse, each...	1 0—4 0
—Cantaloupe, each... ...	1 6—3 0
—Valencia, 24's and 36's ...	15 0–17 0
Oranges, Valencia Late ...	20 0–24 0
—Jaffa... ...	14 0–16 0
Peaches, hothouse, per doz.	6 0–30 0
Pears, Californian—	
—W. Nelis ...	19 0–20 0
—d'Anjou ...	19 0–21 0
—Doyenné du Comice, ½-case	— 15 0
Pears, English—	
—Doyenné du Comice, ½-bushel case ...	7 0—8 0
—trays ...	3 0—6 0
Pineapples, case	17 0–27 6

Remarks.—Conditions have not been good during the past week and buying generally has been on a a comparatively small scale. Stocks of Apples from North America on hand, and to arrive, are heavy, and prices are quoted at lower levels. There has not been a keen enquiry for English Apples, except at moderate prices, even for best grades. Hothouse fruits are reasonable in price for medium quality fruits. A few extra special Peaches and Grapes have made more exclusive figures. There are not many English Pears available; Californian Doyenné du Comice, D'Anjou and Winter Nelis Pears are monopolising the market at quite moderate prices. There is some improvement in the English Tomato market, and new crop fruits are making better prices. Cucumbers are also doing better, and it is hoped that their position will be maintained in both sections. Brussels Sprouts are popular and doing well from a selling point of view. Hothouse Beans from Guernsey are increasing slightly in quantity and selling with more freedom than of late. Mushrooms are more plentiful, the milder weather being favourable to production, and although prices are a shade easier, the position is fairly strong. Salads sell fairly well. Green vegetables are improving in demand, and the trade in old Potatos has a slightly firmer tendency.

GLASGOW.

The trade in cut flowers was more or less affected last week by the weather, and the tendency of Chrysanthemum prices was towards a lower level. Pink Consul made the top figure of 1s. 6d. to 2s. for 6's; and other quotations were as follows:—La Pactole, 1s. 6d. to 1s. 9d.; Alcalde, Cranfield Yellow and Bronze Consul, 1s. 3d. to 1s. 9d.; Debutante, 1s. 3d. to 1s. 6d.; Pink Delight and Blanche Poitou, 1s. to 1s. 6d.; Almirante, 1s. to 1s. 3d.; and Sanctity and Dolores, 9d. to 1s. 3d. Sprays ranged from 3d. to 6d. per bunch. Richardias rose in price to 6s. per bunch, while Carnations were worth from 2s. 6d. to 5s. per dozen; pink Roses, 2s. 6d. to 3s. 6d. per dozen; red Roses, 1s. to 2s.; Smilax, 1s. to 1s. 3d. per bunch; and Asparagus Fern, 6d. to 1s.

The feature of the business in the fruit market was the low value of American Apples. Newtown Pippins sold at 8s. 6d. to 9s. per case; Jonathans and McIntosh Red, 8s. 6d. to 12s.; Bon Danes, 16s. to 21s. per barrel; York Imperials, 20s. to 26s.; and Delicious, 26s. to 35s. Winter Nelis Pears made 22s. to 25s. per case; hothouse Grapes, 3s. 6d. per lb.; Belgian Royal Grapes, 10d. to 1s.; and Almeria, 12s. 6d. to 20s. per barrel.

In the vegetable section, Dutch Tomatos only realised 1d. per lb.; and Jersey, 1½d. to 2d.; while Scotch varieties were steady at 5d. to 7d. per lb. Lettuces realised 1s. 6d. per dozen; Cauliflowers fluctuated between 2s. 6d. and 5s.; and Cucumbers, 3s. 6d. to 6s.; while Mushrooms varied from 2s. 6d. to 3s. per lb.

SCHEDULES RECEIVED.

Harrogate and District Horticultural Association,—Exhibition, to be held, at Belvedere, Harrogate, on Wednesday and Thursday, November 21 and 22.—Secretary, Mr. J. Lee, 8, Roker Road, Harrogate.

Farnham and District Horticultural Society,—Exhibition, to be held at the Corn Exchange, Farnham, on Wednesday and Thursday, November 14 and 15.—Secretary, Mr. S. F. Chuter, Roseleigh, St. Cross Estate, Farnham.

THE

Gardeners' Chronicle

No. 2184.—*SATURDAY, NOVEMBER* 3, 1928.

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COLOURED SUPPLEMENT PLATE.
Dahlia Irma.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 45·0°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, October 31, 10 a.m. Bar. 29·8. Temp. 54°. Weather, Fine.

The Forcing of Plants by Chemicals.

A GOOD many years have passed since the discovery was made that resting plants exposed to the vapour of ether or chloroform may be quickened into active life. This discovery by Johannsen was followed by others equally curious; for instance, it was shown that by bathing dormant plants in tepid water for a certain period of time, the resting phase which they were enjoying was curtailed, so that when brought under conditions favourable to growth, the plants broke into leaf and flower long before their natural season. From time to time, reports have been made as to the efficacy of other means of setting a term to the resting phase of plants. The most recent and comprehensive investigation of this subject is by Mr. F. E. Denny,* of the Boyce Thompson Institute for Plant Research, Inc., Yonkers, New York. Mr. Denny has studied the effects of no fewer than two-hundred-and-fifty different chemicals, and has come to the conclusion that those which are most efficacious in inducing growth in resting plants are ethylene chlorohydrin and the thiocyanates of sodium, potassium, or ammonium. As an example of the results obtained by Mr. Denny, his experiments with Potatos may be cited. As is well-known, Potato tubers just after lifting are refractory and cannot be forced into growth by ordinary means. If, however, recently lifted Potatos, cut into pieces suitable for planting, are soaked for an hour in a weak solution of sodium thiocyanate, they begin to grow almost at once and, as Mr. Denny's experiments show, are already some twenty inches tall before untreated tubers of similar origin have even begun to grow. Another chemical which brings about similar quickening of growth is, as already stated, ethylene chlorohydrin. When it is used, the cut tubers are dipped for a moment into a solution of ethylene chlorohydrin made by adding to the commercial material about ten times as much water. After brief immersion in the solution, Potatos are placed in a closed chamber for twenty-four hours and are then planted. The time saved in the sprouting has proved to be not less than a month. Ethylene chlorohydrin may be used also to quicken whole, uncut tubers into activity. An air-tight room should be used, and the Potatos placed on slatted shelves which allow of the free passage of air, the ethylene chlorohydrin being placed in shallow pans on the floor. The Potatos should be exposed to the fumes for twenty-four to forty-eight hours. At the end of that time, the tubers are removed from the room and are found to sprout in the course of a week. It is possible that this method may prove to be of practical value, particularly, as Mr. Denny points out, in those parts of the world where an autumn Potato crop is taken, as in Bermuda, Cuba, Florida, Mexico, etc. These chemicals are effective also when used on woody shrubs, such as Deutzia and the like. The cost of the chemicals is small, and it would seem probable, therefore, that the ingenious horticulturist will be able to turn the knowledge of their remarkable powers to profitable account.

Our Coloured Supplement Plate.—A miniature Paeony-flowered Dahlia that arrested our attention two years ago and has pleased us since, is the variety Irma, represented in the Coloured Supplement Plate presented with this issue. This variety was raised by Messrs. Burrell and Co., of Cambridge, and its graceful flowers—delightful for home decoration—are rose-pink, flushed with red. An illustration of the variety in half-tone was given in *The Gardeners' Chronicle* of October 2, 1926.

South Australian Fruits.—The suitability of the soil and climate of South Australia enables a wide range of choice fruits to be produced, and some interesting figures on the returns from orchards and vineyards have recently been made available by the Government statist. The last Apple crop yielded 1,352,264 bushels, and this constituted a record. There were also record crops of Pears and Plums and Prunes, 213,688 bushels and 183,605 bushels, respectively. Apricots returned 189,004 bushels; Peaches and Nectarines, 195,485 bushels; Oranges, 377,433 bushels; and Cherries, 48,792 bushels. The total value of the fruit crops was £842,475, as against an average for the preceding five years of £713,363. 84,422 tons of Grapes were harvested; of this quantity the greater proportion was utilised for the production of wine, 12,796,796 gallons being manufactured. The total value of the vineyard crops amounted to £1,859,873, which compared favourably with the average for the previous five years of £1,690,447.

Brussels Chrysanthemum Show.—Our friend, M. Louis Gentil, editor of *La Tribune Horticole*, and Foreign Secretary of the Belgian Chrysanthemum Society, writes us as follows:—Please kindly inform the British growers of Chrysanthemums (amateurs and professionals) that last week there was held in Brussels the first exhibition exclusively reserved to Chrysanthemums. A similar show will be held each year. The first "salon" was a great success. It was held in one of the finest exhibition halls in Brussels, the Hall of Sculptures of the new Palais des Beaux-Arts, situated in the heart of the city; 23,723 visitors were admitted during the three days of the show. I addressed an appeal to the British growers to come and exhibit at this show, but unfortunately, my appeal did not prove successful; in fact, no one came from England. Mind you, I have not the slightest resentment, but hope to see the British growers in large numbers in October, 1929. There is a trophy to be gained: the magnificent Warland Challenge Cup, value £60. The question is for the Britishers to come and conquer it at the "nose and beard" of the little Belgians—as the Frenchmen say. I therefore address to-day an appeal to the British growers asking them to come and fight my countrymen for this trophy. I have made a similar appeal to the French growers through the *Revue Horticole* and the *Horticulture Francaise*; also to the Dutch have I appealed, through M. De Lange, Chairman of the Dutch Chrysanthemum Club. May I expect a response to this appeal, and will the British growers be present in 1929? I do not suppose that it is necessary to add that my English friends will receive in Brussels a hearty reception, good hospitality, and a cordial hand-shake from an old Kewite. To win the Warland Cup only sixty flowers are necessary: twelve varieties and five flowers of each!

Forfarshire v. Angus.—In May last, the Forfarshire County Council passed a resolution that the county should resume its historical name of Angus, and it would appear that the change in the name has the approval of the majority of the inhabitants of the county. The use of the name Angus by the Admiralty is the first official recognition of the title outside the county. Scotland would appear to have a penchant for altering the names of its counties, for we recall that Morayshire was previously known as Elginshire; West Lothian was Linlithgowshire, and East Lothian was Haddingtonshire.

Colonial Appointments from Kew.—The following appointments, as announced in the Kew *Bulletin of Miscellaneous Information*, No. 9, 1928, have been made by the Secretary of State for the Colonies:—Mr. O. J. Voelcker, B.A., Mr. G. N. K. Turnbull, Mr. J. H. Palmer, B.A., and Mr. E. W. Leach, B.Sc., Superintendents, Agricultural Department, Nigeria; Mr. G. Cowan, Superintendent, Agricultural Department, Gold Coast; Mr. H. P. Smart, B.Sc., Agricultural Officer, British Honduras; Mr. E. E. Martyn, B.A., Botanist and Mycologist, British Guiana; Mr. C. W. J. Line, Deputy Director of Agriculture, Gambia, to be Assistant Superintendent, Agricultural Department, Gold Coast.

Setaria verticillata as a Preventive of Rats.—The following interesting note, published in the Kew *Bulletin of Miscellaneous Information*, No. 9, 1928, on the method adopted by the Wasakuma tribe of Shinyanga District to protect their Corn stores from rats, was communicated to Kew by the Director of Agriculture, Tanganyika Territory, who received it from the District Agricultural Officer, Shinyanga. "The native food-stuffs, such as Millet and Maize are stored in large lindos or circular grain stores made from mtama stalks or long grass, plastered with cow-dung, and built either inside the houses or under a separate roof. The lindos are raised two to three feet from the ground on stones, and vary in size according to the wealth in grain of the owner. Over the top of the grain in the open mouths of the lindos, the Wasakuma place the dried spikes of a grass called by them *Makalamatta*, or in Swahili, *Marramatta*. The bristly spikes wrap themselves around the fur of the rats, and make themselves so unpleasant to the rats that they do not attempt to get at the grain below." Specimens of this grass accompanying the above note have been determined as Setaria verticillata, P. Beauv. It is the reversedly barbed bristles which become rigid at maturity that serve to fix the spikes to the fur of the rats.

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* For details of experiments, see Denny and Stanton, *Amer. Journ. Bot.*, 1928; 15, p. 337.

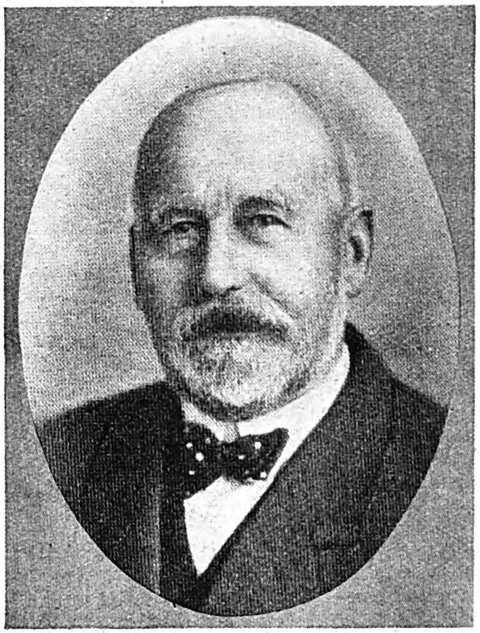
Land Reclamation at Dartmouth.—We learn that the tender submitted by Messrs. J. Moore and Sons, of Nailsea, Somerset, for the construction of an extension of the present embankment to cross Combe Mud, has been accepted by the Dartmouth Town Council, and work will be commenced at once. The portion that will be reclaimed by the construction of the river wall is to be converted into a pleasure ground. The tender for the new wall, together with an accompanying road, amounts to £27,094, but it is hoped to reduce this amount by the initiation of a dredging scheme in the harbour, the cost of which it is hoped the Harbour Commissioners will share, the mud obtained from the dredging operations to be utilised for filling both the road and the reclaimed land. By this method the item in the contract of £2,616 for filling material for the road will be annulled, and as the harbour dredging operations will be done at a cost of £1,500, of which it is hoped the Harbour Commissioners will pay half, a considerable saving will be effected. The proposed operations, and the subsequent laying out of the pleasure ground, should add considerably to the amenities of Dartmouth, while the new road will greatly improve communication between Torquay and Plymouth, *via* the Floating Bridge Ferry across the River Dart. Previously, Coombe Mud has been a yacht-building centre, but this industry will not, apparently, be seriously affected, as although some large yards will have their water access cut off, suitable alternative accommodation has been found in the vicinity.

Dublin Gardens Guild.—The annual distribution of prizes awarded by the Dublin Gardens and Window Box Guild, took place at the Mansion House on October 24. Mr. J. J. Murphy, Chairman of the Electricity Board, occupied the chair, and there was a very large attendance, including City Commissioner, Dr. O'Dwyer and Sir William Thompson. The prizes, and the Rowan Challenge Cup, were presented by Mrs. O'Dwyer. It is interesting to note that this function marks the advent of a progressive scheme of horticultural activity in and about the city. Within the past few years, Dublin gardens have developed greatly, particularly those in the new Corporation housing areas and ex-Service-men's colonies. The City Commissioners foster this work, doubtless bearing in mind that the influence of a well-kept garden reflects through the home, thereby raising the physical and moral status of its members, which in turn directly benefits the City and State. The Rowan Challenge Cup, given by Mr. M. P. Rowan, a prominent citizen and member of the horticultural trade, is awarded annually for the best garden in the area with the largest percentage of well-kept gardens.

Henry Eckford Memorial Medal.—On the occasion of the annual meeting of the National Sweet Pea Society, Mr. C. H. Curtis reported that the amount standing to the credit of the Henry Eckford Memorial Fund on October 27, 1928, was £132 14s. 5d. These excellent figures include accrued interest, and two donations in 1928, amounting to £2 2s. 0d.; one from an anonymous donor, and one from Mr. G. H. Tolman, of Northwood, Middlesex, to both of whom the Trustees offer sincere thanks. The Trustees have been on the look-out for an investment that would bring in a clear £5 per annum. They considered, however, that for the benefit of the Fund, and also of succeeding Trustees, that such an investment should be a long-dated one, and also one that would appreciate instead of depreciating at the time of its redemption. To secure an investment answering to these conditions was not an easy matter, particularly as only Trustee Stocks are available for a fund of this kind. However, consultations with the bankers have at last opened up a way and arrangements are being made for an investment that will meet all four of the requisite conditions laid down by the Trustees. Accounts to date have been paid by the Trustees themselves, so that the Fund should not lose deposit interest until after the investment. The sum due to the Trustees is for the Medals for 1926 and 1927, and postage, a total of £10; when this amount is withdrawn there will remain an ample sum for investment, together with a very wide margin for the purchase of the Medal for 1928, which the Trustees have unanimously awarded to Mr. E. W. King, of Coggeshall. The present Trustees of the Henry Eckford Memorial Fund are Mr. J. M. Bridgeford, Mr. Charles H. Curtis and Mr. Hugh Dickson.

East Anglian Institute Lecture.—On Monday, November 5, at 7 p.m., a lecture will be given by Mr. T. Wallace, M.Sc., of the Horticultural Research Station, Long Ashton, at the East Anglian Institute of Agriculture, Chelmsford. H. Grainger, Esq., will occupy the chair, and the subject of Mr. Wallace's lecture will be "Manurial Problems of the Fruit Grower." All interested in this subject are invited to attend.

Mr. Edwin Beckett, V.M.H.—Many years have passed since we gave our readers a portrait of Mr. Edwin Beckett, one of the most famous of British gardeners. We give his portrait again because he has passed recently through a very severe illness that caused his friends considerable anxiety. We are glad to state that he has recovered, and although advancing years cannot be denied, he is busy again in the beautiful and interesting garden at Aldenham, a garden to which he has successfully devoted forty-three years of his life. The Aldenham exhibit of vegetables at the recent exhibition at Westminster showed that Mr. Beckett's skill and interest are not abated, and afforded ample evidence that he practises at Aldenham what he preaches in his admirable book on *Vegetables for Home and Exhibition*. A full account of Mr. E. Beckett's career appeared in our issue for September 10, 1921.



MR. EDWIN BECKETT, V.M.H.

Kew Guild Journal.—So rapid is the passage of time that it is difficult to believe the Kew Guild was instituted so long ago that its *Journal* for 1928 is the thirty-fifth issue. Mr. W. Watson, who was chiefly instrumental in the foundation of the Kew Guild, has passed away, but Sir William Thiselton Dyer, the Director of Kew in 1893, is happily still with us; he was the first President. The publication of the *Journal* for the present year has been delayed considerably owing to the unfortunate illness of Mr. Dunk, the Secretary-Editor, and the sad bereavement he has sustained. Part XXXV consists of about one hundred pages and is an interesting issue. Much of the matter is of direct interest only to past and present Kewites, but articles of much wider interest, by Kewites, include an exciting account of "Botanizing in South-east Spain" and a no less interesting account of "Plant Collecting on the Southern Alps of New Zealand." A plain tale by a Kewite in the Argentine admirably describes the cultivation and uses of Yerba Maté. Mr. Howes gives an account of "Aburi: the Botanic Garden of the Gold Coast," a garden that owes its present importance to the splendid work of many Kewites. Mr. W. Hales deals with what he is pleased to call his "Holiday in the Tropics," a "holiday" made possible by the generosity of the Governors of the Chelsea Physic Garden, while Mr. MacMillan redeems a promise to the Guild in "A few impressions of Persia"—a land in which he has been doing good work for The Anglo-Persian Oil Co. The famous gardens at La Mortola are described briefly and illustrated by Mr. Bruins-Lich, and a few notes are added by Mr. Braggins, the Superintendent of the gardens. "Kewites in India" contains surprising statements to the effect that in 1900 there were thirty Kewites in the Indian Empire, whereas in 1925 there were only twenty-five, many positions being now filled by India-trained men. The pathetic "In Memoriam" pages record the passing of many Kewites, including Mr. James Udale, so long the lecturer in horticulture to the Worcestershire County Council; Mr. John C. Newsham, Principal of the Monmouthshire Agricultural Institution at Usk from 1914 to his death; Mr. John Weathers, one of the cleverest and best-known of Kewites; and Mr. Arthur Garnett, a great writer and intense lover of nature who met an early and tragic end by drowning near Bridgeport. The list of Old Kewites, with their addresses, extends to twenty-one pages, whereas in 1893 a similar list occupied about half that space.

Tulips and Lilies in London Parks.—We understand that two hundred varieties of Tulips, including several rare sorts, are being planted this season in the London parks, and that the bulbs are again being supplied by British growers. The cost will be borne equally by the Empire Marketing Board, as part of their policy of advertising British-grown bulbs, and the Office of Works. It will be remembered that the displays of Tulips in the London parks were extremely fine last spring; adequate proof of the quality of home-grown bulbs. Arrangements are also being made by the Empire Marketing Board to provide a display of British-grown Tulips, on a smaller scale, in the public parks of Edinburgh. The Bermuda Department of Agriculture has, we learn, notified the Office of Works of its intention to repeat the gift of Bermuda Easter Lilies, so we may hope for a repetition of last summer's magnificent display. A large consignment of these bulbs has, apparently, arrived already.

Eriksson Prizes.—At the International Conference for Phytopathology and Economic Entomology held in Holland in 1923, a prize fund was inaugurated at the instance of Professor Eriksson, who contributed a substantial sum to it. Other contributions were made and sums collected, so that the Standing Committee of the Conference is now able to announce the offer of two prizes of the value of 1,000 Swedish crowns (about £55) each. The prizes are to be awarded for the two best memoirs concerning (1) Investigations on Rust (Uredineae) Diseases of Cereals (Wheat, Oats, Barley and Rye); and (2) Investigations on the rôle played by insects or other invertebrates in the transmission or initiation of virus diseases in plants. Competitors may be of any nationality, and memoirs (which may be in English, French or German) must reach the Secretary of the Committee on or before May 30, 1930. The awards will be announced, after adjudication by two boards of specialists of international reputation, during the International Botanical Conference at Cambridge in 1930. Full particulars of the scheme may be had on application to the Secretary, Mr. T. A. Schoevers, Wageningen, Holland.

Tobacco Growing in British Guiana.—In No. 3, Vol. 1 of the *Agricultural Journal* of British Guiana, in which are chronicled the activities of the Department of Agriculture, together with items of general interest to agriculturists in that country, an account is given of the experimental work that has been conducted with a view to determining the possibilities of growing Tobacco commercially in British Guiana. Work in this respect was commenced at the Cecilia Plantation, on the east coast, towards the end of last year, and special precautions were taken against losses of plants in the seedling stage. Seed-beds were constructed on Bamboo trellises raised on posts four feet from the ground to give protection from ants. This proved successful, although the heavy rains at the end of the season caused the loss of a number of seedlings; such losses have to be guarded against by sowing extra quantities of seeds. The plants were put out on well-manured and cultivated ground, six square feet being allowed between each plant. Growth started well but excessive rain in January hindered the development of some of the varieties, while thirty-five per cent. of the seedlings were destroyed by mole crickets. These losses were made good, so far as possible, but later in the season leaf-eating caterpillars did considerable damage, and in view of these set-backs it is surprising that such good results as indicated in the table showing the yields of the various varieties, were obtained. It is stated that further experimental work is necessary before there can be any suggestion of satisfying export requirements.

Chantry Park, Ipswich.—On October 20, Princess Mary, Viscountess Lascelles, on the occasion of her long expected visit to Ipswich, formally opened Chantry Park, the beautiful gift by Sir Arthur Churchman, M.P., to the town. After the opening ceremony, Princess Mary planted an Oak sapling in commemoration of the occasion.

A Flora of Trinidad and Tobago.—For many years the only publication of value for determining the identities of plants indigenous to Trinidad and Tobago has been Grisebach's *Flora of the British West Indian Islands*, but as this was published in 1864, it is long since out-of-date. An attempt is now being made by Mr. R. O. Williams, the present Superintendent of the Royal Botanic Gardens and Assistant Government Botanist, to remedy this lack of a suitable flora, and the first parts of Volumes 1 and 2, respectively, of the *Flora of Trinidad and Tobago*, have recently been issued by the Department of Agriculture for Trinidad and Tobago. This present work has only been made possible after many years of labour by various collectors, which has resulted in the formation of a comprehensive Herbarium, from which data for the present work is garnered. In the early part of last century the foundation of this Herbarium was laid—by Lockhart, Purdie and Crueger, the first three Superintendents of the Botanic Gardens; by local amateurs, notably Fendler and Bradford, and by such botanists as Sieber, De Schach and Lane. The Herbarium owes much to the Royal Botanic Gardens, Kew, to which institution many specimens were sent for identification, and it is through the instrumentality of Dr. Hill, Director of Kew, whose advice and criticism has been much valued, and through whom the assistance of a member of the Kew staff has been obtained to check the manuscripts and decide doubtful points, that the publication of the *Flora* has been successfully commenced. It is proposed to publish the work in parts, as completed, and as stated, two parts have been issued; Part 1 of Volume 1 contains the Ranales, and Part 1 of Volume 2, the Rubiales.

Forestry in the Irish Free State.—Between now and the end of next March, seven million trees are to be planted by the Forestry Department of the Irish Free State, the area to be dealt with being 3,435 acres. This land has been specially acquired for afforestation purposes, and it does not include land which is to be planted by private owners.

Appointments for the Ensuing Week.—SUNDAY, NOVEMBER 4: Wakefield and North of England Tulip Society meets. MONDAY, NOVEMBER 5: Derbyshire Horticultural Association's meeting; Romsey Gardeners' Association meets. TUESDAY, NOVEMBER 6: Croydon Chrysanthemum Society's exhibition; Royal Caledonian Horticultural Society meets; West of England Chrysanthemum Society's exhibition (three days). WEDNESDAY, NOVEMBER 7: Bideford Horticultural Society's exhibition; Faversham Chrysanthemum Association's exhibition (two days); Wimbledon Gardeners' Society meets; Nottingham and Notts Chrysanthemum Society meets; Kingston Chrysanthemum Society's exhibition; Marlow Chrysanthemum Society's exhibition; Guildford Chrysanthemum Society's exhibition (two days); Pangbourne and District Gardeners' Association's lecture. THURSDAY, NOVEMBER 8: Derbyshire Horticultural Association's exhibition (three days); Sheffield Chrysanthemum Society's exhibition (three days); Hitchin Chrysanthemum Society's exhibition; Bridport Chrysanthemum Society's exhibition; Nottingham and Notts. Chrysanthemum Society's exhibition (three days). FRIDAY, NOVEMBER 9: Gloucestershire Root, Fruit and Grain Society's exhibition; Royal Horticultural Society of Ireland meets; Leicester Chrysanthemum Society's exhibition (two days); Chorley Chrysanthemum Society's exhibition (two days). SATURDAY, NOVEMBER 10: Burton-on-Trent and Shobnall Chrysanthemum Society's exhibition; Accrington Chrysanthemum Society's exhibition; Ipswich Gardeners' Association's exhibition; Leeds Paxton Society meets.

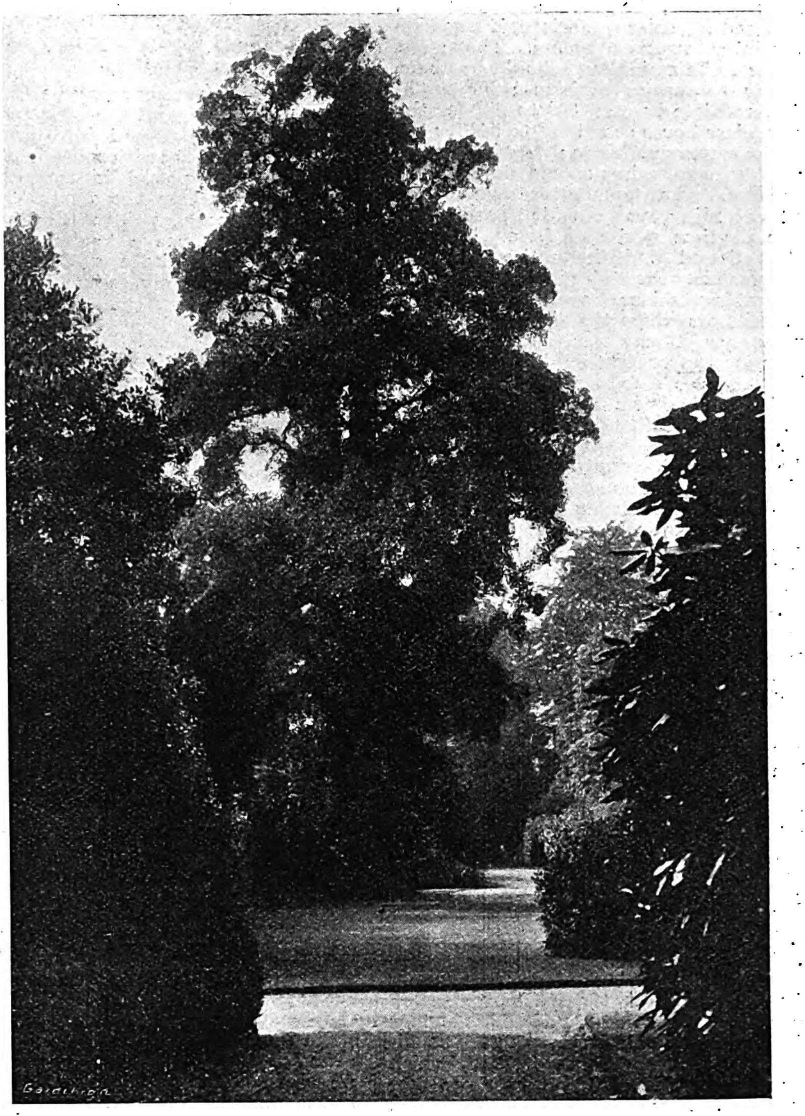


FIG. 158.—THE GIANT TULIP TREE AT HORSHAM PARK.
(see p. 347.)

"Gardeners' Chronicle" Seventy-five Years Ago.—*Testimonial to Mr. W. B. Booth.*—We insert the following particulars, that have been sent us by a correspondent, relative to a testimonial which has recently been presented to Mr. Booth, the evening of whose life, we are happy to say, will now be passed in the ease and comfort which his long services in the cause of horticulture have so richly earned. Mr. Booth's name is not unknown to the public, although it is more particularly associated with the west of England, where he has resided since 1830, and officiated as land-steward and general superintendent for Sir Charles Lemon, Bart., M.P., at Carclew, Cornwall. Having lately resigned that appointment and retired to spend the evening of his life in the neighbourhood of London, a few of his Cornish friends availed themselves of the opportunity to testify their esteem for him by presenting him with a valuable silver salver, of beautiful workmanship, on which is engraved the following inscription:—"Presented by the tenants and workmen of Sir Charles Lemon, Bart., residing in the parish of Mylor, Cornwall, to William Beattie Booth, Esq., on his leaving Carclew, as a small but sincere token of their regard and esteem. August, 1853." Although the tenants and workmen happen to be the only parties named as the donors of the gift, we have reason to know that several influential gentlemen in the neighbourhood honoured Mr. Booth by becoming subscribers, as well as the principal tradesmen with whom he had intercourse. *Gard. Chron., October 29, 1853.*

Publication Received.—*Paeonies*: Edited by James Boyd. J. Horace McFarland Co., Harrisburg, Pa., America.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

Seasonable Notes.—With the approach of shorter days and lessened hours of sunlight, and as many of the warm-house Orchids are in a partial resting condition, it is advisable to reduce the temperature maintained in the different divisions by fire-heat at night, also during cold, sunless days. By reducing the temperature by a few degrees now, the plants should benefit, by being inured to cooler conditions, if a sudden spell of wintry weather occurs. The night temperatures to be maintained should be about 62° to 66° for the warmest divisions; 58° to 62° for the intermediate house; 54° to 58° for the cool intermediate house; and 50° to 54° for the cool or Odontoglossum house; during severe weather a few degrees less should do no harm to the plants. The temperature should be regulated according to outside conditions; during the daytime a rise of from 5° to 10° should be allowed and fluctuations avoided so much as possible. Fresh air should be admitted on all favourable occasions, especially through the bottom ventilators where the air is warmed on entering by contact with the hot-water pipes; when using the top ventilators draughts should be avoided, as also should a stagnant atmosphere, which is detrimental to Orchids at any time. Shading should be dispensed with altogether for this season. Canvas blinds should be dried and put away for the winter. Lath-roller blinds may be used with advantage at nights during severe frosts and also in cold, windy weather, to effect economy of fuel. At this season, Orchids should be exposed to all the available light, and where collections are grown in smoky districts, it may be necessary to wash the outside of the glass frequently throughout the winter, and occasionally to clean the inside of the glass with a damp cloth to remove the dirt which accumulates, even after the annual washing down has been done.

Coelogynes.—Many members of this genus are approaching the end of their season's growth, and when the bulbs are fully matured only sufficient water is needed to keep the plants in a healthy and normal condition. The plants should be examined for insect pests, and if any are detected they should be destroyed by sponging with a weak insecticide; there is less danger of injuring the plants during this operation after the growth is complete. Plants of the beautiful white C. Mooreana are now breaking into new growth, from which the erect flower scapes should soon be appearing; sufficient water should be given to enable the flowers to develop fully, but saturation should be avoided. Similar cultural conditions should be given to the small-growing and elegant species C. ocellata, which generally flowers during the winter or early spring months. Any feeding of the roots of C. cristata should be discontinued as the bulbs mature; the plants should be arranged in a light position at the cool end of the intermediate house and only sufficient water given to keep the bulbs plump and healthy.

THE KITCHEN GARDEN.

By Allan Falconer, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Broccoli.—In some gardens the practice of heeling over the plants to the north is adopted, also the use of Bracken or other protective material in the case of severe frosts, and where winter Broccoli are in demand it is almost impossible to cut good heads unless some protective measure is used. Much may be said for the use of rough frames placed over plants which are likely to turn in during the winter, and the use of some kind of covering during frost; but unless Broccoli are in special demand, it entails a lot of time and labour, and the results are not always worth it. I have come to the conclusion that in this particular district, if plants are grown for spring cutting and the stems are moulded up so soon as large enough during the autumn, while the ground is dry, no further attention is necessary, except the regular removal of decayed leaves during the winter, and very little harm is done by frosts, as they remain high and dry and, not being disturbed, are more likely to produce firm, solid heads in their season, than are plants which have been disturbed.

Cauliflowers.—Any late plants may be lifted with a ball of soil and transferred to frames and should prove useful as the curds develop. Seedlings pricked out into frames should have all the air possible when weather conditions permit, to keep them as sturdy as possible, but they require protection during frosts. In some districts it is a good plan to place the plants in sixty-sized pots and store them in frames or cold houses where they may have light and air and be free from frost.

Chicory.—A few roots may be lifted at a time and, after cutting off the tops just above the crown, may be started into growth, closely packed in deep boxes with some light soil between the roots, and placed in complete darkness in any shed where the temperature may be kept above freezing point; a warm place is not desirable, as it has a tendency to make the leaves woolly. Quite a small number of roots will give a good supply, especially if the leaves are taken off singly instead of cutting the whole head at one time.

Dandelions.—Any time during the winter the roots may be lifted, placed in boxes, and put in a dark shed under the same conditions as for Chicory; while it is not often asked for, some people appreciate Dandelion foliage.

Lettuces.—A sowing of Lettuce seeds made now should provide useful material for pricking out into frames or houses during January and, if kept well up to the light in a cool place, should make strong, sturdy plants for this purpose.

Winter Tomatos.—Where Tomatos have to be supplied all the year round, special attention should be paid to those plants which are now setting fruits. Maintain a temperature of 55° to 65° and admit air whenever practicable, as the atmosphere should be buoyant. The flowers should be fertilised daily, and over-cropping avoided. Any signs of white fly should be stamped out with cyanogas, used at intervals of a fortnight.

PLANTS UNDER GLASS.

By J. Coutts, Assistant Curator, Royal Gardens, Kew.

Cyclamens.—Those raised from seeds sown during August should now be ready or pricking off. The stronger and most forward plants may be placed singly in thumb pots, or they may be pricked off into pans or boxes, in which they may be kept over the winter. At this stage they should have a fairly light compost, using, if possible, some old mortar-rubble in place of sand. During the winter they should be kept well up to the roof-glass, in an average temperature of 55° to 60°. Care should be taken to not over-water them during the winter. The most forward of the flowering stock should now be allowed to develop their flowers, but all should be encouraged by gentle feeding twice a week; diluted liquid manure or soot-water, alternately with some approved artificial fertiliser, may be used for this purpose. Begonia mite often proves troublesome by attacking the flower buds, but these attacks may be prevented by the use of the sulphur vaporiser.

Coleus barbatus.—At the time of writing, this fine winter-flowering Coleus is very attractive in a warm greenhouse, producing its pale blue flowers in wonderful profusion. It is a plant worthy of more general cultivation, for it may be increased easily by means of cuttings which root readily in a warm propagating case, and are best secured during March. During the summer, this plant grows freely in a cool greenhouse, but when in flower it benefits from a slightly higher temperature—about 50° to 55°—with a fairly dry atmosphere, as the flowers are apt to suffer from damp. It grows freely in any good potting compost, and good flowering specimens may be produced in six-inch pots. During the growing season the plants should be stopped several times to induce them to become compact and bushy.

Tibouchina semidecandra.—This subject is also useful for flowering at this season, its large, violet-purple flowers being produced over a long period; planted out in a bed or border it is a strong-growing plant, excellent for covering a large back wall—an ideal position for it. If grown in pots for furnishing the stages, excellent examples may be produced in six-inch pots For this purpose, cuttings should be inserted early in the year; they root readily in a close case with slight bottom-heat, and grow freely in a good medium loam, with enough sand added to keep it open and porous. Firm potting is essential. They should, during the summer months, be grown in an ordinary greenhouse, fully exposed to all possible sunlight, or they may with advantage be placed out-of-doors. As this plant makes long-jointed shoots, it is important that these be stopped at every pair of leaves to ensure compact, well-furnished plants. The last stopping should take place about six weeks before the plants are required to flower. The compact-growing variety floribunda, which was better suited to pot cultivation, appears, unfertunately, to be lost to cultivation.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Peaches and Nectarines.—Where Peach and Nectarine trees have not yet been planted in permanent borders, the work should be pushed forward without further delay, for even at this date it is surprising how many young roots will be formed in the fresh soil, and these greatly assist the trees to start into growth next spring. When removing old, useless trees from existing houses, it may be wise to remove most of the old soil, and on clayey subsoils the whole of the border should be taken out and the drainage attended to before the new border is made. Incorporate plenty of old mortar-rubble and burnt earth, with a good sprinkling of bone-meal, with the compost, which should be in such a condition as to enable it to be made quite firm by treading when planting. It is not wise to plant the trees too deeply, and when performing this operation, keep the layers of roots well apart; trim all the broken roots with a sharp knife. No attempt should be made to train the young shoots until such time as the trees have settled in the newly-made borders, but, to prevent them from being broken, tie the main branches loosely to the trellis wires. Should the new compost be on the dry side, water it thoroughly with clear water.

Winter Tomatos.—Winter-fruiting Tomatos that are being grown in receptacles to maintain the supply, should now be swelling their first and second trusses of fruits; when the fourth truss on each plant is passing out of flower, pinch out the leading growth. Four trusses of fruits form a sufficient crop for the plants to mature. The plants may receive frequent dressings of sweet soil to encourage the formation of surface roots; this method of feeding is to be preferred to using stimulating manures at this season of the year.

Strawberries.—Plants in pots that have been prepared for early forcing have made very fine crowns, this season having been in favour of the ripening of growth. So soon as unfavourable weather sets in, it may be wise to remove them to cold frames where they may be protected from heavy rains, but not subjected to warmth. The lights should be removed on all favourable occasions and only replaced when frost and rains are expected. The receptacles should be plunged in ashes or some other material, well up to their rims, to prevent breakages during frosty weather. Where cold frames are not available, another method of storing is to arrange the pots in layers of ashes or leaves in a sheltered position, for preference near a brick building, where the plants may be laid on their sides in tiers, and the material mentioned packed firmly between each layer. Further protection should be given with rough hay or straw during severe weather, but this should be removed when the weather permits. Plants that are required for an early batch, to be placed inside next month, need not be stored.

HARDY FRUIT GARDEN.

By T. E. TOMALIN, Gardener to the EARL OF BESSBOROUGH, Stansted Park, Emsworth, Sussex.

Fruit Stores.—Some care is necessary now in order to maintain an equable and rather low temperature in the fruit room, and although some ventilation is necessary for the first week or two after the bulk of the Apples are stored, all direct draughts should be avoided. As a general rule it is not advisable to move the fruits any more than is absolutely necessary; nevertheless, it may be expedient this season to examine them at least once, because so many fruits were punctured by wasps. This damage would not be visible when storing, but the injured fruits will by now have commenced to decay and should be removed immediately.

Apples: Points for Planters.—The scale on which planting is to be done often determines which is the most suitable type of tree to employ. For kitchen gardens, the most suitable types are the bush-trained for occasional trees where space allows, and the espalier and cordon for furnishing fences to separate the different quarters, or to form a background to narrow borders or low-growing flowers or herbs. Of these three types, the bush tree undoubtedly gives the quickest return for the smallest outlay. For the small orchard, which is a necessary feature of a country estate, the best form to grow, perhaps, is the bush, or goblet-shaped tree, on a clear stem of two feet. This affords the necessary ground clearance for clean cultivation and for grease-banding, and, moreover, they are easier to stake, prune and spray, than the half-standard trees, besides giving easier access to the fruits when the cropping stage is reached. For larger areas, and for orchards which are eventually to be grassed down and, perhaps, grazed by sheep, the half- or full-standards are more suitable. These should be on deep-rooting stocks and in exposed positions are best planted as maidens, so that roothold and top-growth keep pace with each other. This largely solves the staking problem, although of course a stake is still necessary for each tree for some years. With regard to stocks, it should be remembered that the leading nurserymen now make a special study of these, and they employ the most suitable stock for each type of tree, and for the different varieties. It is therefore a "penny wise" policy not to take advantage of their experience in this respect.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to the DUKE OF DEVONSHIRE, Chatsworth, Bakewell, Derbyshire.

Naturalising Bulbs.—The planting of bulbs in grass in semi-wild gardens, by woodland walks, and in open spaces in the woodlands, as well as in orchards and similar places, is much practised at the present time and by no other system of planting may such charming effects be obtained. Among the most suitable bulbs for this purpose the various sections of Daffodils take first place, but many others, notably Snowdrops, Scillas, Muscari and the lovely Chionodoxa, may be planted in suitable places without hesitation. The main supply of bulbs being now at hand, no time should be lost in planting Daffodils and, in fact, all spring-flowering bulbs, whenever weather conditions are suitable. So soon as planted in the moist ground, bulbs at once begin to plump up, and quickly start root action, whereas, if left out of the ground until late in the season, the bulbs deteriorate, and the resulting flower spikes are small and unsatisfactory. The character of the surroundings should determine the style of planting, but errors to be avoided are planting in straight lines, formal clumps, or at regular intervals, the latter, especially, producing an unpleasant and spotty effect when the bulbs are in bloom. If space permits, Daffodils should be thrown carelessly along the ground in drifts or waves and planted where they fall. The best effects are obtained when a mass or drift of one variety, or at least one section, is kept distinct, instead of an indiscriminate mixture, and changes may be introduced by planting the various sections in separate positions. Many of the most suitable varieties of Daffodils for naturalising may be bought for a very moderate sum, and by using these liberally a fine show is obtained in the first season; and where bulbs thrive, these should increase both in vigour and in numbers for some years without further disturbance or trouble. Princeps, Golden Spur, Sir Watkin, Grandis, Victoria, Emperor and Empress, and Horsfieldii, with Barri conspicuus, Horace, Mrs. Langtry and others of that type, so well as varieties of the Poeticus section, are among the popular varieties suitable for this purpose, but there is nothing whatever to hinder the intending planter trying some of the newer and consequently higher priced varieties, except the cost, when planting on a large scale is contemplated. Hyacinths and Tulips are not so adaptable for this style of cultivation, and are not recommended for planting in grass on a large scale, but Snowdrops should be planted in quantities, so well as the other bulbs mentioned above. When planting Snowdrops, do not plant them too thinly, and also plant them near the paths and around the bases of clumps of shrubs or trees.

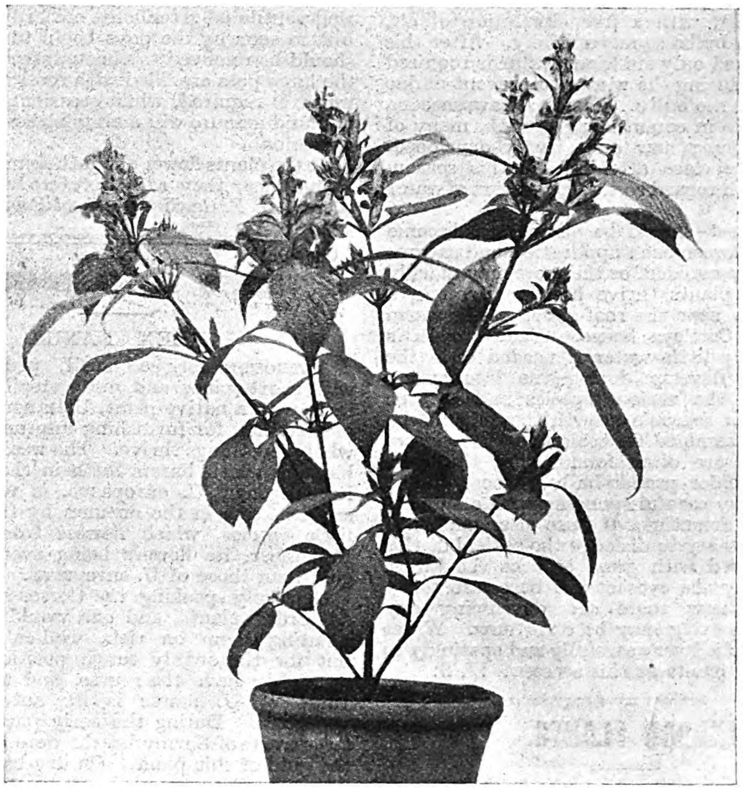


FIG. 159.—DAEDALACANTHUS NERVOSUS.
(see p. 346.)

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener at Jordanhill Training Centre, Glasgow.

Late Potatos.—Whenever the foliage of the later varieties of Potatos has been damaged by frost, they may be lifted and stored for the winter, and if seed-sets are to be kept, the same precautions should be taken as advised for the earlier varieties. A close watch should also be kept for damage caused by the Potato disease, which in its early stages leaves a well-known brownish-purple discoloration on the skin of the tubers, and although to the inexperienced eye these may appear quite sound, the germ of the fungus is there, and if large numbers of diseased tubers are stored among good ware, the results may be disastrous. All visibly infected tubers should be put on one side, and may be cooked and used at an early date as food for pigs or poultry.

Early-flowering Chrysanthemums.—As most of the varieties which may be termed "early-flowering" are now practically over for another season, sufficient roots should be lifted of each variety to ensure a supply of cuttings for next year. Some varieties (all the Masse family, for instance) usually produce large numbers of young growths from each root, so that there is little fear of not being able to raise them in quantity, and these prolific kinds may be accommodated in cold frames for the winter; but among the more recent introductions there is a marked tendency with most varieties to be very sparing with their offsets, and a little more care is advisable in wintering them. Varieties that are known to be either late in producing suitable cuttings, or produce them sparingly, should, in the first instance, not be cut down so closely as the more prolific varieties, and by boxing or potting them up in a somewhat better compost, and keeping them in a cool house from which frost may be excluded during the winter, should, in most cases, amply repay these little attentions by growing away freely after the turn of the year. Care should be taken also to label each variety distinctly, as if this is not done at lifting time, when, naturally, any rogues are discarded, it may lead to endless confusion later.

Dahlias.—These popular bedding plants, especially the dwarf varieties, are now grown in such large numbers that the storing of sufficient tubers must, in some cases, take up considerable space, but as any dark, frost-proof shed or cellar is suitable for their winter quarters, they are easily disposed of. Ordinary seed Potato boxes with up-standing handles form admirable receptacles for storing the tubers in, as they may be stacked one above the other to any convenient height, with plenty of air space between them, and are easily examined from time to time. The tubers of certain varieties are not so well plumped up this season and may, as a consequence, not keep too well, and where this is the case some sand and sifted leaf-soil should be placed among them to prevent shrivelling.

ORCHID NOTES AND GLEANINGS.

DENDROBIUM THYRSIFLORUM VAR. GALLICIANUM.

The illustration given on p. 347 represents an Orchid exhibited before the Orchid Committee of the Royal Horticultural Society on June 19, 1928, and which then received a First Class Certificate, subject to it being named. At the next meeting of the Society it was announced that the correct name of this Orchid, which was shown by Mrs. Carl Holmes (gr. Mr. W. G. Penton), The Node, Welwyn, Herts., is the one given above.

D. t. var. Gallicianum is an extremely beautiful Orchid, and when well-grown produces dense, drooping spikes nine inches to a foot in length. Each flower is about one-and-a-half inch across, of a creamy-white colour, the fringed lip being golden-yellow.

SPRING-FLOWERING CATTLEYAS.

Plants of the many beautiful spring-flowering Cattleya species and hybrids, such as C. Mendelii, C. Trianae and B.-C. Cliftonii are ripening their growths, and require all the available light, with a free circulation of air, to enable the bulbs to mature fully. After this is accomplished only sufficient water is required at the roots during the winter to prevent undue shrivelling of the bulbs. Cattleya Lawrenceana is usually late in commencing growth, many of the shoots being now only partly developed. These require close attention at this season, especially with regard to the application of water at the roots.

The compost should be allowed to become fairly dry between each application and saturation should be avoided, or the roots may quickly decay. The plants thrive best if grown in a light position near the roof-glass, at the warm end of the Cattleya house. When growth is complete very little water is needed until the flower buds develop during the late spring months. As the various species and hybrids complete their season's growth they should be thoroughly examined for scale and other insect pests, which are often found under the loose skin of the older pseudo-bulbs. These should be removed by careful sponging with a suitable insecticide. Sometimes the use of a small, stiff brush is necessary to dislodge the scale, but this should be used with great care as the bulbs, and especially the eyes at the base, are easily injured. If new roots are developing any necessary repotting may be done now. Water should be applied very carefully and sparingly to newly-potted plants at this season. *W. G.*

INDOOR PLANTS.

DAEDALACANTHUS NERVOSUS.

The generic name of this plant is well chosen, as it is derived from Greek words which mean an Acanthad of curious structure, referring to the striking appearance of its inflorescences. Although this is now the official name for this plant, it is more commonly known as Eranthemum pulchellum, while some botanists refer to it as E. nervosum, and it has also been named E. bicolor and E. purpurascens.

Daedalacanthus nervosus is a shrub that will attain large dimensions if it is grown on year after year, but generally it is found to be more useful when propagated annually and cultivated in six- or seven-inch pots, by which method serviceable plants are obtained, which are useful for grouping in the conservatory. As it is a native of southern Florida, it requires to be grown in the genial atmosphere of a warm greenhouse, where its attractive blossoms form a welcome addition during the winter. Plants grown in small pots by this method attain a height of about two feet, and consist of about eight shoots, clothed with dark green, opposite leaves which are about the size of those of the Sweet Bay tree, but the edges are crenate, and the veins or nerves are very prominent on the undersides, from which characteristic it derives its specific name of nervosum. Each shoot is terminated by a spike consisting of numerous, tubular, blue flowers, each about two inches across at the mouth and tapering to a very fine tube at the base, the latter being hidden behind large bracts, which are rendered conspicuous by their green and white netted appearance.

A curious feature about this plant is that it develops large, whitish excrescences on the leaves; these are due to a fungus, and as the trouble may develop rapidly in a damp atmosphere, it is advisable to refrain from syringing the leaves and to dip the plant in a weak solution of permanganate of potash so soon as the fungus makes its appearance.

To obtain small, bushy specimens (Fig. 159), it is advisable to insert cuttings in February or March. No difficulty is experienced in rooting them if they are inserted in a bottom-heated propagator, filled with Coconut-fibre refuse. When well-rooted, pot them on in gradual stages until they occupy seven-inch pots, using a compost of equal parts of loam, peat and leaf-mould. To ensure a bushy formation, it is necessary to stop the shoots at three successive periods, and this operation should be performed immediately after they have recovered from each repotting. During the summer months they may be accommodated in a sunny, well-ventilated greenhouse or hardy plant frame, but so soon as the days begin to shorten they should be removed to a heated structure. When the large pots are filled with roots, abundance of water is required, while occasional applications of liquid manure will maintain them in a healthy condition.

As the plants flower about the same time as the Poinsettias, they are useful to associate with them. *G. F. Gardiner, Bristol Botanic Gardens.*

TREES AND SHRUBS.

ULEX NANUS.

Although only a small, prostrate shrub with short spines and quite small flowers and, moreover, a native plant, Ulex nanus is worthy of attention for furnishing unpromising ground where few things thrive. The wealth of glorious blossom which bursts forth in the spring from its congener, U. europaeus, is repeated on a smaller scale in the autumn by this attractive little species, which flowers from August to November, its flowers being even of a richer gold than those of U. europaeus.

Generally speaking, the Gorses are not happy as garden plants, and one would not think of planting them on rich, well-cultivated soils, but for thoroughly rough positions and poor soils they have their uses, and the particular value of U. nanus is its autumn-flowering character. During the early part of October, large tracts of Surrey heaths were gorgeous with the gold of this plant. On dry banks, in wind-swept positions, and in the poorest of soils, where ordinary vegetation could scarcely exist, this accommodating plant, assisted in nutrition by the nitrogen-fixing bacteria peculiar to its Order, makes an excellent cover, and is particularly effective in the autumn when draped with masses of its golden flowers. *W. A.*

RHUS TRICHOCARPA.

Most of the Rhus family assume more or less rich autumn colours in the foliage, and each successive year the above subject is the first to show it, even to a marked degree.

R. trichocarpa is a native of Japan, Corea and China. Wilson came across it in western China, and states that "it is the western limit of its distribution, found as a short bush up to twenty-five feet; leaves reddish when young and assumes brilliant tints in the autumn." Therefore it does not falsify itself under cultivation at Kew, where, apparently, it will make a slow-growing, small tree; shoots from a few inches to a foot are made during the season's growth.

Plants from seeds sown in 1917 vary in height up to five feet; they have a diffuse habit owing principally to the terminal bud being frozen or damaged during the winter, or at any rate, the leading bud does not take the lead, and two or three shoots branch out at different angles just below it. Other Rhus species have this habit. Except for this and a tendency to have its early foliage damaged by late spring frosts, it is quite hardy. The shoots are grey, smooth, stiff, and of moderate thickness, and the pinnate leaves are up to twelve inches long, with thickened leaf-bases which leave rather large scars after falling. The leaflets are generally seven in number, each on a short stalk, and average two inches in length and one-and-a-half inch wide, with the upper half remotely toothed; they are ovate-oblong, acute in shape and downy.

Whether planted in gravelly, sandy soil, or in soil of a rich mixture, R. trichocalyx grows freely, and no matter what the season is like in respect to weather, the rich autumn colours are produced regularly.

Propagation of the plant is easy if Japanese seeds may be obtained and sown. The seed has a white, waxy coating, and germination power is good. Probably seeds have been matured on the continent, where a longer growing season is experienced. Cuttings inserted soon after completion of growth should be tried. As some Rhus species produce root suckers, root cuttings come to mind.

For its autumn foliage, this shrub deserves every recommendation and praise, and having been grown in this country for many years, it should by now be more often seen in gardens.

As a word of warning, the sap from Rhus is of a poisonous nature when handled by some people, but I believe this one is less dangerous than others. *C. F. C.*

ABELIA FLORIBUNDA.

This handsome species has been accorded rather wider attention of late years, and it is to be hoped that a more extended trial will prove it hardier than it is generally believed to be. As a wall shrub, at any rate, it has done well in various parts of the country other than the mildest localities. A. floribunda deserves the fullest trial because it is the most beautiful of all the hardy and half-hardy species. It attains a height of four feet or five feet (more when against a wall), and makes an open-habited shrub, the rather slender branches arching over with an easy grace. The evergreen leaves are roundly ovate, very glossy and bright green and the young wood is flushed with crimson. The flowers, which appear from midsummer onwards, are exceedingly showy, being about two inches long and narrow, with a widespread mouth of five rounded lobes. In colour they are a deep rosy-crimson, with a white throat, and they hang in small clusters from short lateral twigs along the entire length of the branches.

A. floribunda is a native of Mexico, where it grows at lofty altitudes. It was introduced in 1841. A loamy soil that is rather on the light side, with ample drainage and full sun, seems to suit this shrub. It is easily propagated by cuttings. *A. T. J.*

FLOWER GARDEN.

CALAMINTHA GRANDIFLORA.

Since this old herb was the other day found to be one of the few plants which had endured with equanimity an unusually dry summer in a particularly arid and sun-parched soil just above a dry retaining wall, its value as a plant for such spots seemed to be emphasised. But C. grandiflora is something more than a mere drought resister. None who delights in fragrant, old-time herbs is likely to overlook its merits from that point of view, but it may also claim to be a flowering plant worthy of consideration. Although they are semi-prostrate, its growths are about a foot long with Sage-like leaves and erect extremities which bear clusters of blossoms almost throughout the summer. The flowers are large enough to be showy, and are of a clear rose-pink. The most meagre of soils and full sun is all this pretty southerner asks. It is quite hardy and slowly makes a good-sized clump, which admits of easy propagation by division.

C. grandiflora is, I find, a more satisfactory garden plant than C. alpina, which has white-lipped, violet blossoms. This is more of a trailer, seldom rising more than about six inches, and it seems more susceptible to the rigours of our winters than the taller plant. *J.*

LIRIODENDRON TULIPIFERA AT HORSHAM PARK.

SOARING rates are always something of a nightmare, and the lavishness with which a local authority may present to the ratepayers, at their own expense, luxuries that they could and would comfortably do without, is often cause for serious anxiety. The purchase of Horsham Park by the local Urban Council will, however, never be viewed as an unnecessary extravagance by those who value beauty and antiquity in our old country towns. Any one arriving at Horsham by the Crawley road, must have noted with pleasure the fine old seventeenth century house, screened by beautiful trees and shrubs and guarded by a low, picturesque, old, stone wall, that lies on the right hand on the way from the railway station to the quaint Carfax in the centre of the town.

But with the rapid increase in the building of shops and mediocre villas, from which this old market town was no more free than other less interesting places, one was always haunted by the fear that this "valuable site"—so near to the centre of the town—might not for long be able to avoid the attention of the speculative builder; and that sooner or later this, one of the most beautiful and interesting features of Horsham, would be lost for ever.

To the honour of the Urban Council, this beauty spot has at least been saved from such a fate, and I, for one, will cheerfully pay my share of the rate necessary to cover the cost. The old mansion, with as little modification as possible, will be preserved for use as a local museum and for the Council Offices.

The old garden has become a fine public park. It has beautiful lawns and there is space at the back for more extended playing fields. There are long, shaded walks, for the garden is well-wooded with many fine old shrubs and trees. But of these latter, the queen of all is the Tulip Tree. I have not been able to ascertain when or by whom this tree was planted; but from an old book on Horsham, I find that the front garden (*i.e.*, where this tree is growing) was added by John Wicker, Esq., about the year 1720. From the road outside the grounds, this noble tree may be seen towering above its fellows. But to get a clear view of its magnificent entirety one must go up the drive inside the grounds, to a point about seventy-five yards to the north of the tree. It was from this point that I took the accompanying photograph (Fig. 158). This was not easy to get, owing to the great height of the tree, and to the fact that I was looking towards the sun. I had to use the rising front to its full extent and a small stop to get the top of the tree in focus; this necessitated a long exposure, with consequently some movement of the branches.

This noble tree grows on the lawn, seventeen yards from the east front of the house. Its roots raise the level of the lawn in a circle about thirty-eight feet in circumference. At eighteen inches above the lawn the bole has a circumference of twenty-three feet seven inches, and at three feet, one of eighteen feet two inches. From this last point up to fifteen feet from the lawn level, it rises in a fairly uniform column and then begins to throw out its great limbs. The total height of the tree from the lawn-level to the topmost spray is one-hundred-and-three feet. This is not guess-work, for Mr. Atkinson, the District Surveyor, kindly worked out the exact height for me with his theodolite.

The balance of the tree has been slightly marred by the removal, at some earlier date, of one of the limbs which, about thirty feet from the ground, was evidently reaching out towards the house. In other directions some of the limbs extend to thirty-eight or forty feet beyond the base of the bole. The tree appears to be healthy and sound. Only a few dead twigs are to be seen, and no dead branches of any size. At the present moment (October 18) it is giving a gorgeous golden display of autumn tints.

Horsham claims that this is the largest Tulip Tree in England. Can any other place produce a greater? *A. H. Williams.*

WILD ROSES.

ALTHOUGH somewhat overshadowed by the present day races of hybrid garden Roses, the species of Rosa—the wild Roses of many lands,—are deserving of more attention in our pleasure grounds and shrubbery borders. If we desire to make a comparison of their merits it should be with hardy shrubs. In this connection many of the species merit consideration for the beauty of their foliage, flowers and fruits. In addition, a number perfume the air with their delicious fragrance. The delicate colouring of the blossoms of many wild Roses has a distinctive charm, although it may be of short duration, but there is a further attractive period in autumn when many Rose species have distinctly ornamental fruits.

The wild Roses vary very considerably in stature from one foot, or less, in the case of Rosa indica var. minima (syn. pumila), to large bushes, and tall, rambling climbers like Rosa moschata—thirty or forty feet high.

In addition to their value for open shrubbery borders, and lawn beds, a few of the species, like R. Hugonis and R. omeiensis, make attractive specimen lawn shrubs. Quite a number of these Rose species are very effective for mass grouping in the wild garden and open

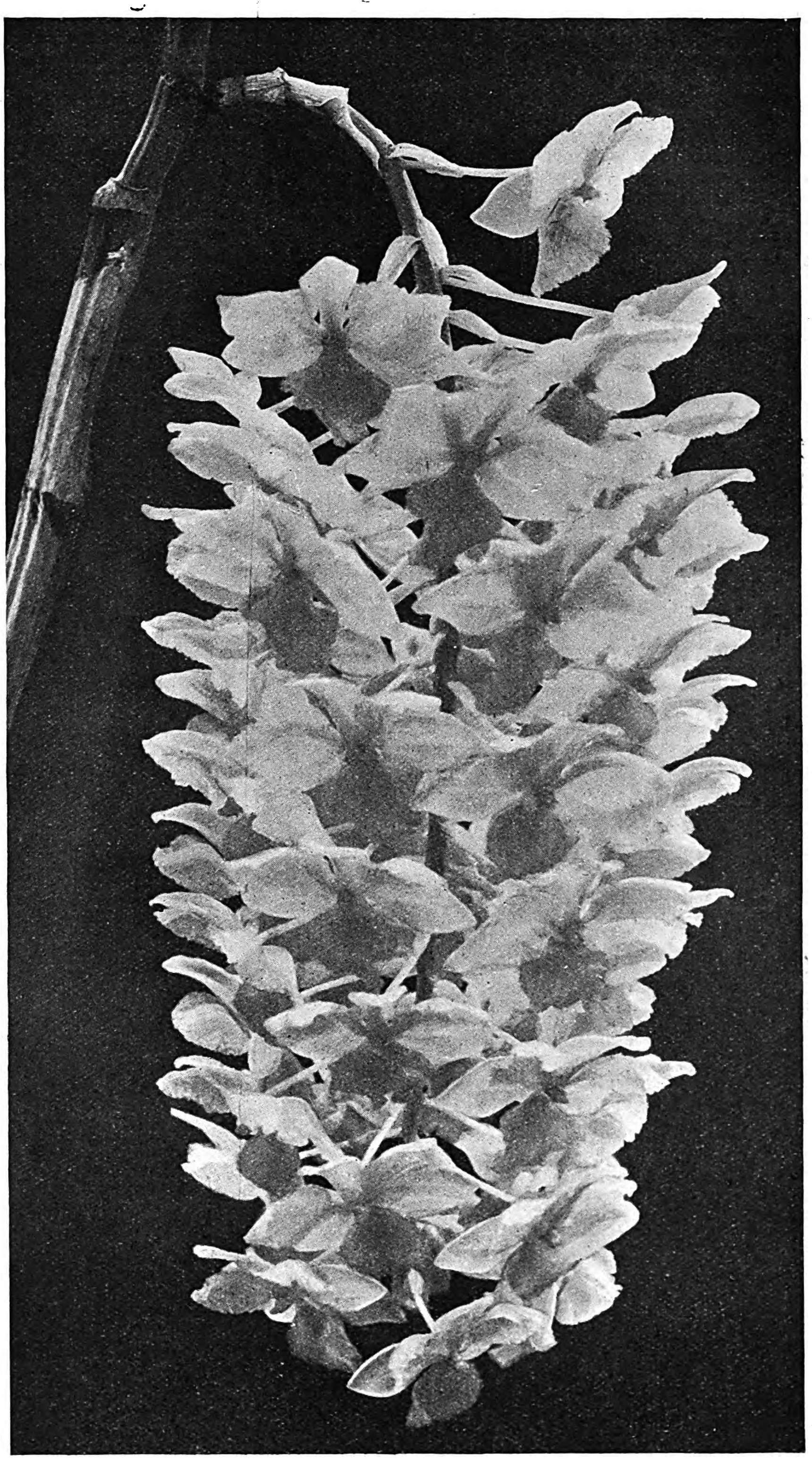


FIG. 160.—DENDROBIUM THYRSIFLORUM VAR. GALLICIANUM.
(see p. 346.)

woodland. Hedges of Roses as boundary fences, dividing lines between different parts of the garden, and to enclose special gardens, are much more interesting than Privet, Laurel, Quick and similar subjects, usually planted.

One particularly appropriate and attractive use for the wild Roses is as a surround for the Rose garden proper. What could be more interesting as a setting for beds of garden Roses than borders of the Rose species, the whole enclosed with a hedge of the Sweet Briar, Rosa rubiginosa.

The Rose species thrive in open, sunny positions in moist soils, which should be deeply trenched and manured previous to planting. Add top-spit loam when the natural soil is poor, adding also, near the surface, leaf-mould, wood-ash or soot. Incorporate, in addition, plenty of old brick rubble and mortar from a builder's yard when trenching wet, clay soils, raising the soil rather above the surrounding ground. Planting may take place from early November until March, when the weather and soil conditions are favourable; the earlier the better, as during November the soil still retains some of the summer heat and rooting commences with little delay.

Mulching with old, decayed manure is beneficial. Bone-meal is a good manure for Roses when there is a shortage of farm-yard manure, forking it into the surface after clearing the ground in winter or early spring.

Propagation.

The propagation of the species and botanical varieties of Rosa—to keep them true to type—requires the exercise of considerable care and attention. Few families of hardy shrubs intercross so freely. Seeds from fruits gathered on isolated bushes, or groups of one species, may be expected to come true, but it is useless to raise seedlings from bushes growing in a mixed collection of wild Roses. The difficulty may be overcome by isolating a few flower buds in muslin bags, and pollenating them when fully developed. Alternatively, propagation is by means of cuttings, layers and budding.

Cuttings, as with many hardy shrubs, is the readiest method of increasing many of the wild Roses. The very thin, wiry and thorny species, like Rosa Webbiana and R. Willmottiae, do not make roots readily. For these and similar difficult species layering should be practised. Budding is occasionally adopted, but it has the disadvantage that suckers from the stocks are not so easy to detect in the tangled masses of wild Roses, as in the dwarf, annually pruned bush Roses.

Sow the seeds when taken from the "dead-ripe" hips. Use pots or pans, with liberal drainage, and plenty of grit in the compost. It is worth trying to hasten germination by placing the pot or pan in a greenhouse for the winter, with a temperature of 45° to 50°.

Insert cuttings of half-ripe wood during July in a close propagating frame, in August and September, under handlights or cloches, and on a border outside from mid-October onwards.

Layering may be carried out at any time when convenient. When pegging down the growths, twist or bend the shoots sufficiently to check the flow of sap.

Among the wild Roses pruning is chiefly a question of cutting out old, worn-out wood and weak, crowded shoots. Only cut back or shorten vigorous young growths when crowding neighbouring bushes, or spoiling the shape of specimens.

The removal of old, spent wood and crowded weak growths allows light and air to reach the main branches. The object of pruning is to maintain the general good health of the bushes. Mature growths mean, or should result in, plenty of flowers and fruits. There are two seasons when attention may be given to this work:—after flowering, when the fruits are swelling, and it may be seen which branches should be left; also in late winter, after the beauty of the hips is past.

One particularly attractive use for the Musk Rose, Rosa moschata, is to clothe tall arbours, or to allow it to ramble over and through the branches of trees. There are several good examples at Kew. One has reached the top of a Holly tree some thirty-five feet high, and another festoons the branches of a Cedar over thirty feet in height. The best position for planting is somewhere near the limit of the spread of the branches. Fix stout rustic poles in the ground to firmly hold the Rose growths until they reach the stout branches. Any attempt to loop the Rose shoots to branches swaying in the wind usually ends in failure, or, at least, in poor results.

A selection of the best species for specific purposes may be of value to readers interested in the subject. For groups in shrubbery borders and lawn beds: R. hispida, R. Hugonis, R. Moyesii, R. rugosa, R. sertata, R. setipoda, R. spinosissima varieties, R. virginiana, R. Webbiana, R. Willmottiae and R. xanthina. For massing in the wild garden and open woodland: R. Helenae, R. moschata, R. multiflora, R. omeiensis and its var. pteracantha, R. sericea, R. Soulieana and R. Sweginzowii. For the attractive value of their fruits: R. Davidii, R. Fargesii, R. Moyesii, R. omeiensis, R. rugosa, R. sertata, R. setipoda and R. Webbiana. For hedges: R. alpina, R. canina, R. Davidii, R. Moyesii, R. rugosa, R. rubiginosa, R. rubrifolia, R. setipoda and R. spinosissima. For the rock garden: R. Ecae, R. ferox, R. humilis, R. glutinosa, R. indica var. minima, R. nitida and R. Wichuraiana. *A. Osborn.*

PLANTS NEW OR NOTEWORTHY.

SCABIOSA SPECIOSA (ROYLE).

This handsome Scabious is one of the first plants to flower from a large collection of seeds sent in the autumn of 1927 by His Highness The Maharajah of Kashmir.

It is not new to cultivation, but is very rarely seen in gardens. It is well-known to residents of Kashmir, and the memory of it when first seen on the hillsides in its thousands, lingers long in the minds of visitors to that land of flowers and delightful scenery.

Compared with the modern varieties of S. caucasica, the flowers are smaller and less formal in outline, but are no less attractive, and the plant will be appreciated by those who prefer the natural wilding to the finished product of the plant breeder.

The plant may be described as a tufted perennial with flower stems reaching a height of from one-and-a-half foot to two feet; the leaves are soft grey-green, opposite, usually pinnatifid at the base; flowers two to three inches in diameter, varying from pale to deep blue and to a peculiar shade of reddish-purple.

This is the largest-flowered of the Himalayan species, and it is plentiful on the Kashmir hills.

There is a beautiful figure of S. speciosa in Royle's *Illustrations of Himalayan Plants*, and it is also figured and described in Coventry's more recent work, *Wild Flowers of Kashmir*, t. 45.

CALCEOLARIA UNIFLORA (LAM.)

Of all the new plants exhibited during the current year, few have received so favourable a welcome as Calceolaria Darwinii when shown at Chelsea by Sir W. Lawrence; this diminutive plant, a mere tuft of small leaves and bearing very large, richly-coloured flowers, at once arrested attention, and it became a most desirable acquisition for the rock garden.

It was figured in *The Gardeners' Chronicle* of June 2, 1928 (Vol. LXXXIII, Fig. 180).

Calceolarias in abundance have been introduced recently by Messrs. Comber and Elliott, and other collectors; many of them are no doubt interesting, but of little merit as garden plants, so that the receipt of a collection of seeds from Patagonia, which included a Calceolaria, did not raise any expectations of anything likely to be of much merit.

A few seeds only were sown, and less than a dozen plants grown, a circumstance since regretted, as the seeds referred to were those of Calceolaria uniflora, a plant of little less distinction than C. Darwinii itself, belonging to the same desirable section and, according to Kew, new to cultivation.

Farrer in *The English Rock Garden*, describes and summarises the most desirable of these alpine species, remarking that the finest have not yet even begun to arrive; since his book appeared, we have seen C. Darwinii introduced, which he so much desired to grow—also C. Fothergillii, and now C. uniflora, which flourishes in broad masses on the shingles of Patagonia at from three to four thousand feet elevation.

C. uniflora is a small plant, only three to four inches high when in flower; the flowers are very showy, being over one inch in length, of a rich yellow, spotted and flushed with red, and not pure yellow, as stated by Farrer.

The leaves are spathulate and shining green. It has been noticed that the plant is slow in growth and looks less happy during the hot weather, but towards autumn it begins to grow, evidently enjoying the cooler conditions and preparing for its display of flowers in late spring.

C. uniflora seems to be quite hardy, the plants having been frozen hard on more than one occasion without suffering any injury. According to Pritzel, an illustration of this species is to be found in Ruiz and Pavon's *Flora of South America*. *T. Hay.*

ALPINE GARDEN.

MAZUS PUMILIO.

This species, which is found in New Zealand, in both islands, although equally as beautiful, is not at all like M. rugosus in habit of growth, for, at least such is my experience, it is not so rampantly free, and instead of forming wide and rapidly enlarging mats, is content to spread but slowly, and remains, in comparison, but a small clump.

I also find that it is not so easy to accommodate; it seems to prefer a cool, but not heavily shaded nook, and slightly moist, well-drained soil. It is perennial, although it would appear to be not long-lived, and may be propagated by division—placing small portions in sixty-sized pots, to be wintered in a cold frame and planted out the following spring. The flowers are produced on short growths clothed with leaves and rising just above the clump of light green foliage; they are violet-blue and white, and when produced freely, make this subject daintily attractive during June and July.

HUTCHINSIA ALPINA.

One of the easiest plants to grow, this subject from the high regions of the Alps is deserving of the recognition bestowed upon it as a well-deserving plant, for, although not flamboyant, its quiet beauty and unassuming stature make it none the less desirable, combined with the fact that its flowering season is an unusually extended one, and it is ideal as a carpeting plant for Crocuses and other bulbous subjects.

H. alpina, if given a cool position, such as is appreciated by Mossy Saxifrages, forms a spreading carpet of feathery, dark green foliage which, during May and intermittently throughout the summer months, becomes lightened by the freely produced heads of small, pure-white, Cruciferous flowers, of singularly refreshing appearance.

This subject is easy to establish; it is seldom affected by unfavourable climatic conditions, and may be increased easily either by summer-rooted cuttings or by division.

MIMULUS CAESPITOSUS.

This species, which is a native of California and yet seems to be quite hardy in this country, is especially suitable for growing on the rock garden, for it is of dwarf stature and is not too rampant in growth. It should be planted in moist beds, such as may often be provided at the foot of rock cliffs on the edges of paths, or on the margins of small pools, where it should form close mats, not more than four inches high, of leafy growths, clothed during the summer months with rich yellow flowers.

M. caespitosus is by no means common, although it is procurable from the trade, but having once obtained it there is no difficulty in retaining it, for it may be propagated with ease either by cuttings or division. *M. W.*

AMARYLLIS BLANDA AND ITS ALLIED VARIETIES AND HYBRIDS.

Brunsdonna ex parte.

Baker treated Amaryllis as a monotypic genus, and placed A. blanda as a variety of A. Belladonna, distinguished therefrom by its pseudo-stem, its longer and broader leaves, and larger, more expanded flowers. But Herbert considered that the genus was not monotypic, and included therein some Brunsvigias—such as B. Josephinae. His opinion receives support from the fact that five or more hybridists have succeeded in crossing Amaryllis with Brunsvigia.*

But if hybrids in this class have been raised in gardens, it is more than probable that similar hybrids have arisen fortuitously in the natural habitat of these bulbs in South Africa. Such hybrids would breed in again with their parents, and would produce a mixed race bearing some of the characters of Brunsdonna. This does take place in our gardens, where I have found that the pollen of A. Belladonna is strongly prepotent on the stigmas of Brunsdonnas.

We may presume that this has also occurred in the natural habitats of both these genera, and that, in the localities where the A. blanda type has been collected, some lucky person collected bulbs resembling in pseudo-stem and in their large, widely-expanded flowers our garden Brunsdonnas, and others collected bulbs which had sprung from back-crosses with A. Belladonna and only bore some resemblance to the original A. blanda of *Bot. Mag.*, t. 1,450.

Experience of what has occurred since 1812, when A. blanda was figured in *Bot. Mag.*, is confirmatory of this process. Having been lost to our gardens in Herbert's lifetime, it reappeared about 1882 as a seedling from one of his crosses. From the coloured figure in *Paxton's Mag.* of 1882, there can be no doubt that it was the same variety (or hybrid) as that figured in *Bot. Mag.* in 1812. But it is not certain if it was one of the Brunsdonnas raised by Herbert, although it was bought at his sale and was labelled "Hybrid."

Having been again lost to cultivation, it reappeared this autumn as a self-fertilised seedling from Brunsdonna Parkeri, and was given an Award of Merit at the R.H.S. on September 11 under the name of Amaryllis (Brunsdonna) blanda. This occurred in my garden, and of the two seedlings which flowered the one not exhibited was similar, but did not carry such a fine scape. The parentage is, in this instance, beyond doubt, and may be traced back to the original B. Parkeri distributed by Mrs. Arbuckle in 1889.†

Fifteen years ago, I obtained some thirty Amaryllis bulbs said to have been "collected" at the Cape. Noticing that there were two distinct types among these dry bulbs, I planted a few of each type under glass and the rest out-of-doors. Those under glass were several years before they flowered, when they turned out to be a very tall, rather late form, near A. blanda, but not so widely expanded and without any special development of pseudo-stem. The remainder of the consignment turned out to be A. Belladonna pallida. On digging up those planted outside, the pallidas were alive and all the blanda type were dead. Hence, as Herbert said, we must class this type as being, in common with the Brunsdonnas, not hardy about London. I gave to this type near A. blanda the name of A. pseudo-blanda. It has been figured in colour and an inflorescence added to the *Hortus Siccus* at Kew. For this reason, I add a short description. It is quite a good garden plant for inside cultivation, and distinct.

Although A. blanda has only made sporadic appearances in English gardens, various continental nurserymen have, from time to time, offered bulbs under this name. The late Mr. H. J. Elwes, who was determined to acquire the new A. blanda for his collection, obtained bulbs from every fresh nurseryman who listed it. On the whole, he was disappointed, for he never got what he wanted. But he obtained one unexpected treasure under this name—a large, robust, deep crimson Amaryllis which flowered freely. Messrs. Van Tubergen, junr., who obtained some bulbs from him about fifteen years ago, properly re-christened it A. rubra major. (There was already an A. rubra figured in *Flore des Serres*, t. 1,415).

This is the finest of all outdoor Amaryllis, and although it is widely distinct from A. blanda in colour, it must be placed in the same section. (See Fig. 161 and description).

Some of its traits are that it bears the most pronounced pseudo-stem of any member of the genus, is only partly deciduous, and is very free-flowering whenever it gets a little extra warmth; 1928 has not been a good year for the flowering of Amaryllis out-of-doors, but, so early as September 4, nine out of every ten of this variety were pushing up flower scapes outside at Kew. The late Mr. William Watson was full of admiration for this plant, and always declared that it was not a true Amaryllis, but was a form of B. Parkeri—*i.e.*, had some Brunsvigia blood in it. This may only be proved by raising some generations from selfed seeds upon it, and comparing the variants with the progeny of selfed Brunsdonnas.

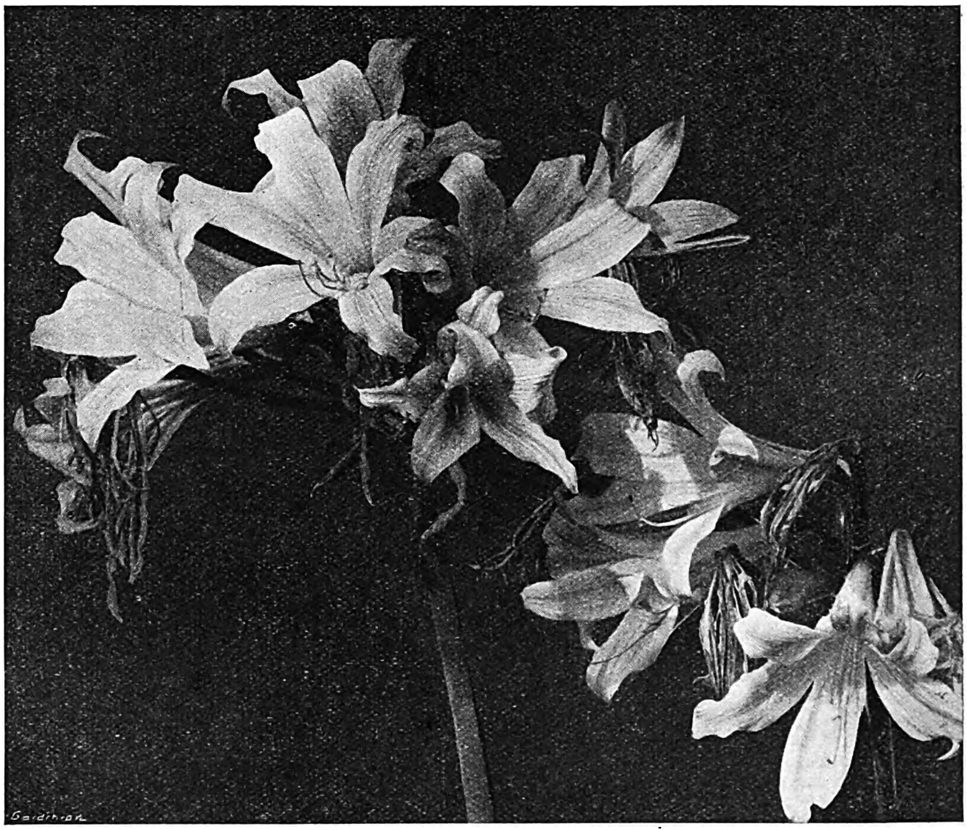


FIG. 161.—AMARYLLIS RUBRA MAJOR.

Now that Amaryllis and Brunsvigia have produced a garden race of hybrids and back-crosses, it will become increasingly difficult to apply any other test than garden merit to these plants. Some of the back crosses of Brunsdonna with A. Belladonna, which have originated by chance in my garden, are barely distinguishable from A. Belladonna. But, in general, the best garden types have both their leaves and the segments of their flowers twice as long and twice as wide as in the type of A. Belladonna, and have also twice as many flowers to the umbel. On these facts we may consider that the doubts which have clung for so long to "the lost A. blanda" have now been dissipated.

Amaryllis pseudo-blanda.

Bulbs.—Three inches to four inches diameter by seven inches high; deciduous long before the type.

Leaves.—Eighteen inches long or rather less, by up to two inches wide, spreading; nine leaves are carried, of a darker-bluish-green than the type and more substantial.

Pseudo-stem.—Short and barely noticeable.

Inflorescence.—Late and not freely produced, seven to nine flowers on a scape, from three feet to nearly four feet high, and all pointing in one direction as in the type, on pedicels up to two inches long.

Flowers.—Very pale self-coloured on expansion, but becoming entirely pink about the third day. Tubular in shape and not recurved.

Limb and Span.—Five inches.

Segments.—One-and-a-quarter-inch to one-and-three-quarters-of-an-inch wide.

Fragrance.—Not so strong as in the type.

Fruit.—No opportunity for fruit production

Amaryllis rubra major.

Bulbs.—Semi-deciduous, generally retaining a leaf or two until the flowering period.

Leaves.—About two inches in width by two feet long, glabrous, eight to eleven in number.

Pseudo-stem.—Very pronounced, six inches to eight inches high.

Inflorescence.—Freely produced, but at irregular intervals. Sometimes very early. Twelve to eighteen flowers are carried on a scape about a yard high, but out-of-doors eleven flowers are usual on a shorter scape.

Spathe.—Four inches long.

Pedicels.—One inch to one-and-a-half inch long at flowering time, becoming up to six inches long at fruiting time and then radiating in every direction as in Brunsvigia.

Flowers.—Opening successively over an extended period and lasting for a long time. Somewhat stellate, the segments being relatively narrow (one inch wide) compared with their length (five inches), recurved at the tips only, the whole flower being of a brilliant crimson, with a yellowish base. Not so fragrant as some Amaryllis.

Span and Limb.—Five inches.

Stamens.—In two ranks.

Fruit.—Freely produced under glass, occasionally out-of-doors. The ripe fruit and seeds have not yet been examined.

Remarks.—This is a splendid garden plant and is as brilliant in colour as any Brunsdonna.

R.H.S. Journal, January, 1926, p. 65.

†*R.H.S. Journal*, January, 1926, p. 67.

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MR. F. KINGDON WARD'S TENTH EXPEDITION IN ASIA.*

X.—SADIYA, AND THE LOHIT VALLEY ROAD.

SADIYA is situated on the right bank of the Lohit river, about thirty miles above its junction with the Dihang at Kobo. Just above Kobo, the smaller but quite important Dibang joins the Lohit, and the trio form the Brahmaputra of the Assam Valley, which flows some twelve hundred miles to the Bay of Bengal. One speaks of Sadiya as the railhead in Assam, but actually the railway ends at Saikhoa Ghat on the opposite bank, and some six miles below Sadiya; the crossing being effected by launch.

The native bazaar, military police lines, and officers' bungalows, which comprise Sadiya, are situated in a grassy clearing which stretches for two or three miles along the river bank, and a mile inland. The rest is jungle. Forty miles away, the frontier mountains rear up their white heads in a great horse-shoe, which stretches from north-west, by north, to south-east; and on a clear day, the V-shaped slots in this ring, through which break the Dihang, Dibang, and Lohit rivers, are visible.

The bazaar (Fig. 165) is little more than a country market, but the names of the roads have a romantic association with trans-frontier reconnaissance. Most impressive of all, perhaps, is a sign-board at the entrance to the main street, on which is writ large: "Rima Road." How many have longed to go that way, ever since there has been a road to the east, more properly called the Lohit valley road! for, as recorded in the history of my previous journey from Burma to Assam, it ceases to be a road in any sense of the word long before Rima is even approached. In fact, the Lohit valley road is a road in being only from Sadiya to the Tidding river, distant seventy miles. Beyond the Tidding, the Government recognises no road; that which was once a road, built by the Pioneers seventeen years ago, has long since passed into the limbo of forgotten things and become one with the old Mishmi track.

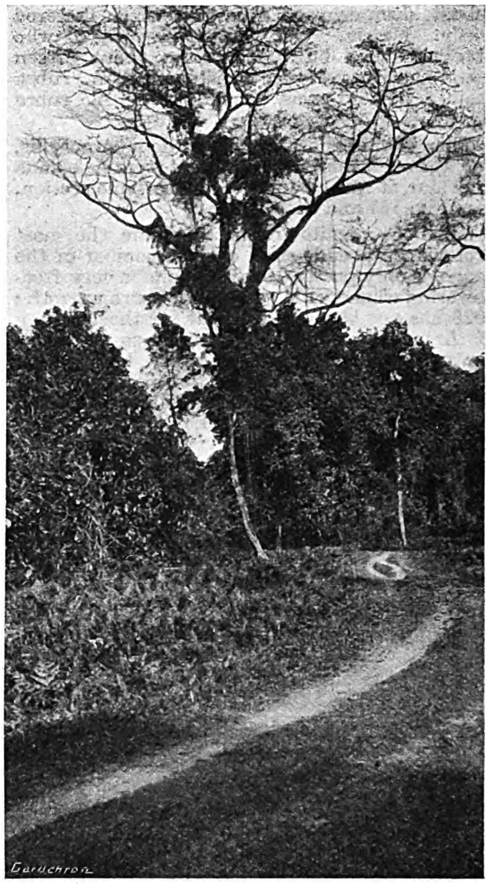

FIG. 162.—BOMBAX MALABARICUM AS A JUNGLE TREE ON THE SADIYA PLAIN.

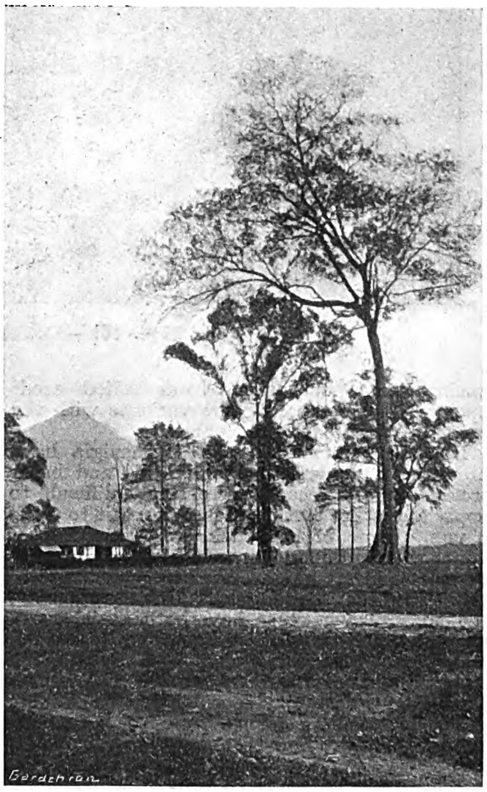

FIG. 163.—PASIGHAT: FICUS AND BOMBAX MALABARICUM.

Administration then ceases at the Tidding, on the threshold of the Mishmi Hills, whither we were bound. The curious may wonder how I got permission to fade away into the blue, beyond all control, help, or recall. Obviously, it is one thing to arrive at the frontier tract from some remote region beyond, quite another to start from headquarters under the eagle eye of the Political Officer. There is no one to stop you from coming into Sadiya from the direction of Burma, China or Tibet, provided you can overcome the more glaring obstacles of such a journey. But it would be quite impossible to cross the frontier from Sadiya itself without sanction. However, it would be indiscreet to reveal the methods of secret diplomacy! It will be sufficient to add that the Digaru Mishmis are regarded as inoffensive. Not so their cousins, the Chulikatas. The eastern road is not the only road across the Sadiya plain to the foot of the hills. A second one runs due north to Nizainghat, where the Dibang bursts from confinement; and up the Dibang gorge dwell the Chulikata Mishmis, who are savage and treacherous. So the Dibang, like the Dihang, was closed to me, and there remained only the Lohit route; by far the shortest and most feasible way to the high alps.

Inevitably one compares Sadiya with Myitkyina, its equivalent in Burma, as a jumping-off place for that great arc of mountainous country which is the north-east frontier of India. Leaving Yunnan out of the picture, and regarding our objective as the highest mountains of Indo-Malaya, there is simply no comparison. Sadiya wins in a canter. To begin with, it is two whole degrees north of Myitkyina, and as the highest mountains lie to the north, that distance has to be covered somehow; there are really no high mountains on the frontier south of the twenty-eighth parallel. Then, too, experience proves that the richest alpine floras in this part of Asia, at any rate, have staked out their claim where two climatic areas are separated by a thin barrier of high mountains, as in Sikkim and Bhutan, north-west Yunnan, and parts of Tibet. From Myitkyina to the edge of the Indo-Malayan forests is a long trek, as I discovered in 1926; from Sadiya to the border is less than a fortnight's journey.

The problem of the Lohit is the question of "S and T," as the Army Service Corps in India is called; that is, Supply and Transport. In a country where there are no supplies, and practically no inhabitants, it is difficult enough to travel; cover that country with dense jungle, build it up into a skein of high mountains slashed in every direction with deep river gorges, unprovided with roads, and blessed with a rainfall which varies from one hundred to three hundred inches a year, and a provisional value may be attached to the unknown quantities, "S and T." We budgeted for fifty loads, and decided that we could not risk further cutting-down tactics without sacrificing that shadow of comfort on which our well-being might rest. Even so, we were self-contained for only a few months. If, before rations gave out, we could not either get fresh supplies up from Sadiya, or find a country which could support us, our position would be unenviable. It was not like Yunnan, or even Kongbo, in Tibet. In those civilised and thickly populated countries, there is no food problem, and "S. and T." Here the problem was serious, and we had to gamble on it; perhaps the stakes were worth it!

However, we were quickly to discover that so far as Sadiya was concerned, we could leave it out of our calculations altogether. If it was difficult to engage coolies when we were on the spot, it was impossible when we were not. Supplies got so far as Theronliang, at the end of the Lohit valley road, and there they stuck. During the rains we were cut off from the main base, and that was that. It simplified matters.

Remained the alternative. How we fared will be related in due course. When I arrived in Sadiya, on February 2, I found all my heavy kit stored there waiting for me, and at once began moving it up to the end of the cart-road, which goes so far as Dening, forty-eight miles distant. I also purchased supplies of Rice, flour, oil, etc., and these, together with tents and boxes of stores, went off on elephants and carts, so that by the time we left Sadiya for the Dihang trip already described, most of the stuff was away. The Political Officer arranged for these loads to be taken on another two marches by Mishmi

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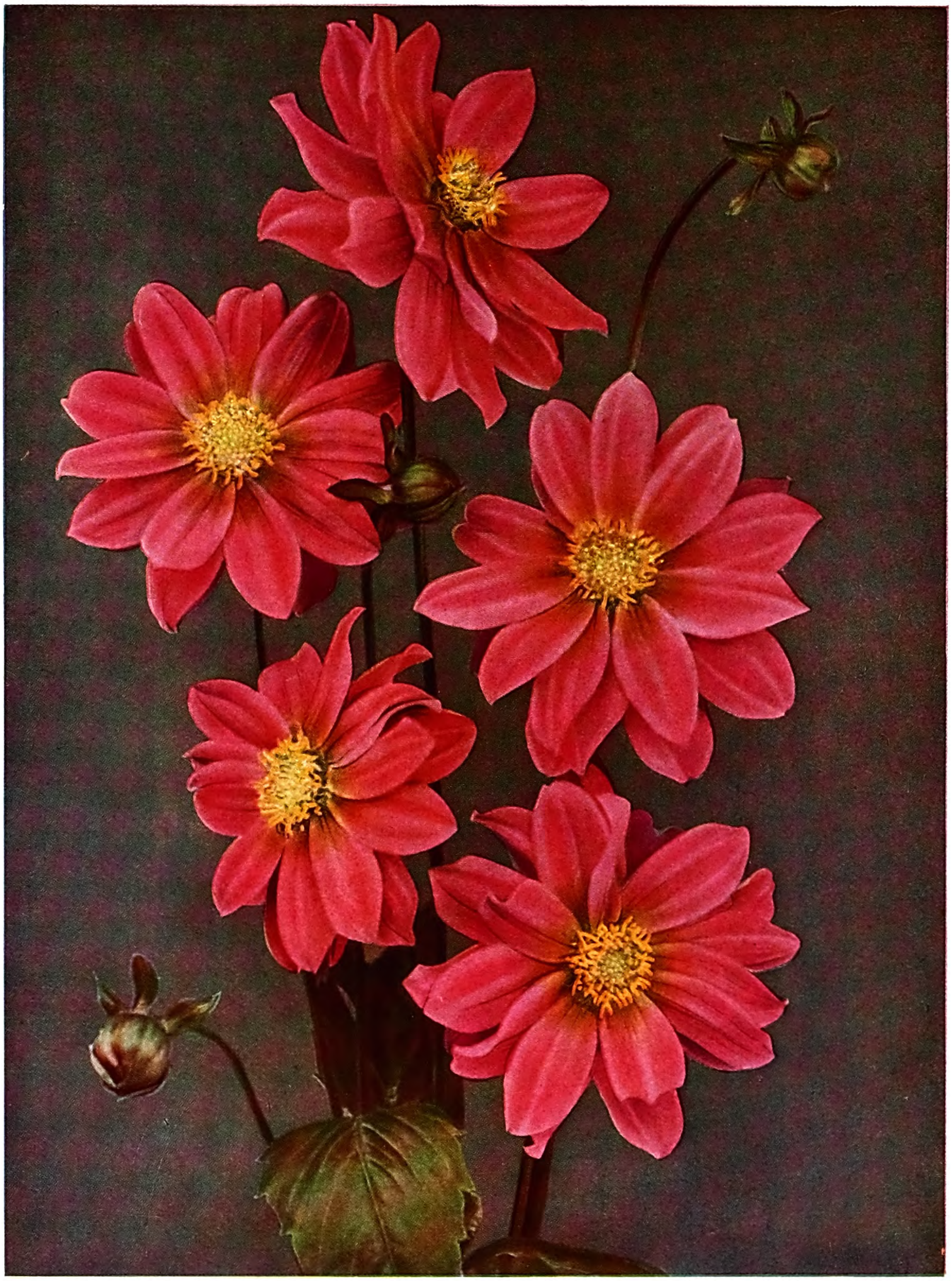
* Previous articles on Mr. Kingdon Ward's Tenth Expedition in Asia were published in our issues of June 9 and 23, Vol. LXXXIII, and July 7, 21; August 4, 25, and September 1, 22, and October 6, 1928.

Supplement to "The GARDENERS' CHRONICLE."



DAHLIA IRMA.

coolies, and dumped at Theronliang to await our arrival. This saved much time. When I returned to Sadiya on the 22nd there was not much left to be done, although, owing to the temporary breakdown of our host's car, we did not actually start until March 1.

We had at the start, then, fifty loads, which included about four months' supplies. Of course, we had to provide not only for ourselves, but for any servants we took with us; consequently we took only one, a Kashmiri Mussulman, sound in wind and limb, whom I selected on the strength of his record in Turkestan and Central Asia. He had been with me in the Naga Hills and up the Dihang, and was quite a stout fellow, good all round. It was hopeless to think of taking any more *pukka* servants, but at the last moment I engaged a Mishmi who spoke Hindustani, as hewer of wood and drawer of water; he, at least, might be expected to feed himself in his own country. This proved easy, as he lived entirely upon Opium!

It is only in the immediate vicinity of Sadiya that the plain is open, and covered with coarse grass; elsewhere it is blanketed with dense jungle, intersected by innumerable rivers. Consequently, much of the plain is swampy, especially during the rains. The Lohit comes swerving in from the east, and being uncurbed, is for ever changing its point of attack, now threatening one bank, now the other; for the past few years it has been violently undercutting the Sadiya bank. Other smaller rivers converge on to the plain from all directions, wriggle their way across it and join either the Lohit or the Dibang.

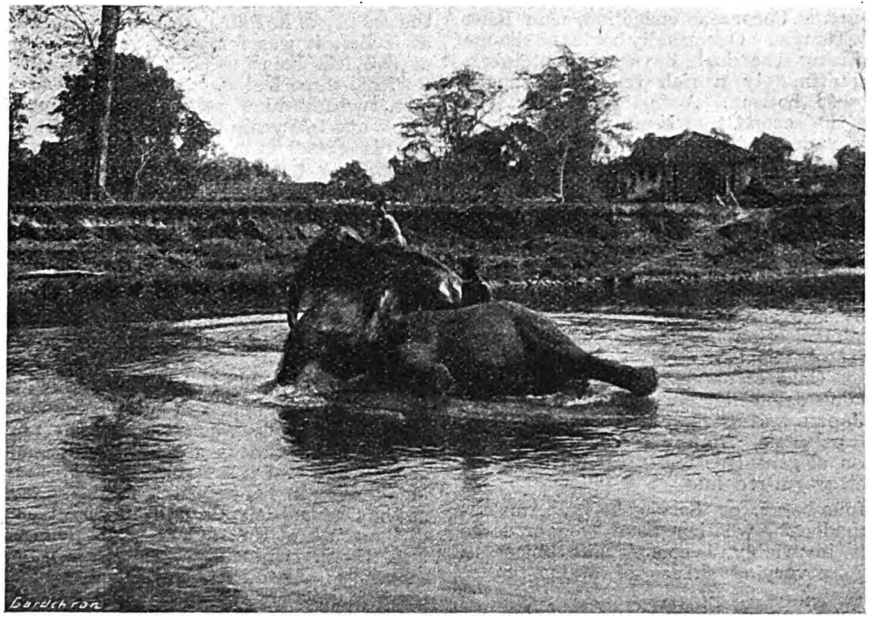


FIG. 164.—ELEPHANTS IN THE DEOFANI RIVER.

Following one or other of the two main roads, one may gain some idea of the composition of the jungle. Already Erythrina indica, like a volcano in eruption against the dark lava-green background, is exploding at every twig into blood-red blossom, while the Bombax trees (Figs. 162, 163) are still edged with red-lipped craters. Bischofia javanica looks dowdy, not having shed all its leaves, but a species of Spondias stands naked except for its globular, hanging fruits. Ficus glomerata is also bare, but leafless trees are the exception. A certain number cast their leaves for a month or less during the hot weather, but so moist is the atmosphere and so ample the water supply that, on the whole, the jungle is evergreen. All the above-mentioned are common trees. So, too, are Dillenia indica, massive and verdant; Castanopsis Hystrix, covered with long-spined Chestnuts, peeping from among the foliage; and Terminalia myriocarpa, much sought for by the saw-mills below Kobo. There is a bushy Viburnum in flower, and a Styrax also. Stereospermum chelonoides is easily recognised by its very long, dry capsules, with a slow corkscrew twist in them; Duabanga sonneratioides, by its clumsy habit; and Pterospermum acerifolium by its huge leaves. Inside the jungle all is dark confusion, and, indeed, owing to the barriers of prickly Cane, it is impossible to move without hacking a way through.

There are a few clearings round Sadiya, which itself is more like a park with scattered trees like those seen in the jungle, and clumps of Mango, Zizyphus, or Mesua ferrea. Along the grassy river bank, a species of Oxalis with purplish-pink flowers, darkly striped on a lighter ground, grows demurely; but it has won a footing in the gardens and become a rank weed. A few scattered plants—Polygonum, Veronica and an intensely blue-flowered Commelina—grow in the sandy river bed, where the water is not yet flowing.

At last, all was ready. Day after day we had looked eastwards across the tree-girt plain to that gate in the snow-crested blue hills where the Lohit is released from its prison. Now the curtain was about to go up on Act II. The scene changes. *F. Kingdon Ward.*

NOTES FROM EDINBURGH.

Trees and shrubs, with their glorious tinted leaves, add great beauty to the garden in autumn. Some have been more beautiful than others, but all are welcome. Acer pictum with its golden mantle, Stranvaesia Davidiana with its coat of vivid crimson, and the humble Lythrum Salicaria reflecting its brightly coloured leaves in the pond, are some of the worthy autumn subjects. Plants with coloured fruits also play their part in the colour scheme. There is little difficulty in finding many plants for beautifying woods, shrubberies, or lake sides from among the Pyruses, Cotoneasters, Crataegus or Barberries.

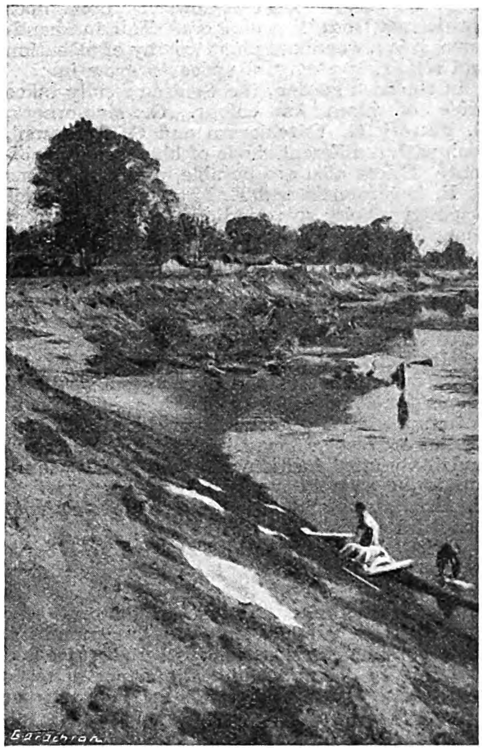


FIG. 165.—BANKS OF THE LOHIT IN THE DRY SEASON, WITH SADIYA BAZAAR.

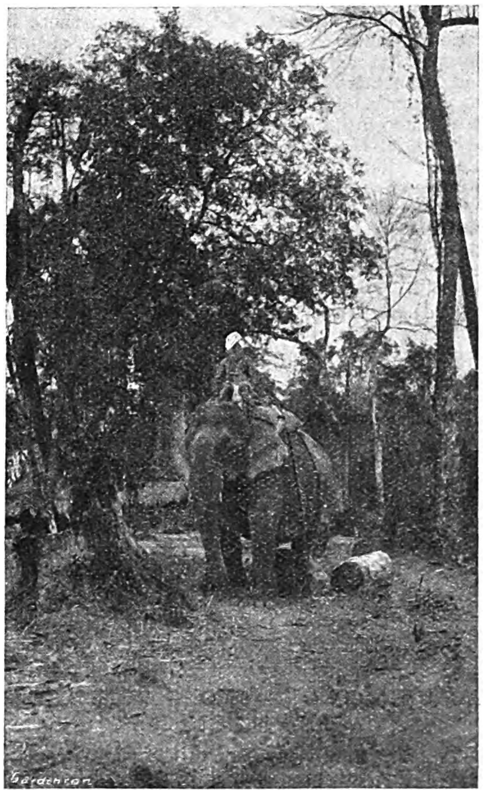


FIG. 166.—ELEPHANT WORKING TIMBER NEAR SADIYA.

Fine, sunny weather has been most beneficial in ripening wood and preparing plants in general for whatever kind of winter is in store. On the other hand, it has been the means of prolonging the flowering season of late-flowering plants and tempted others which should be resting to give a second display. This is true of Meconopsis grandis and M. simplicifolia, which represent the family with some large, well-developed flowers. Primulas, too, are enjoying the mildness of the season. Species, such as P. burmanica and P. Beesiana, and hybrids of P. japonica are producing fine spikes of good colour. Late-flowering Primulas are not nearly finished; Primula Mooreana, P. crispata and forms of P. capitata are revelling in the open, leafy soil in the shade of the wild garden, and are still covered with blooms. P. apoclita, with its conical heads of small purple flowers, presents a handsome appearance at present, and the small P. Menziesiana has not quite finished producing its glorious tiny, blue inflorescences. Many plants in a large batch of P. sinoplantaginea are in full vigour. Their mealy spikes with purple flowers are very much in evidence in a bay with a northern aspect in the rock garden. No other species of the family grows so luxuriantly or is so well adapted for damp and shady positions as P. Florindae. Its late-flowering habit does not detract from its usefulness. Tall and handsome, it is a woodland plant worthy of attention and requiring plenty of space to grow in.

In the rock garden, the Gentian family takes pride of place for colour. G. sino-ornata, G. Farreri, G. Veitchiorum and G. Andrewsii, each with a different shade of blue, are magnificent. Ericas also are notable, and such forms as E. kevernensis and E. Mrs. D. F. Maxwell brighten their surroundings and are most beautiful at this season. Polygonum Griffithii in the bog, and P. vacciniifolium on a dry mound are worthy of note, and are well worth cultivating. In the absence of frost, they should continue to flower for some time. In the rock garden and under trees on the lawn, Crocus speciosus is at its best. This is one of our most useful autumn plants, and gives a great wealth of colour for some considerable time. Colchicum autumnale fl. pl., Crocus asturicus and C. pulchellus are also in flower. Colchicum speciosum and its varieties, including the double white form, are to be seen in many parts of the garden. C. fimbriatum and C. cilicicum are also very beautiful at present.

Felicia Bergeriana and F. rotundifolia have almost spent themselves, having been in flower for weeks. Both of these dwarf Composites are greatly admired for the magnificent blue flowers they produce in countless numbers. They both like dry situations and are best treated as annuals. They produce abundance of seeds which may be sown indoors in February or March for a succession. Anarrhinum bellidifolium, a native of the Mediterranean region, has produced spikes, two feet high, of numerous, small, blue, Veronica-like flowers. Its spikes arise from a rosette of bright green, serrated foliage which clings close to the ground. The habit of this plant and its very floriferous nature commend it as a bedding plant which could be mixed with other flowering subjects to advantage.

The rock house is a haven for many plants which need just a little protection during the severe winter months. At this season there is little difference in temperature from that out-of-doors. Among the many ledges various useful and decorative plants are flowering and look very happy. Selago serrata from South Africa is at home in its dry situation; with flat heads of lavender-blue flowers, it is a remarkably pretty plant. Dianella intermedia, with pendulous stems of purplish-blue fruits, contrasts with Nertera depressa, which has scarlet berries nestling close to its green, carpeting foliage. Both are in the shade of the elegant, rambling and climbing shoots of Mutisia ilicifolia, a native of Chile. On a narrow ledge between two slabs of red sandstone, Ornithogalum aureum, from bulbs recently collected in South Africa, has produced some very elegant spikes of bright yellow flowers. It is also well adapted for pot culture, but from present appearances it likes freedom. Pretty, golden-yellow flowers are to be seen on Hermannia candicans, another South African plant; slow of growth, and with racemes which incline to be straggling, it is, nevertheless, worthy of its place in the collection and grows well in a dry situation. *A. McCutcheon, Edinburgh.*

NOTES FROM KEW.

AUTUMN COLOUR AMONG THE TREES AND SHRUBS.

THE hot, sunny weather of the past summer, and a fine autumn, has induced a richer and more abundant colouring of the foliage than for several years past. Some trees and shrubs colour well even after comparatively dull and wet summers, but nothing like so fine as this season. The gradual change day by day from green to innumerable tints of yellow, orange, brown, red, crimson and purple is delightful and is most interesting to watch.

Some consideration may very well be given to autumn colouring when arranging the planting of groups of trees and shrubs, giving prominence to those which may be depended on to colour well almost every year.

In addition to the weather and climate, the nature of the soil plays a by no means unimportant part in the autumnal colouring of the different trees and shrubs. Here, again, some kinds may be depended on to colour well in most soils.

In a year of such abundant colouring, it is impossible to name a tenth part of the trees and shrubs with prominent autumn tints. There are, however, a considerable number of outstanding merit, some of them not often seen outside botanic gardens and a few large private collections.

Two groups of Rhus cotinoides, the Chittam Wood of the south-eastern United States, one near the Victoria Gate, and the second near the Refreshment Kiosk, are indescribably beautiful in their rich orange and scarlet colouring; no hardy shrub is more attractive and striking in autumn tints. Rhus trichocarpa, a Japanese Sumach, is also conspicuously beautiful in orange and rich red colouring.

Two trees of Nyssa sylvatica, the Tupelo of eastern North America, attract attention every autumn in the Cornaceae collection, near King William's Temple. One usually begins to change colour during the last days of September, becoming ultimately a rich red and crimson from top to bottom. A fortnight later, the leaves of the second tree begin to turn colour and in a few days are a beautiful study in orange and scarlet tints, by which time the first tree is practically leafless.

Quercus coccinea var. splendens, often called Waterer's Scarlet Oak, with its brilliant scarlet and deep red tints in autumn, is fairly well known. The rare Quercus alba, the White Oak of eastern and southern United States, as represented by two small trees eighteen feet high in the Oak collection, is even more conspicuous, every leaf on the two trees a rich deep red. Two other Oaks of outstanding merit in their rich autumn colouring are Q. variabilis from China, Japan and Corea, and the Pin Oak, Quercus palustris, from the eastern United States, an elegant tree festooned with leaves of a light, warm red hue

The June-berry, or Service-berry, Amelanchier canadensis, whether as a tree or large shrub, is invariably a conspicuous object in autumn, in varying shades of orange-scarlet and red.

Many of the Maples, or Acers, are at present brilliant in colouring, none more so than several trees of the Red Maple, Acer rubrum, glowing scarlet at the top, interspersed lower down with rich orange-yellow. The Japanese Acer capillipes, one of the most attractive of the group of Maples with striated stems, is beautiful with red foliage, as also is another species from Japan, the Nikko Maple, Acer nikoense. Although fairly well-known for its rich red autumn colouring, Acer platanoides var. Reitenbachii must be mentioned in passing.

Among the Crataegus, or Thorns, there are very many of conspicuous beauty, so many in fact, that it would be quite easy to devote a full column to their beauty of foliage and fruit. There is one, however, of outstanding merit, Crataegus prunifolia, with a mixture of autumnal tints—shades of red, bronze, orange and scarlet. The variety splendens is conspicuous and distinct because of its more brilliant scarlet hue.

The Pyruses, again, are a host in themselves and create a difficult problem when one is trying to make a limited selection among those even of outstanding merit. Asked a week ago to name the most beautiful in autumnal garb, my choice would have been the Japanese Pyrus Tschonoskii, every leaf a rich deep purple-red; to-day (October 13) my choice is hovering between P. crataegifolia, the tall feathery trees of Pyrus Sorbus vars. maliformis and pyriformis, and the brilliant red of Pyrus arbutifolia.

A tree of Parrotia persica in the Wild Garden, near the main gate, sweeps the grass with its beautiful foliage in tints of gold, orange and crimson. The Azalea Garden alone provides an almost endless wealth of autumnal colour, giving scarlet, crimson, red, purple, bronze and orange in endless shades. Several Copper Beech trees near-by, also a large Carya with golden-yellow leaves, and the rich yellow leaves of the Tulip Tree, Liriodendron tulipifera, add to the beauty of the picture. *A. Osborn.*

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

IN 1906, I received from Kew two small plants of the Chilian Roble—Nothofagus obliqua—which had been raised from seeds collected by the late Mr. H. J. Elwes. One of these I passed on to Lord Stair's fine collection at Castle Kennedy. It was blown aslant in a gale last year, but was pulled up and secured with stay-ropes. That which remained here grew rapidly into a very beautiful tree, until October 11 in the present year, when a furious north-westerly gale uprooted it. Although growing in a fairly sheltered place among older trees, the density of its foliage sealed its fate. Measured as it lies, it was forty-two feet high, its girth at five feet being three feet three inches; at ten feet, three feet two inches; and at twenty feet, two feet nine inches; satisfactory growth in twenty-two years from planting. The timber of this species is said to be useful, but that of Nothofagus procera is accounted better.

Cotoneaster frigida flowers and fruits profusely only in alternate seasons; this has been one of its years of abundance, and in fairly sheltered places trees thirty-five to forty feet high still retain most of their splendour, their branches weighed down with wreaths of scarlet berries; but those in more exposed situations were cruelly stripped by the strong gale on October 11.

Arum italicum lightens up the borders bravely in autumn with spikes of shining orange-scarlet berries, especially when they stand among a scattering of Crocus speciosus. Although the specific name of this Arum seems to indicate a Mediterranean habitat, it is found as far north as the Channel Islands, and, if not a true native of the south of England, it has become naturalised there. Unluckily, our blackbirds have developed a passion for its berries and strip them mercilessly from the spikes. This Arum has the merit of sending up its handsome, hastate leaves so soon as the fruits are past, to clothe the ground throughout the winter months.

I have not often met with Stokes's Aster—Stokesia cyanea—in private gardens, yet one has only to make its acquaintance, as I did last year, to admire its rich purple flowers and to esteem its value as a border plant in autumn. There is a strange mistake in the notice thereof given in Weathers's excellent *Practical Guide to Garden Plants*, which describes the flowers as "about one inch across," whereas they are fully three inches in diameter, and are borne on branching stems about two feet high.

Gentianella (Gentiana acaulis) as usual, is opening blossoms here and there along the edge of gravelled paths, and will continue to do so all through the winter. G. sino-ornata is now at its best, in mid-October, and it is well that the regular flowering season of the two species is not the same; for although it is hard to decide which is the more beautiful, the blue of G. sino-ornata is more brilliant than the other, while G. acaulis bears the larger flowers.

With the exception of Clethra arborea—a noble, but tender, species which we have never ventured to plant here—this branch of the Heath family is not distinguished by showiness of blooms. It is true that the small, white flowers are fragrant and are produced freely in early autumn on erect racemes six inches long; but they pass very quickly, and the chief merit of Clethra acuminata consists in the tawny orange of its foliage in fading. Bushes ten feet high are now very effective. *Herbert Maxwell, Monreith.*

THE GENUS PRIMULA.

(*Continued from p.* 328.)

FISTULOSA (S. Turk.). Hollow-stemmed P.
(Farinosae.)

THIS desirable dwarf plant is a sub-species of P. farinosa, but is not at present in cultivation. It forms a rosette of smooth, non-mealy, oblong or lance-shaped, blunt leaves three-quarters to one-and-a-half-inches long and a quarter- to five-eighths-of-an-inch broad, gradually tapering to a broadly winged stalk, or almost stalkless; margins furnished with sharp, unequal teeth. Flower stem stout, hollow, three to six inches tall and nearly a quarter-of-an-inch thick, slightly mealy upwards and bearing a rounded umbel of eight to forty rose or violet blossoms, on stalks a quarter- to five-eighths-of-an-inch long, and covered with short, glandular down. Corolla flat, three-quarters- to five-eighths-of-an-inch across, with broadly heart-shaped, very deeply notched lobes; tube cylindrical, about one-and-a-half times as long as the calyx.

Grows in damp pastures in southern Amurland, Manchuria, and north-eastern Mongolia.

Culture: The conditions advised for P. farinosa should suit this species.

FLAGELLARIS (W. W. Sm.). Whip-like P.
(Minutissimae.)

A distinct species possessing the unusual habit among Primulas of producing runners, after the manner of the Strawberry, with buds on the tips which eventually form young plants. The tufts of leaves have blades varying from lance-shape to egg-shape, with blunt, or pointed tips; base wedge-shaped, tapering to a distinct stalk; the whole leaf is about one inch in length; margins coarsely and sharply toothed; upper surface more or less smooth, underside covered with white meal. Flower stem under half-an-inch long, bearing a solitary flower from the centre of the rosette. Corolla about half-an-inch across, purple, divided into five broadly heart-shaped, notched lobes; tube slender, cylindrical, about half-an-inch long, much longer than the calyx.

This species is very rare and is confined to a hillside near the mouth of the Zemu Valley, in the Sikkim Himalayas, at 12,000 feet above sea-level.

Culture: Fibrous loam and peat mixed with limestone chips, and a damp, open spot, are indicated.

FLAVA (Maxim.). Yellow P.
(Farinosae.)

A handsome perennial species with a small tuft of oblong-ovate or nearly heart-shaped, blunt leaves, about three inches long, tapering rather abruptly into a slightly winged stalk; margins bluntly and coarsely toothed; upper surface more or less smooth, underside covered with white meal. Flower stems three to six inches tall, rather stout, coated with white meal. Flowers in a fairly dense umbel of three to fifteen, on rather long, mealy stalks. Corolla bright yellow, about five-eighths-of-an-inch across, divided into five broadly heart-shaped, or broadly oval, blunt, slightly notched lobes; tube funnel-shaped, narrow, but little longer than the calyx. *Gard. Chron.*, Fig. 134, p. 348, Vol. LVI, 1914.

Grows on limestone cliffs in the mountains, in rather damp, half-shady spots, in western Kansu, central China.

Culture: Plant it in peat, loam and limestone chips, in a damp, half-shady spot, well-drained in winter.

FLAVICANS (Hand.-Mzt.). Yellow Chinese P.
(Obconica.)

A hairy perennial, one of the numerous micro-forms or species connecting P. obconica with P. Listeri. The leaves have oval or rounded, kidney-shaped blades, one-and-a-half-inch to three inches long, narrowly heart-shaped at the base, on slender, hairy stalks, from two to six inches long, dilated at the base; margins divided into thirteen sinuate, coarsely-toothed lobes; upper surface covered with fine white down, underside furnished with rust-coloured hairs. Flower stem slender, hairy, four to seven inches tall, bearing five to ten pale yellow blossoms in a dense umbel. Corolla about half-an-inch across; lobes egg-shaped, cleft, with a sharp tooth in the cleft; tube cylindrical, little longer than the calyx, with a distinct ring in the mouth. Flowers in May.

Grows in damp, shady places on the mountains near Taohwa-schan, in Yunnan, at 7,300 to 8,200 feet above sea-level.

Culture: Cultural conditions as suggested for P. austrolisteri should prove suitable for this species. *A. W. Darnell.*

(*To be continued.*)

NOTICE OF BOOK.

Spraying, Dusting and Fumigating.

THE appearance of this book* by Mr. A. Freeman Mason, on *Spraying, Dusting and Fumigating of Plants*, marks another step forward in the scientific study of plant diseases and their control. Far behind are the days when it was the task of the pioneers in this country, the Rev. M. J. Berkeley and Miss Ormerod, to deal with plant diseases which were then for the most part classed in the lump as "blight" or "vermin." Later, Mr. George Massee, from Kew, emphasised the part which fungi played in causing diseases of cultivated plants, and in his writings stressed the economic importance of further study of mycology. At the present time the sub-division of plant pathology proceeds apace, and its numerous sections require a knowledge which only specialists possess. For example, the plant bacteriologist takes from the mycologist proper the study of bacterial diseases, and the virologist, the study of those elusive, portentious diseases affecting the vegetable kingdom known as virus diseases, to which every allotment with its museum of Potato-leaf-roll, mosaic, crinkle, "rust," curly dwarf, etc., bears dreadful witness.

The advisory mycologist of to-day knows only too well how difficult it is to keep pace with the literature of the subject. In addition, he must to some extent be an expert in fungicides, and the methods of spraying and dusting, demanding nowadays a knowledge of motor-driven sprayers and pumps, spray-rods and spray-guns, nozzles, and so forth. The present book deals in an authoritative manner with this last portion of the subject, which it must always be remembered is of the utmost importance. Unless crops can be sprayed or dusted more thoroughly, more quickly and more economically than at present in this country, we cannot hope to see plant diseases banished from the cultivated countryside. When it has been demonstrated that plant hygiene is possible on a large scale, there can be little doubt that just as now there are rural sanitary inspectors advising dairy farmers of the necessary measures for the production of clean milk, so there will be means for bringing the laggard fruit-grower to clear the scab from his Apples, and the brown rot from his Cherries, to the general benefit of the fruit growing industry.

Mr. Freeland Mason states in his preface that the aim of his book is to supply in a condensed form for the use of the commercial, professional and amateur fruit-grower and gardener, the latest information on the methods, machinery and principles involved in combating agricultural pests. We think that this aim has been very successfully accomplished. The list of contents of the chapters gives a good idea of the thoroughness of the work; history of spraying, principles underlying spraying practices, insecticides and fungicides, selecting the spraying machine, qualifications for spray machinery, the art of spraying, dusts and dusting, fumigation, and soil sterilisation. In these chapters there is no merely perfunctory treatment of the subject, but the author shows an intimate and practical acquaintanceship with it which enables him to deal with essential details, such as the best methods of laying out an orchard for spraying, the care of machinery and discussion of its working parts.

Mr. Mason has freely drawn from recent work of experimenters in the Agricultural Experiment Stations in the United States, and valuable information is to be found in every chapter. To take examples in particular:—The author's observations on the respective merits of the various types of spray-rods and spray-guns should be read by all interested in spraying in this country, including our manufacturers. The fact pointed out that the spray-gun in the hands of a careless operator leads to a waste of spray fluid and to the danger of burning the foliage and fruits has, unfortunately, been exemplified in this country also. Mr. Mason points out that when the gun is used well open, it appears to the operator that the fine mist given off at the nozzle is being carried out to the utmost range of the spray, when, in reality, only comparatively few coarser drops are thrown farther than ten or twelve feet. Experience has shown that the spray-gun cannot be used effectively with a low horse-power machine. The importance is stressed of the large overflow which is found in high-capacity motor-sprayers; it is stated that it is this added reserve, rather than the pressure indicated on the gauge, which determines the quality of the spray. A machine of ten-horse-power is none too powerful.

The various opinions of authorities on the proper way to cover a tree in spraying are discussed. It is generally agreeed that the best way is to cover the entire tree at one visit. The sprayer first walks under the tree and covers thoroughly the inside branches, leaves and fruits. If extension rods are used, and not spray-guns, it may be done without getting under the tree, by thrusting the rod in towards the centre from various positions and turning it about so that the angle nozzle will completely cover all sections. The sprayer then proceeds to the lee side of the tree and sprays back into the wind; the windward side will be covered by the drift and by a few broad sweeps on the windward side. Another method which has found favour in certain quarters is "spraying with the wind." A note is made of the direction of the wind and a further spraying is given when the wind is in the approximately opposite direction. But there are many objections to this system. For one thing, it is a case of "Man proposes, but"—aphis disposes. For this insect always clusters on the lee side of the buds and moves round with a change of wind.

Mr. Mason states that there is conflicting evidence on the question of the relative value of wet spraying and dusting. The chief bone of contention is the control of Apple scab; while a number of authorities in certain districts state that sulphur dust controls Apple scab, an equally imposing number of authorities in other districts have found spraying superior to dusting. Growers who now rely on wet spraying are cautioned against making a change to dusting without first trying it themselves in a small way.

Writing of the value of home-made, as compared with commercial preparations of Bordeaux mixture, it is stated: "But when diseases are prevalent and severe, the general run of commercial preparations are not to be relied on as firmly as fresh, properly prepared Bordeaux mixture"—a lesson which has to be learnt also in this country.

The modern intensive cultivation of crops is demanding intensive spraying, and if any one in this country thinks that the imported American Apples are grown by a care-free farmer in an ideal climate free from pests, let him note that for "scab" alone the treatment there considered necessary is seven or eight sprayings—two or three applications before the blossom opens and five afterwards. In this country the farmers who spray three times in all are still very few.

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* *Spraying, Dusting and Fumigating of Plants.* By A. Freeman Mason. (The Rural Manuals. Edited by L. H. Bailey). 539 pp., with 237 Illustrations, 1928. Macmillan Company, New York. Price 21s. net.

The possible danger to public health of residues of arsenic on sprayed fruits such as Apples, is frankly recognised and discussed. It is stated that "manufacturers of grading and packing equipment have perfected washing machines which are satisfactory for removing spray residues. Some of these machines have drying equipment attached, so that the fruit can be packed immediately after washing."

This book covers more ground than its title would indicate; the concluding 268 pages deal with the fungous and insect pests of the farm and garden. In this section keys are given for diagnosing the troubles of the most important crops grown in the United States.

The style throughout is refreshingly clear. All the illustrations, both of the insects and fungi in action, and also of spraying machinery, are good and well reproduced. A very convincing photograph is given of the dusting of Cotton fields from an aeroplane. *E. S. S.*

A PEST OF THE SWEET BAY.

Nurserymen who are importers of Sweet Bays, Laurus nobilis, L., from various parts of the continent, particularly from Belgium, where the raising of these shrubs is one of the principal features of horticulture, frequently note that the younger leaves are peculiarly curled and discoloured, and that within the curled portions are numbers of small white insects. These insects are the immature forms of the Bay psyllid, Trioza alacris, Flor., a common pest of Bays.

These psyllids pass the winter as inactive adults sheltering within the curled and galled portions of the leaves, among the dense parts of the foliage and in debris which collects about the plants. On the continent, the trees are usually placed in large storehouses for the winter, so the insects have some protection from severe weather, but it appears likely that they can pass the winter out-of-doors, for they have been found on trees which remain out-of-doors throughout the year. So soon as the temperature rises in the spring, the overwinter psyllids resume activity, and on sunny days may be seen flitting about the young shoots. They feed by puncturing the tender succulent leaves and withdrawing the sap. At first they feed practically anywhere over the underside of the leaves, but they gradually concentrate their attack on the leaf edges, which soon show signs of curling back over the punctured region. The Bay psyllids are only about a twelfth-of-an-inch in length, greenish to light brown in colour, sometimes with darker markings on the back. They have short, slender antennae tipped with black, and have slender legs. They possess one pair of transparent wings almost twice as long as the body, and when feeding, the wings and body are raised to an angle of about 45° from the leaf surface.

The eggs are laid in small clusters containing up to about nine eggs within the slight curl of leaves on which the adults have been feeding. When the eggs hatch, the young feed in the same manner as the adults, and the leaf-curling is speedily emphasized (Fig. 167). This injury to the Bays is very distinct. The leaf-edges become rolled right over the insects. The attacked portion becomes fleshy, loses its normal green colour, and becomes pale green, then creamish, and finally reddish and markedly galled (Fig. 168). The young psyllids which feed within the curled portion are entirely covered with a thick, whitish, waxy secretion which obscures the yellowish or brownish tint of their bodies. They moult several times and shed skins and sticky honey dew may be found within the galls.

Several overlapping generations occur during the summer, and psyllids in all stages of development may be found about the Bay trees at the same time. The adults are quite active and may be easily observed flying about the trees in the sunlight. Young trees which usually have an abundance of soft vigorous growth are more likely to become infested by the psyllids than older trees making little extension of growth, since the hard, woody growth is not suited to the feeding of the insects. Attack on young plants may, however, be very severe, and on rooted cuttings, maidens and bushes up to five years old, practically every shoot may show galled leaves. The feeding of these numerous insects not only seriously reduces the vigour of the plants, but also detracts from their appearance, and consequently their market value; this last is an important consideration with the nurserymen selling ornamental plants.

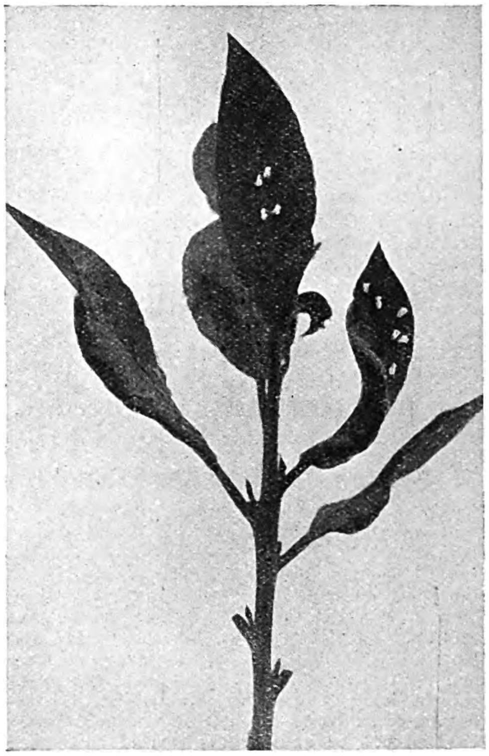

FIG. 167.—SHOOT OF BAY TREE.
Half natural size; showing galled leaves and small, whitish, immature psyllids.

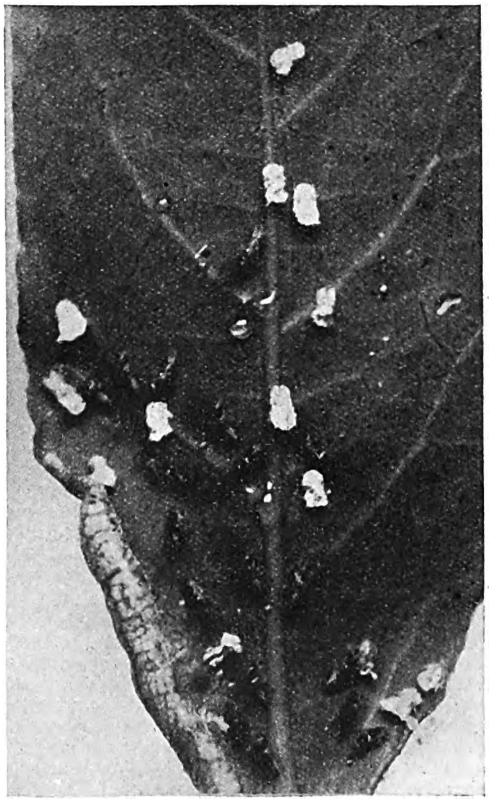

FIG. 168.—INFESTED BAY LEAF.
Showing galled tissue and young and adults of the Bay psyllid (four times natural size).

In Belgium, where the pest is very prevalent, control measures consist of fumigation when the plants are in their winter storehouses, and the periodic removal of infested shoots during the growing season. The cutting beds are carefully examined at intervals and the infested leaves removed, and the cuttings occasionally sprayed with a soap and nicotine spray. The fumigations, which are carried out at intervals between November and February when the plants are under cover for the winter, are generally conducted by means of Tobacco waste, the Tobacco stems, leaves and waste being burned in suitable braziers or metal trays on the floors of the storehouses. The dosage of Tobacco waste is about 2 lbs. for 3,000 cubic feet. Since the introduction of calcium cyanide this material has been used and at a dosage of half-an-ounce per 1,000 cubic feet gives very promising results.

Tobacco waste was the fumigant recommended some time ago in New Jersey, U.S.A., as giving an almost complete control of the hibernating adults with one fumigation. In Vienna, however, hydrocyanic acid gas has been used with complete success. Under conditions in California all stages of the pest have been killed by the application of miscible oils and oil emulsions, but unless infested leaves are removed prior to spraying, this operation is not likely to give satisfaction owing to the difficulty of reaching insects closely sheltered within the galled foliage.

Under conditions obtaining in Britain, most beneficial results should be obtained by the removal of infested shoots, combined with the use of a soap and nicotine spray or a refined petroleum emulsion during the summer. On nurseries where young trees are taken into houses for the winter, fumigation with nicotine or hydrocyanic acid gas to destroy overwintering adults may be performed easily, thus reducing the likelihood of re-infestation the following spring. Where old trees which cannot be readily moved become heavily infested, fumigation might, perhaps, be carried out with the aid of tents, but under ordinary circumstances the removal of infested shoots and periodic spraying with a suitable insecticide containing nicotine should keep Bay trees fairly free from this insect. *Herbert W. Miles, M.Sc., Victoria University, Manchester.*

INSECTICIDES AND FUNGICIDES.

(Continued from p. 335.)

These conditions are now likely to change somewhat. The demand for insecticides and fungicides continues to grow and will grow more and more as intensive methods of culture are pursued. During the last four years the value of the imports of this class into the United Kingdom has practically doubled. The reason is that the diseases which the pesticides combat are largely diseases of civilisation and more often than not result from over-stimulation and intensive growth. The more luxuriant the growth and the more artificial the soil and atmospheric conditions employed for obtaining outstanding yield, the more liable is the plant to suffer from disease. No crop may be regarded as immune.

The successful accomplishment of the artificial fixation of atmospheric nitrogen is certain to have its counterpart in a bigger demand for plant medicines. The more widely used the artificial nitrogenous manures become, the correspondingly larger will be the output of insecticides and fungicides and the greater will be the need for the discovery of new and more effective methods of controlling plant diseases and maintaining the general health of the food crops. This is a matter worthy of commanding the attention not only of the agriculturist and the horticulturist, but of the chemical industry generally.

Signs already exist of increased attention being paid to the pesticide position elsewhere. In the United States several manufacturing concerns have recently come into existence for the sole purpose of making pesticides; and from one at least of these evidence is forthcoming of an intention to approach the subject in a scientific spirit and with the objects in view discussed above.

The most likely method in this, as in other industries, of making real progress, is the collaboration between progressive manufacturers and the academic research centres. In the meantime the official experimental stations have not been idle. The work instituted at Rothamsted has already been referred to, and the United States Department of Agriculture continues a general search for new materials. In this country increased attention is being paid at Wye to a close study of the constituents and activities of both insecticides and fungicides.

In its *Bulletin*, No. 1160, the United States Department of Agriculture has reported on the testing of a number of organic compounds and come to the conclusion, which tends to confirm the writer's contentions, that neither volatility nor boiling point is an index of activity, nor is chemical structure a good guide, although possibly the best available in the present incomplete state of our knowledge when applied to particular classes of compounds.

More work of this kind is required. In this country special grants for the study of pesticidal action should be made by the Board of Agriculture to such colleges and stations as are most suitably situated for carrying out the work. With such a stimulation of interest in the subject it could be hoped that before long the chemical industry would associate itself in a practical manner with these endeavours. At present its attitude towards the subject is luke-warm and the methods employed must be regarded as haphazard in the extreme when the importance of the business to our vital food crop requirements is realised.

In surveying the advances made during the post-war decade in the preparation and use of pesticides for agricultural and horticultural purposes, it is quickly seen that the greatest progress has unquestionably been made on the physical and mechanical side rather than on the strictly chemical. Most attention has been paid to the important matter of attaining better contact between the active chemical and the pest to be attacked, and some really good work has been accomplished in the improvement of spreaders. The production of better emulsions and the adoption of dusting as an alternative to spraying are also outstanding improvements in the development of methods of application and in general show the use of scientific method and thought. Most of this work has been of American origin.

On the chemical side, probably the most remarkable feature to one surveying the field after an interval of time is the continued dependence on the simple arsenicals as contact insecticides and the remarkable growth in their manufacture and use. This, and the comparatively restricted number of effective fungicides and insecticides in use, inevitably leads one to the feeling that there is much scope for further development and to the hope that the future will see a wide extension of the range and efficiency of the compounds available.

Value of Dusts and the Relative Efficiency of Dusting and Spraying.

During recent years there has been a strong tendency to substitute dusting for spraying wherever possible, mainly because of the greater possible rapidity of application of dusts and the alleged lower costs and greater effectiveness. With suitable apparatus available the greater rapidity of dusting can probably be accepted in general as a fact, although some tests carried out last year in California did not entirely bear this out. Herbert, the deciduous-fruit entomologist of Messrs. Balfour, Guthrie and Co., not being satisfied with the generally accepted conclusion that dusting is actually quicker than spraying, made a series of trials with suitable sprays on Prunes and comfortably treated twenty acres for thrips in one day. This was practically as rapid as dusting, and a good deal cheaper in cost of materials.

Probably the greatest advantage possessed by dusting is the quickness with which it may be organised to meet special occasions. Further, with suitable apparatus, there is no measured dilution to be carried out and no transport of water to be bothered with. In other words, it is less troublesome. This simplicity is emphasised in comparison with the use of soap and other sprays where it is desirable, and sometimes necessary to soften the water used for dilution.

There is still a good deal to learn about the true value of dusting and the place it should find in the grower's armoury of defensive weapons. Many diseases do not appear to be controlled by the dusts at present available, and this seems to apply in particular to Apple diseases, especially scab, leaf spot, sooty blotch and bitter rot. Moreover, the relative effect of dusting is often open to question. Successive applications are almost invariably required and although good in dry seasons, the effect of rain is generally detrimental. Excellent results have been obtained with nicotine dusts for aphis on Potatos, etc., but exact field tests carried out in New Jersey and elsewhere on Plums, Apples and Peaches, have generally indicated that the best results from dusting, *e.g.*, with sulpho-arsenical dusts, may be duplicated by spraying, whereas the best effects of spraying cannot by any means be obtained with correspondingly constituted dusts.

Most growers are content in the meantime, and probably rightly, to regard dusting as a supplementary treatment. That is probably its best function until such time as the conditions governing the activity of dusts are more fully explored.

In the case of volatile poisons like nicotine the presentation of the insecticide as a solid, from which vapour is gradually liberated, is sound. But the true contact poisons probably act eventually in solution and their application in solid form cannot so readily be defended on physico-chemical grounds. The degree of dispersion obtainable in a mechanically ground solid or of a dry precipitated solid is not comparable with that of a solution, of a colloidal dispersion, or of a precipitated solid suspended in liquid. For this reason the active mass of the solid is smaller and larger amounts of material are required; there will be inequalities of effect; burning of the plant is liable to occur due to local increases in concentration, and greater loss is likely to be caused by rainfall.

These and other effects are all liable and likely to happen in the use of dusts. The effect of size of particle, of temperature and temperature variation, and of moisture, will all need to be worked out more fully for the dusts than for the sprays, and with the end in view of reducing the quantity required and the number of applications, and also of insuring that dusts are only used when and where they can do no damage, and where they are likely to have real advantage to the user. Despite all this, one may be hopeful for the future of dust applications, at least for the control of specific diseases under certain conditions. *S. J. M. Auld, D.Sc.*

(*To be continued.*)

GARDEN MANURES FOR NOVEMBER.

At this time of the year most of the crops of the garden have been harvested and considerable areas of vacant ground await attention. On heavy soils it is a good policy to get some of these areas dug or trenched during November, and the problem of manuring presents itself. On most soils the incorporation of some bulky manure during the process of working is desirable and, owing to the general shortage of farmyard manure, the use of sewage manure as a substitute is often advocated. On the whole, little may be said against this, and in districts where it may be purchased at a low rate, advantage should be taken to make the fullest use of this material. It should be borne in mind that it is seldom so rich in fertilising material as farmyard manure of equal weight, therefore the all-in cost should be substantially lower.

But sewage manures vary very considerably in their fertilising value, and the actual amount of organic matter, although sometimes so high as fifty per cent. in some samples, is frequently no more than twenty per cent. in others. Of the remainder, a large proportion is generally chalk, but some samples also contain quite a substantial amount of sand. Because of this relatively large content of extraneous matter in the average sample of sewage manure, it is the very strong soils which are usually most benefited by their application, as, apart from its fertilising value, its usefulness as an opening agent is considerable, and advantage should be taken of the fact. On the other hand, samples which contain a very high percentage of organic matter may be used with greater advantage on lighter soils, but it may be noted that the humus is easily washed out and disappears more quickly than that resulting from the decomposition of vegetable matter. With regard to the dried sewage manures offered as commercial articles, they also vary in value, and many samples contain matter of little fertilising value. Some samples also contain large amounts of water, which adds to the cost of transport while serving no useful purpose as manure.

Many of the objections to using sewage manure may, however, be disregarded, or, generally speaking, it may be stated that quite satisfactory results have been obtained from its use despite its somewhat variable composition, and gardeners who can obtain it easily should give it a fair trial and note results. A good average dressing is about fifteen tons per acre, and this, compared with the weight of farmyard manure applied generally, appears to be economical both in quantity and cost.

Experiments have shown that it is quite suitable for the manuring of flower borders, good results having been obtained by the use of it. For small fruits, particularly as a top-dressing for Black Currants and Raspberries, it has been used with good effect. In the case of vegetables also, sewage manure has been shown to be quite a good substitute for farmyard manure. Peas and Beans may be grown in trenches manured with sewage manure in the same way as one would use farmyard manure. Cabbages and other green crops do well with it and yield excellent crops, and root crops generally may be grown with it, particularly if they are assisted with an additional dressing of potassic manure. This principle should be applied in the cultivation of all crops and, if sewage manure is used as a base of manuring instead of farmyard manure, concentrated fertilisers to meet the needs of particular crops may be used in conjunction with it, and these should be applied in the growing season.

There are several other natural products of considerable value as fertilisers, which may be used with advantage at this season of the year in the preparation of soils. Of these, shoddy may be mentioned as a valuable substance which gradually gives up nitrogen for the needs of the plant over a prolonged period. It is not so rich in phosphoric acid and potash as farmyard manure, but it is valuable on all soils owing to its bulkiness, which leads to the production of the necessary humus. Samples of shoddy vary considerably in value, and while that from cotton waste has not a very high fertilising value, it is worth digging in as a humus-forming material; it is the wool-waste that contains the properties of manurial value, and in districts where farmyard manure is difficult to obtain it is being used in increasing quantities with good effects, one of its valuable characteristics being its lasting quality. Further, in addition to the rich elements which the wool contains, shoddy also possesses great absorptive capacity, and this enables the soil better to hold water with nutrient salts in solution.

Another natural product, highly valuable from the fertilising point of view, is feathers. They are similar in action to shoddy and equal to it in fertilising value. A good sample contains so much as sixteen per cent. of ammonia and, as feathers may often be purchased at a lower price than shoddy, they offer a relatively cheap source of manure. Clean samples are, naturally, very bulky, and thus very helpful on heavy soils.

The value of bone manures has already been commented on, and mention might also be made of hoof and horn refuse, which is equally valuable. The parings of horses' hoofs and the sawdust and small refuse from factories where horn and bone knife-handles, buttons, etc., are made, have high manurial qualities, and where such materials may be obtained, they should be dug into the ground in course of preparation at the present time. They are particularly valuable on poor soils and continue to yield plant foods for two or three years. The value of fish manure is well-known, and the manufactured fish-meals on the market constitute excellent fertilisers which should, however, not be applied until the spring, but where crude fish offal is obtainable it should be dug in now on ground which is to be left rough during the winter months. *W. Auton.*

HOME CORRESPONDENCE.

Brunsvigia Josephinae. — *The Gardeners' Chronicle* of September 15 records the flowering of Brunsvigia Josephinae by W. H. M. Finch, Esq., at Burley-on-the-Hill, Oakham, and also by Lt.-Col. Charles Kerr, Culworth, Banbury. The above plant is also in flower in the garden of G. W. W. Blathwayt, Esq., at West Rorlock, Taunton, Somerset. It was purchased about three years ago and potted into a nine-inch pot, and it made good growth the first year; last year it showed no signs of active life, but this year it has produced a spike which is nineteen inches high, and the pedicels eight-and-a-half inches long, with twenty-two flowers; the bulb is sixteen inches in circumference. During the winter months it is kept in a cool greenhouse and stands in a cold frame exposed to full sunshine during the summer. It is a plant well worth seeing in flower. *G. B.*

Vita Glass.—It would be interesting to know if any reader has yet come to any definite conclusions regarding the benefit or otherwise which plants derive from the use of Vita glass. Here, as an experiment, a sash five feet wide on the north-west side of an Odontoglossum house which gets a good share of the afternoon sun, was glazed with this glass about twelve months ago. This was left unshaded so long as possible this season to give us an opportunity to judge the effect on the plants. But towards the end of June it became necessary for the well-being of the plants to apply a permanent shade. Up to that time, so far as we could judge, there was no difference in the growth of the plants under this glass as compared with those in other parts of the house. The same remarks apply to the period during which the glass has been shaded. Are we right in assuming that the effects of the shade would be to neutralise any effect that might be produced by the Vita glass? Further, in conversation with one who had also experimented with this glass, it transpired that the effect was possibly more noticeable on plants on the opposite side of the house than on those placed directly under it. Perhaps some reader could give us information on this aspect of the question. Knowing this matter to be of interest to many engaged in plant cultivation under glass, I offer these few observations in the hope that others will give the results of any experiments they have made. *F. A. Bush, Arddarroch Gardens, Garelochhead, Dumbartonshire.*

Colour of Flowers.—On picking up a contemporary gardening paper, I discovered what is really a colour-blend description. I feel sure that many folks are more colour-blind than they imagine, and usually suffer from a shortened colour vision. They see little or no violet, perhaps, while others see little of the red end of the spectrum. If those who see little of the violet look at a heliotrope flower which may owe its tint to a mixture of the violet and the red rays of the spectrum, the flower will be a true pink to them, but to those who see little of the red rays, but a full range of the violet, the flower will appear violet. In an artificial light, which is yellow, the blue rays do not appear, and a purple flower looks very pink. I doubt whether such people could ever match colours well and they would need help even in the use of such a chart as that suggested. I have found it very interesting to analyse the colour of petals by looking at them through my small pocket spectroscope. *H. H. Warner, Brighton.*

FRUIT REGISTER.

APPLE CRIMSON COX'S ORANGE PIPPIN.

THE introduction of a new dessert Apple of first class quality may be hailed with pleasure. Such an Apple is Crimson Cox's Orange Pippin. This occurred as a sport in the garden of Mr. John Harris, Hayne's Farm, Carey, Herefordshire, about 1913, and has been carefully observed ever since. The sport maintained its character for several years, and then Mr. Harris started to work it on the Paradise stock. During the past six years its behaviour on the parent tree, and worked on Paradise, has remained consistently the same.

Crimson Cox's Orange Pippin is identical with the parent in everything except colour. It has the flavour of Cox's Orange Pippin—some consider the flavour intensified—but instead of being green or slightly coloured, its fruits are of a rich red—very much like a colour between Ben's Red and Mère de Ménage. This, added to the fact that the parent is our finest-flavoured Apple, should make Crimson Cox's Orange Pippin one of the most popular Apples we have.

This crimson variety has maintained its character in my garden, the soil of which is of a much heavier nature than that at Carey. I planted the tree last autumn; it has grown vigorously and produced beautiful fruits. *P. Murray Thomson, Hereford.*

VEGETABLE GARDEN.

TOMATOS.

EARLY supplies of this most useful subject are always in demand, and if fruits are required in April, seeds should be sown towards the end of October, or early in November. In view of the declining season and the need to promote sturdy growth, the seedlings should be grown as near the roof-glass as possible, maintaining a buoyant atmosphere at all times and a temperature ranging from 55° to 60°. Air should be admitted cautiously, and with due regard to the prevailing outside conditions; it is better to allow the temperature to rise a few degrees higher than the maximum stated in moist, sultry weather, by means of fire-heat, than to foster a stagnant atmosphere. Pot the plants on as required; the size of pot and the time of potting must be consistent with the action of the roots, which will naturally be less active than during the usual growing season.

This early crop is best cultivated in ten-inch pots, and by the second week in January the plants should be ready for their final shift. If the pots are filled to half their depth in the first instance, room will be provided for top-dressing at a later date.

Give water sparingly at this stage, always use tepid water, and apply it during the middle of the day. Pollenate the flowers by means of a camel-hair brush, and after securing three or four trusses of fruits the plants should be stopped, as there is no object in overcropping. Assistance should also be given by feeding with liquid manure or a slow-acting fertiliser after the fruits have set.

A good compost for Tomatos up to the time of the final potting consists of three parts sifted loam and one part leaf-soil, with an addition of sand. When transferring the plants to their fruiting pots the loam should be rougher, and well-decayed manure may replace the leaf-soil, while old-mortar-rubble should take the place of sand, adding burnt ash and a six-inch potful of crushed bones to each barrow-load of the other combined materials.

All plants have their enemies and Tomatos are no exception. If strict cultural details are observed, fungous diseases may be reduced to the minimum. White fly is the worst offender, but, happily, claims have been made for its complete destruction by the use of cyanogas. The Sunrise type of Tomato is to be recommended for an early crop. *Thomas Baines, Marks Tey.*

SOCIETIES.

IMPERIAL FRUIT SHOW.

FOR the third time since its inception, and the second in succession, the Belle Vue Gardens, Manchester, were selected as the site for the Imperial Fruit Show, which was run on much the same lines as its predecessors, with some additions, including Potatos. From the point of view of representation the show was true to its name, as fruits, either fresh or preserved, were on view from widely distributed parts of the Empire. While some of the fruits exhibited from overseas were such as cannot be produced commercially in this country, the Apples in particular were not only object lessons in the results of scientific cultivation, grading and packing, but they demonstrated the kind of competition that fruit growers in these islands have to face.

Apples were the predominating feature of the show, and in the section for home-grown fruits there were, as on former occasions, classes for specified varieties, which included Cox's Orange Pippin, Worcester Pearmain, any other dessert variety, Bramley's Seedling, Newton Wonder and Lane's Prince Albert in boxes; Cox's Orange Pippin and any other dessert Apple in half-sieves; Bramley's Seedling and Lord Derby in half-barrels; with Bramley's Seedling, Newton Wonder and any other culinary variety in bushels, open respectively to Kent and the Southern counties, Eastern and Northern Counties, and West and Midland Counties; with two classes for Ulster and one for small growers in the United Kingdom.

Considering the wide area covered, the entries in the competition were distinctly disappointing, and the fact that there were only six exhibitors from Kent and the Southern Counties, which embrace Berkshire, Hampshire, London and Middlesex, suggests either a poor Apple crop or lack of interest in the show on the part of growers in one of the most favoured fruit-growing localities in the country. The Eastern and Northern sections did better with twenty-one exhibitors, but the number may hardly be described as good, while in the West and Midlands section, extending from Cornwall to Westmoreland and all Wales, only ten growers competed for the prizes offered. Only five "small growers" in the United Kingdom competed for the three prizes offered for two boxes of any dessert Apple, three of these coming from Cornwall and one from Devon.

The set piece of the show, so far as English Apples were concerned, was the class for one ton of Bramley's Seedling shown in fifty-five boxes. Here there were five competitors, and their exhibit collectively made the finest display of Britain's best culinary Apple ever seen at a show. The award was keenly contested, and the first prize (£20) was awarded to the HOLLESLEY BAY LABOUR COLONY for a fine display of Apples which were not large but very even in size, clean and extremely well packed. The second award went to Messrs. W. SEABROOK AND SONS, Chelmsford, who also staged a good exhibit of medium-sized, well-packed fruits. Boxes of brilliantly-coloured Bramley's Seedling were staged by Mr. S. W. MOUNT and won for him the third prize. From the point of view of appearance, this was the most attractive exhibit in the class and considered by many critics to be the best, but some of the Apples on the top layer showed signs of damage through pressing. The UPWELL AND CUTWELL PACKING STATION, Cambridgeshire, was awarded the fourth prize for Apples of mixed quality, which also showed signs of bruising. There was nothing of special merit in any of the other lots staged.

DESSERT APPLES IN BOXES.

One of the finest exhibits in the show was the four boxes of Cox's Orange Pippin shown by the UNIVERSITY OF READING, per Mr. COBB, the fruits being of good size, brilliant in colour, and admirably packed. This exhibit took the first prize in the Southern section, the EXECUTORS OF W. E. BEAR being second. In the Eastern Counties section, Mr. H. GRANGER, of Maldon, Essex, had the best boxes of Cox's Orange Pippin, Messrs. W. SEABROOK AND SONS being a very close second. Curiously enough, this exhibit, although not winning a first prize, was awarded a Gold Medal by the R.H.S. as being the best four boxes of this variety in the United Kingdom section! In the West and Midland section, Mr. Paget Norbury won the first prize with fine examples of this variety. The Overbury Orchards Company, were a good second, and Mr. J. Morton was third.

Considering the time of the year, Worcester Pearmain was shown in very fresh condition, and some fine examples were staged by the University of Reading, which won first and second prizes. Messrs. W. Seabrook and Son had the best Worcester Pearmains in the Eastern section, followed by Mr. W. L. Taylor, second, and Mr. R. Stephenson, third. In the West and Midlands section the Overbury Orchards Co. took first prize with Worcester Pearmain, and Mr. Paget Norbury, second.

In the "any other variety" class, the Executors of W. E. Bear led with very fine Blenheim Pippins, Mr. A. T. Miller being second with King of the Pippins, and third with Allington Pippin. In the Eastern section, the first prize was won by Messrs. W. Seabrook and Son with Ellison's Orange, very good in size and quality, and the same exhibitor also took second prize with Rival; Miss K. M. Courtauld was third, with Allington Pippin.

In the West Midland section, Mr. Paget Norbury was to the front with fine Charles Ross; Mr. J. Morton being second with Allington Pippin; and Mr. Norbury, third, with Allington Pippin.

Culinary Apples in Boxes.

Bramley's Seedling packed in boxes made a fair display in the Southern section, Mr. H. G. Kleinwort won with highly-coloured specimens, the Reading University College coming second. Four boxes of Apples that were quite green won for Messrs. H. M. Dixon the first prize in the West and Midland section, and side by side with these were Mr. J. Morton's Apples, almost brilliantly red, which secured the second award. In the Eastern and Northern section, Mr. J. A. Clarke won with fine examples of this variety, the Hollesley Bay Labour Colony being second, and Mr. F. Clayton, third.

Mr. Paget Norbury showed some fine and highly coloured Newton Wonders, which won first prize for this Apple in the West and Midland section; and in the Southern section the Reading University College occupied the place of honour. With fruits that were less highly coloured, Messrs. Gardner Bros. won in the Eastern section, the Hollesley Bay Labour Colony being second.

In the class for Lane's Prince Albert, the Hollesley Bay Labour Colony sent some fine Apples which won first prize in their section; and Mr. A. T. Miller had the best Lane's Prince Albert in the Southern Counties section. One of the best lots of this variety was that exhibited from the Overbury Orchards Company, which took the first prize in the West and Midland section. For an Imperial show, the Apples in boxes did not make a very big display.

Apples in Sieves, Bushels and Barrels.

For four half-sieves of Cox's Orange Pippins, Mr. J. Morton won in the West and Midlands section with fine specimens, and the Reading University took both first and second prizes in the Southern Counties section. In the Eastern section, Mr. H. Granger had the best Apples, followed by Mr. J. R. Keeble.

In the "any other dessert" class, King of the Pippins won the first prize for Mr. A. T. Miller in the Southern section, the Reading University being second, with Worcester Pearmain. In the West and Midlands section, Mr. Paget Norbury won with Charles Ross; was the Overbury Orchard Company second. In the Eastern section, Mr. R. Stephenson and the Hollesley Bay Labour Colony divided the first and second prizes.

In the class for four bushels of Bramley's Seedling, Mr. A. E. Morton, Wisbech, showed some splendid green specimens which won the first prize in the Eastern section; Mr. H. G. Kleinwort achieving the same success in the Southern section with highly coloured examples.

Messrs. Gardner Bros. had the best Newton Wonders in the Eastern section; Mr. A. E. Morton, second. The Newton Wonders which won for Mr. Paget Norbury the first prize in the West and Midland section were remarkably fine and highly coloured, but the competition in this class was by no means keen.

In the class for "any other market" variety, Mr. J. Morton won in the West and Midland section with Lane's Prince Albert; the Overbury Orchard Company, second, with fine examples of Blenheim Pippin. In the Southern section, Mr. A. T. Miller won with King Edward VII, and in the Eastern and Northern section, Messrs. Gardner Bros. won with Lord Derby.

In comparison with other years the display of Apples in barrels was small, and for Bramley's Seedling, Mr. S. W. Mount, Canterbury, won first prize in the Southern section with fine, well-packed specimens. In the West and Midlands section, the first prize went to Mr. Paget Norbury for highly coloured Apples, and in the Eastern section, the Hollesley Bay Labour Colony occupied the leading position. There was a very poor show of Lord Derby, and the best exhibits were from Mr. Paget Norbury and the Hollesley Bay Labour Colony. With a few notable exceptions, the packing in the barrel classes was by no means creditable.

Pears and Other Classes.

In the Pear classes, Mr. Stephen Ballard won first prize with some fine Doyenné du Comice; Messrs. F. and T. Neame being second. Messrs. T. and M. Dixon had the best examples of Conference, followed by Messrs. E. Wiseman and Sons, Ltd. In the half-box class for Conference, Messrs. T. and M. Dixon were the winners, and in the class for "any other variety" the Hollesley Bay Labour Colony took the first prize. Considering that Pears generally are a good crop this year, the competition in the classes for these fruits was anything but good.

The Small Growers' section occupied very little space, and Mr. J. W. Burrows won first prize with both culinary and dessert Apples, in a competition which can only be described as weak.

In addition to the above, there were several classes confined to growers in the county of Cheshire, but there was nothing outstanding in the quality of the fruits displayed, and the Cheshire growers have something to learn in the art of packing. Ulster made a small contribution to the show, and two of the exhibitors, namely, Mr. J. McGrane and Mr. James Donelly, sent some good green Bramley's Seedling, well packed in boxes.

As is customary at this show, the Apples in competition were sold by auction, and from remarks we heard, the exhibitors generally were very disappointed at the low prices their fruits realised.

Other Exhibits.

The Empire Marketing Board made a great display, both with home-grown and colonial produce, and much taste was shown in the arrangement of the exhibits. There was canned fruit, honey and wines from Australia, perfect Apples from Nova Scotia and Ontario, a great display of Oranges from South Africa, and Potatos from Northern Ireland. British products were well shown in this section and consisted of Apples in boxes displaying the registered mark, a variety of canned fruits, bottled cider, bottled fruits and English-made jams and jellies.

The interest of the show was further increased by trade exhibits, some of the most attractive being those from Messrs. G. Monro, Ltd., and C. H. Deakin, Ltd., while an educational exhibit from the Manchester University, and the Apple-packing demonstrations organised by the Ministry of Agriculture claimed their share of attention.

Fruit Growers' Conference.

A highly interesting and well attended Conference of fruit-growers was organised during the progress of the show by *The Fruit Grower*, the proprietors of which journal also entertained a large company to lunch. At the morning session, Sir William Lobjoit gave an interesting address on "A century of organisation and some achievements," and following this there were a number of short speeches and discussion on the "National Mark" in its association with fruits and vegetables. The Conference was continued in the afternoon with a good company present, close attention being given to the addresses by Mr. F. J. Chittenden, Mr. R. G. Hatton, Professor Wallace of Long Ashton, and others who contributed to the discussion.

Mr. Seabrook, who presided at the afternoon Conference, paid tribute to the scientific workers in horticultural research for the excellent work that was being done on the part of research workers to help the practical workers. In the absence of Sir Daniel Hall, his paper was read, and received with approval by the company present.

ROYAL HORTICULTURAL.

October 30 and 31.—The special feature of this fortnightly meeting of the Royal Horticultural Society, which was a two-day function, was Orchids. The show was held in the new hall, and many admirable collections of Orchids were exhibited. Orchid novelties were also freely shown, and the Orchid Committee recommended three First Class Certificates and nine Awards of Merit to novelties. Hardy trees and shrubs, illustrating the colour value of autumn foliage and fruits, made very attractive displays, and there were also several good collections of Nerines, Roses, Carnations and hardy border flowers. The novelties were fewer than usual, and the two sections of the Floral Committee recommended only three Awards of Merit and one Cultural Commendation. The dais provided a very convenient position for the display of "New and Rare Plants," and perhaps this will become the recognised place for them. But we would suggest the advisability of some supervision being exercised over the alleged novelties—the inclusion of small fruits of the Pomegranate superimposed on shoots of the common Myrtle savours rather of the costermonger's barrow and certainly should not find a place in the R.H.S. hall. There was an exhibit of Brassicas and a collection of Apples. Many Apples were sent for naming, but beyond this the Fruit and Vegetable Committee had no business to transact.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Mr. Gurney Wilson (Hon. Secretary), Mr. Lionel de Rothschild, Mr. Fred J. Hanbury, Colonel Stephenson Clarke, Mr. S. Low, Mr. R. G. Thwaites, Mr. Armstrong, Mr. J. Cowan, Mr. R. Paterson, Mr. R. Ashworth, Mr. A. Dye, Mr. A. McBean, Mr. S. Flory, Mr. Charles H. Curtis, Mr. H. H. Smith, Mr. H. J. Alexander, Mr. J. E. Shill, Mr. W. Hatcher, and Mr. F. K. Sander.

First Class Certificates.

Laelio-Cattleya Janet (*L.-C. Schröderae* × *C. Hardyana alba*).—A large-flowered and exquisitely beautiful hybrid. The broad petals and stout sepals are white, the former lightly fringed at the margins. The lip is light violet-purple, with a golden, purple-marked throat, and ruby shading in front of the golden area. Shown by Baron Bruno Schröder (gr. Mr. J. E. Shill), Dell Park, Englefield Green.

Cypripedium Walter Moore (*C. Mrs. Eley* × *C. Gwen Hanmer*).—The dorsal sepal of this finely-shaped Cypripedium is white, with a semi-circular yellowish-green base that has dark green veinings; the petals and lip are light apple-green. Shown by Miss A. B. Moore (gr. Mr. W. H. Page), Chardwar, Bourton-on-the-Water.

Laelio-Cattleya Ishtar (*L.-C. Lustre* × *C. Fabia*).—In this very large-flowered variety the mauve petals are very wide and prettily frilled;

sepals narrower but of similar colour; lip very widely expanded, deep royal purple, with mauve edge and dull gold marks in the throat. Shown by Robert Paterson, Esq. (gr. Mr. Merry), Stonehurst, Ardingley.

Awards of Merit.

Laelio-Cattleya Moloch, Exbury var. (*L.-C. St. Gothard* × *L.-C. Sargon*).—A bold and shapely hybrid of soft mauve-purple colouring, the lip being deeply frilled, deep purple with gold veins in the throat. Shown by Lionel de Rothschild, Esq. (gr. Mr. B. Hills), Exbury, Southampton.

Laelio-Cattleya Locarno, Brockhurst var. (*L.-C. Soulange* × *C. Tityus var. Pearl*).—A handsome hybrid of large size and fine form, the whole flower being well balanced. The sepals and petals are purplish-mauve, the former lightly fringed at the margins. Lip large, broad and frilled; deep purple with ruby shading and a yellow blotch on each side of the gold-veined throat. Shown by F. J. Hanbury, Esq. (gr. Mr. Farnes), Brockhurst, East Grinstead.

Cymbidium Hanburyanum var. magnificum (*C. erythrostylum* × *C. Traceyanum*).—A handsome and uncommon form with deep cream ground to the sepals and petals which are shaded and veined with a pretty shade of bronzy-red. The lip is cream-coloured, with red-brown spots and bronzy-red side lobes. Shown by Messrs. J. and A. McBean.

Laelio-Cattleya Valencia var. Levante (*L.-C. Soulange* × *C. Dinah*).—This bright hybrid has very broad petals of a pleasing light mauve shade, paler at the base. Lip rich and deep violet-purple, with ruby shading in front of the wide throat that has old-gold veins and a yellow blotch on each side. Shown by Messrs. J. and A. McBean.

Cypripedium Euristopher (C. *Eurybiades* × *C. Christopher var. Grand Duke*).—A large hybrid with an immense dorsal sepal that is white at the apex and sides, but green, with dark purple spots in the centre. The petals are also very broad, green, with dark purplish-brown marks; lip pale green with soft brown shading. Shown by Robert Paterson, Esq.

Laelio-Cattleya Schröderae, Stamperland var. (*L.-C. Maggie Raphael alba* × *L.-C. Belle alba*).—A very fine form of this beautiful hybrid, and represented by a fine plant carrying a spike of five grand flowers that are white, with purple, pale gold-throated lip. A Cultural Commendation was also awarded. Shown by Robert Paterson, Esq.

Vuylstekeara Rudra var. Atlas (*V. Brewii* × *Odontoglossum Prince Edward*).—In this variety the widely-expanded flowers are very attractive. The sepals and petals are pale mauve with an abundance of reddish spots, and an irregular line of similar colouring near the margin. The flattish lip is pink, speckled with rose-red; the mask rose-red and the disk yellow. Shown by Messrs. Charlesworth and Co.

Lycaste longiscapa.—This species has green flowers borne singly on a very tall scape. Shown by Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

Catasetum Charlesworthii.—A quaint species from Peru and the name given it is provisional. The flowers are green, with very dark vinous-purple flecks, the lip showing a large area of this latter colour; the side lobes are pointed and the front portion abruptly, almost squarely, ended. Shown by Messrs. Charlesworth and Co.

Groups.

As this show was specially devoted to Orchids, there were naturally several fine exhibits of these subjects.

Messrs. Sanders, staged a very extensive collection of excellent specimens, tastefully arranged. Of Cattleyas, the most striking sorts were the richly-coloured C. Fabia var., C. Flame, C. Hardyana, C. ardentissima, and C. President Wilson. The gracefully-sprayed Odontoglossum amabile, and the dainty, chocolate and yellow-flowered Oncidium Forbesii, together with the lovely white Phalaenopsis Rimestadiana, Vanda coerulea, and the uncommon Stenoglottis longifolia, with tall, slender spikes of pale mauve, purple-spotted flowers, were all notable, while other fine sorts were Brasso-Cattleya Ilene var. tenebrosa, B.-C. Sir Woodman Burbidge and B.-C. Digbyano-Mendelii, with large, delicate, lavender-pink flowers, each with a yellow, shaded with red, throat; and many choice Cypripediums.

Next to this group was one set up by Messrs. Stuart Low and Co. There were several fine Laelio-Cattleyas, notably L.-C. Cleo, L.-C. Soulange, L.-C. Mrs. Medo, L.-C. Honoria and L.-C. Dominiana. The centre of the group was occupied by good specimens of Cattleya Fabia, while there were numerous examples of Brasso-Cattleyas, Cypripediums, Oncidiums, notably O. pubes, O. oblongatum and O. incurvum album; Odontiodas and Odontoglossums.

Mr. J. Evans had a small collection of fine specimen plants, one of Cattleya labiata autumnalis having six magnificent sprays of twenty-four flowers in all. Vanda coerulea formed a prominent feature of the exhibit, and there were also excellent examples of Odontioda Charlesworthii, various forms of Odontoglossum crispum and several choice Cypripediums.

Messrs. Sutton Bros. showed Cypripediums chiefly, but they also had several Brasso-Cattleyas, notably B.-C. Mars; also Odontiodas and Odontoglossums. Among the choice Orchids shown by Messrs. Armstrong and Brown, we noticed the lovely Laelio-Cattleya Soulange and L.-C. Honoria; Cattleya Mantinii, C. ardens and C. Cecilia; Cymbidium Orion, Coelogyne speciosum and several Cypripediums.

Messrs. Cowan and Co. had good specimens of Cattleya Mantinii, C. Fabia and C. Heliodor; Brasso-Laelio-Cattleya Golden Crown, and B.-L.-C. Violetta; Laelio-Cattleya Hilary, L.-C. Leander and L.-C. Camilla, very fine; together with several Cypripediums, Odontoglossum promerens xanthotes, Oncidium tigrinum, Selenipedium calurum and Dendrobium Phalaenopsis Schröderianum.

Magnificent specimens, with large sprays of golden-yellow flowers, of Oncidium varicosum Rogersii, were the dominant feature of Messrs. H. G. Alexander, Ltd.'s exhibit, together with such richly-coloured Laelio-Cattleyas as L.-C. Cappei Charlesworthii, L.-C. Cavalese, L.-C. Queen Mary, and L.-C. Ishtar var. Brilliant. The crimson-flowered Sophro-Laelio-Cattleya Falcon, F.C.C. variety, was very striking, while other noteworthy Orchids were Cattleya Peetersii alba, Laelio-Cattleya melpomene and several Cypripediums.

Mr. Harry Dixon showed several Cypripediums, notably C. Maudiae magnificum, C. Ernest Read and C. Rosettii magnificum; together with Odontoglossum loochristiense, Laelio-Cattleya Thyone and L.-C. rubens; Cattleya The Rajah, C. Mantinii Nobilior and C. Bowringiana splendens.

In the centre of the wonderful group set up by Messrs. Charlesworth and Co., Ltd., there were magnificent examples of Oncidium varicosum Rogersii and Odontoglossum crispum xanthotes, the former with lovely sprays of golden-yellow flowers; those of the latter being white, with yellow centres. Numerous Odontoglossums were placed at the back of the group, where their lovely arching inflorescences proved very attractive, while Dendrobiums were also prominently placed. The beautiful, white-flowered Brasso-Cattleya Queen Alexandra, and such lovely Laelio-Cattleyas as L.-C. Soulange, L.-C. Athene and L.-C. Britannia, together with Cattleya Hardyana alba and C. Lord Rothschild alba, were but a few of the most striking, while several uncommon Orchids were also shown, notably Pleione lagenaria, Cryptophoranthus Dayanus and Trichosma suavis.

Messrs. J. and A. McBean had a very attractive exhibit of a large variety of Orchids, among which notable sorts were Laelio-Cattleya Queen Mary, L.-C. Valencia, L.-C. Profusion and L.-C. Etna; and Cattleya Fabia, C. Mantinii Nobilior, C. Fabia alba and C. Zeta. Cymbidiums and Odontoglossums were shown well, of the former C. Floryii and C. albanense being the most conspicuous, while of Odontoglossums there were good examples of O. Priapus, O. mirum and O. eximium.

J. J. Bolton, Esq. (gr. Mr. S. Lyne), Claygate Lodge, Claygate, showed a specimen of Cattleya Portia, Appleton's var., carrying five spikes and an aggregate of thirty-two fine flowers. A Cultural Certificate was awarded.

The Schröder Challenge Cup, offered for the best exhibit of Orchids by an amateur, at this meeting, was awarded to F. J. Hanbury, Esq. (gr. Mr. S. Farnes), Brockhurst, East Grinstead, who exhibited a very extensive collection of well-grown plants, which were very tastefully arranged. The centre of the group consisted of plants of Vanda coerulea and various Odontoglossums. Laelio-Cattleya Sargon, Brockhurst variety, was represented by a well-flowered specimen, other prominent Orchids, of outstanding merit, being Laelio-Cattleya Profusion and L.-C. Locarno; the lovely Cattleya Dinah and C. Muriel Henderson. These represent but a small selection of the numerous Orchids displayed, not the least attractive among which were the various Cypripediums.

The Silver Trophy for the best six Orchids exhibited by an amateur, was awarded to J. McCartney, Esq. (gr. Mr. C. F. Potts), Hey House, Bolton, Lancashire, who showed Cattleya Mantinii and C. Hardyana, Hey House var., both very floriferous; the dainty, feathery-sprayed Oncidium ornithorynchum; Vanda coerulea; Cypripedium Dreadnought and C. Sultan. E. R. Ashton, Esq. (gr. Mr. C. Kent), Camden Park, Tunbridge Wells, who also competed for this trophy, showed good specimens of Platyclinus Cobbiana, Stenoglottis fimbriata, Cypripedium Fairrieanum, Odontoglossum Armstrongii, Brasso-Laelio-Cattleya Eileen and Laelio-Cattleya Serbia, Lee's variety.

R. Paterson, Esq. (gr. Mr. A. Merry), Stonehurst, Ardingley, Sussex, secured the Orchid Challenge Cup for the best group shown by an amateur, in a space not larger than sixty square feet. Among the many choice Orchids in this group we noticed Cattleya Stella, Brasso-Cattleya Crofutiana magnifica, Cattleya Fabia, Laelio-Cattleya Edzell and L.-C. Ishtar; and Odontoglossum eximium, O. Alvara and O. Phena; together with several Odontiodas and Cypripediums.

J. J. Joicey, Esq. (gr. Mr. J. Mackay), The Hill, Witley, Surrey, who also competed for the Orchid Challenge Cup, had an attractive group in which Brasso-Cattleya British Queen var. Admiration, L.-C. Profusion, Brasso-Cattleya gigas Digbyana, Cattleya Luegeae, C. Hardyana and C. Queen Mary, were prominent.

Several extremely choice Orchids were exhibited by Sir Jeremiah Colman, Bart. (gr. Mr. J. M. Richards), Gatton Park, Surrey. These included Laelio-Cattleya Golden Criole, L.-C. Gilian, L.-C. Carmencita, L.-C. Aesthetica, the tiny Pleurothallis laterita, Brassavola cuculata, Masdevallia octodes and Pleurothallis octomeriaeformis.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. J. F. McLeod, Mrs. Ethel M. Wightman, Mr. W. B. Gingell, Mr. D. Ingamells, Mr. J. M. Bridgeford, Mr. Hugh Dickson, Mr. Donald Allan, Mr. William Howe, Mr. D. B. Crane, Mr. Charles E. Pearson, Mr. G. W. Leak, Mr. J. B. Riding, Mr. C. F. Langdon, Mr. J. T. West, Mr. R. Findlay, Mr. M. C. Allwood, Mr. A. E. Vasey, Mrs. Helen Lindsay Smith, Mr. E. R. Janes, Mr. Courtney Page and Mr. W. D. Cartwright, Secretary.

Section B.—Mr. Gerald W. E. Loder (in the chair), Mr. James Hudson, Mr. G. Yeld, Mr. E. H. Wilding, Mr. F. G. Preston, Mr. T. Hay, Mr. A. Bedford, Mr. E. A. Bowles, Sir William Lawrence, Bart., Lady Beatrix Stanley, Mr. Mark Fenwick, Mr. P. C. M. Veitch and Mr. N. K. Gould, Secretary.

Awards of Merit.

Carnation Rapture.—A large and shapely perpetual-flowering variety which did not appear to possess any perfume. The petals are evenly serrated and the colour is bright pink. Shown by Messrs. Allwood Bros.

Chrysanthemum Matchless.—This is a good bright yellow companion to the golden-bronze variety Flame, which received an award from the National Chrysanthemum Society a week ago. It is a perfectly round flower of market size and the florets are rolled.

Chrysanthemum Mayford Cream.—This is a very shapely, rounded flower, with cream-coloured, rolled florets. Both varieties were shown by Mr. H. Shoesmith, junr.

CULTURAL COMMENDATION.

The award of a card of Cultural Commendation was given to a Pancratium species shown by the Duke of Wellington (gr. Mr. H. J. Beckingham), Ewhurst Place, Basingstoke. It is known as the Spider Lily in northern India, and a very well-grown plant bearing four spikes of white flowers was shown.

GROUPS.

The Duke of Wellington also sent an attractive group of Nerine Bowdenii rising among well-berried sprays of Berberis and Pernettya. Mr. W. H. Walters, Colesborne Gardens, Gloucestershire, set up many admirable varieties of Nerine. Besides some attractive seedlings, he included Miss Dyer, scarlet; Mrs. A. Eden, salmon; Marchioness of Headfort, salmon; and Lady Stirling Maxwell, pale salmon. In association with uncommon shrubs, Mr. G. Reuthe staged a good collection of Nerine varieties. The shrubs included long sprays of Lapageria rosea, Camellia Sasanqua and Rhus cotinoides with brightly-coloured autumn foliage. He also had a good batch of Gentiana sino-ornata.

At the far end of the hall, Messrs. Robert Veitch and Son arranged Nerine Bowdenii with several good hybrids and the brilliant N. Fothergillii, and also showed sprays of various shrubs, including Acacia Hanburyana, Berberis nepalensis, Colletia cruciata (C. bictoniensis), Rhus glabra and heavily-flowered sprays of Punica Granatum nanum. In a graceful floor group, Messrs. Bakers showed Barberries in variety, Cotoneaster Simonsii, Delphiniums and Michaelmas Daisies.

A very attractive collection of hardy trees and shrubs was arranged by Messrs. J. Cheal and Sons. Vivid autumn colour was provided by bunches of Quercus rubrum, Quercus palustris, Acer palmatum and many graceful Barberries. The fruiting shrubs included Symphoricarpus laevigata, Stranvaesia undulata and Pernettya mucronata.

A bright display arranged by Messrs. Hollamby's Nurseries contained a number of plants of Vitis Coignettiae, Vitis armata and the variety Veitchii, Barberries and Erica lusitanica. Messrs. Baggesens staged many shapely Conifers, Berberises, Veronicas and well-budded plants of Daphne Blagayana. Mr. John Klinkert had a good collection of topiary specimens.

Late-flowering Michaelmas Daisies, grouped by Mr. T. Bones, included several seedlings and Late Mauve, General Pershing, Daphne and Queen Mary, with well-flowered sprays of Erigeron Quakeress alba. Mr. Stephen Sims made an attractive display of Barberries, Veronicas, Violas and Bellis Dresden China. Messrs. W. Wood and Son, Ltd., grouped Pernettyas, Berberises, Pyrus discolor, Cotoneaster salicifolia rugosa and shapely bushes of various Cupressuses.

A good length of tabling was filled by Messrs. B. Ladhams, Ltd., with late-flowering border plants, which included many tall-growing Lobelia hybrids, particularly Shirley Beauty, Shirley Crimson, Carmineus and B. Ladhams. Trollius Golden Queen, of rich colouring, and various shrubby Veronicas were also included. Good collections of Sweet Violets were staged by Mr. B. Pinney, Mr. G. Zambra and Mr. J. J. Kettle, who also had several fruiting sprays of late Raspberries.

Collections of Roses were arranged by Messrs. B. R. Cant and Sons and Mr. H. J. Pemberton. The former included good vases of Mrs. W. Christie Miller, Mrs. Beatty, W. F. Dreer, Golden Emblem and Covent Garden, while the latter showed equally good blooms of Davinia Neave, Lord Charlemont, Ophelia, Madame J. Bouche and Columbia. Their customary collections of fresh Carnations were staged by Messrs. C. Engelmann, Ltd., and Messrs. Allwood Bros., the latter also had a little rock garden exhibit of Dianthus Allwoodii.

An imposing display of shapely, well-coloured Codiaeums (Crotons), Anthuriums and other stove foliage plants, with suspended specimens of Nepenthes mixta, N. Sanderiana, and N. rufescens, was arranged by Messrs. L. R. Russell, Ltd.

Fruit and Vegetable Committee.

Present: Mr. C. G. A. Nix (in the chair), Mr. W. Poupart, Mr. J. Cheal, Mr. H. S. Rivers, Mr. R. H. Hall, Mr. G. Woodward, Mr. E. Beckett, Mr. W. Giles, Mr. A. Poupart, Mr. E. Neal, Mr. A. W. Metcalfe, Mr. P. A. Tucker, Mr. W. H. Divers, Mr. G. F. Tinley and Mr. A. N. Rawes, Secretary.

Other than that of naming numerous fruits, there was no business of importance conducted by this Committee.

GROUPS.

A collection of Brassicas was exhibited by Messrs. Sutton and Sons, various types of Kales, Savoys and Cabbages being shown. Of Kales, there were several variegated-leaved forms of The Sutton, and also the fine crinkled-leaved, green Sutton's A1. Savoys were represented by magnificent heads of Late Drumhead, Sugar Loaf, Dwarf Green Curled, Selected Drumhead and Sutton's Best of All. They also had examples of Couve Tronchuda, the Portugal Cabbage, and Sutton's Dwarf Blood Red and Large Blood Red Selected, pickling Cabbages, together with excellent heads of such Cabbagse as Early Market, Improved Winningstadt and Enfield Market.

Messrs. George Bunyard and Co., Ltd., staged a good collection of Apples, among which we noted fine specimens of Charles Ross, Peasgood's Nonesuch, Gascoyne's Scarlet, Emperor Alexander, Smart's Prince Arthur and Lord Hindlip.

The following awards have been made to the undermentioned flowers by the Council of the Royal Horticultural Society, after trial at Wisley, during 1928.

AWARDS OF MERIT.

Small-flowered Paeony Dahlias.—*Apoldro,* sent by Messrs. J. G. Ballego; *Mermaid* and *Pink Perfection,* from Messrs. J. Cheal and Son; *Seafield,* from Messrs. Dobbie and Co.; *Ruth,* from Messrs. J. Burrell and Co.; *Mrs. A. S. Galt,* from Mr. A. J. Cobb, Reading; *The Bishop of Llandaff,* from Messrs. Treseder; and *Topaz,* from Messrs. J. Cheal and Son.

Decorative Dahlias.—*Mevrouw E. Ludwig,* from Mr. Ludwig: and *R. H. Holton,* from Messrs. J. Stredwick and Son.

Small-flowered Decorative Dahlia.—*Lowfield Maroon,* from Messrs. J. Cheal and Son.

Pompon Dahlia.—*Little Marvel,* from Messrs. J. Cheal and Son.

Star Dahlia.—*Ethelwulf,* from Mr. C. Turner.

Cactus Dahlias.—*Redpole* and *Stedfast,* from Messrs. J. Stredwick and Son.

Garden Cactus Dahlia.—*Edeghem,* from Mr. Topsvoort.

HIGHLY COMMENDED.

Decorative Dahlias.—White King, from Mr. J. Ballego; and de Bengel, from Mr. Topsvoort.

Star Dahlia.—Epsom Star, from Messrs. J. Cheal and Son.

Garden Cactus Dahlia.—Mrs. Stuart Sandeman, from Messrs. J. Stredwick and Son.

READING AND DISTRICT GARDENERS'.

A large attendance of members assembled under the chairmanship of Mr. H. Reeves at the fortnightly meeting held recently in the Abbey Hall, when Mr. H. H. Cook gave a very interesting and practical lecture on "Pests of the Kitchen Garden." In his opening remarks, the lecturer stated that it may be regarded as a general principle that culture has much to do with the protection of plants from serious injury by insects and fungi. It was not contended that good culture suffices against every pest, for that is by no means the case; but good culture cannot, in any circumstance, encourage an attack. Good healthy plants are less liable to be attacked than weak ones. Disease is always present and plants with a lowered constitution are most open to attack. There should be no indiscriminate destruction of birds. To kill all "on sight" means to destroy friends as well as enemies. Mr. Cook then dealt fully with the pests that attacked the various kinds of vegetables, and it was interesting to learn the large number of pests the grower of vegetables has to contend with. Remedial measures were suggested for each pest. A good word was given for the services rendered by rooks, starlings, sparrows and tits. A splendid and an animated discussion followed.

At the close of the meeting a hearty vote of thanks was tendered to Mr. Cook for his excellent and practical paper.

There was an excellent array of autumn flowers staged in the competitive and non-competitive sections. For three vases of Michaelmas Daisies distinct, there was an exceedingly keen competition. The first prize was awarded to Mr. H. G. Cox, Hamilton Road, Reading. There was also excellent competition for three vases of early-flowering Chrysanthemums, three distinct varieties. The first prize was won by Mr. E. Blackwell, The Gardens, Foxhill, Reading, who showed exceptionally well-grown blooms.

In the non-competitive section, a First Class Certificate was granted to Mr. F. G. Rabbetts for a bowl of Roses. Mr. W. Bates, Winnersh Nursery, staged three vases of Roses, while Mr. T. Butcher, Wokingham, exhibited a vase of blooms of Verbena which attracted considerable attention.

Owing to the excessive rain on the evening of the last meeting, the attendance of members at the Abbey Hall under the chairmanship of the President, Mr. Frank E. Moring, was not so large as usual, but, nevertheless, a most interesting and pleasant evening was spent.

The lecturer for the evening was Mr. B. C. Berkeley, of the University, Reading, and his subject, "Bee-keeping," was dealt with in a very fascinating manner. In his opening remarks he stated that if fruit growers would only give attention to bee-keeping, they would find that bees would be a great help to them in the pollenation of the fruit flowers and would improve their crops greatly. The most important points, especially for the beginner, dealt with in the lecture, were:—The choosing of the type of hive (single or double wall); the sort of honey to be worked for (section or run); the choice of bees (Italian or black); the construction of hives, frames and foundations; feeding for winter; and spring examination of the stocks.

The life histories of the queen bee, workers and drones proved exceedingly interesting. A splendid and interesting discussion followed. A hearty vote of thanks was tendered to Mr. Berkeley, with a request that he would again lecture in the spring.

In the vegetable competitions some excellent specimens of Leeks, Onions and Celery were shown.

For three sticks of Celery, the first prize was won by Mr. E. Blackwell, The Gardens, Foxhill, Reading; the second by Mr. G. Clark, The Gardens, Dyson's Wood, and the third by Mr. A. W. Gower, Calcot Grange.

For six Onions, Mr. G. Curtis, Gas Lane, Reading, was first; Mr. A. W. Gower, second, and Mr. H. Goodchild, The Gardens, Queen Anne's School, Caversham, third.

Mr. A. H. Dow, The Gardens, Sulhampstead House, was first for six Leeks; and Mr. H. Goodchild, second. Mr. F. G. Rabbetts, showed a very attractive vase of Roses, the blooms being of very good quality for so late in the season.

ANSWERS TO CORRESPONDENTS.

Apples Spotted.—*W. J. C.* The cause of the sunken spots on the Apple fruits is the fungus commonly known among fruit-growers as "bitter-pit" (Gleosporium fructigenum). The general cleanliness of the trees and garden is probably the greatest deterrent of this disease. Collect and burn all diseased fruits; do not allow them to remain on either the trees or the ground. Summer-spraying of the trees with an ammoniacal copper-carbonate and potassium sulphide solution is a good method of controlling this disease.

Chrysanthemums Failing.—*W. G. L.* The cause of the trouble is rust and bad root action.

Cup-shaped Cabbage Leaf.—*A. J.* The specimen sent represented a swollen petiole from which a cup-shaped leaf was borne on a central stalk. Similar teratological specimens of various plants are referred to in "Enations and Ascidea of Foliage Leaves," in Worsdell's *Principles of Teratology*, Vol. I, pp. 196-201, and an illustration is given showing a specimen very like the one you sent. These monstrosities are sometimes the result of parasitic action, but, really very little is known of their origin.

Names of Fruits.—*E. C.* Maltster.—*H. W. B.* 1, Ribston Pippin; 2, Ross Nonpareil; 3, Bramley's Seedling; 4, Margil; 5, Rival.—*A. B.* Swan's Egg.—*J. G. D.* 1, Beurré Hardy; 2, Fondante d'Automne; 3, Beurré Superfin; 4, Beurré de l'Assomption; 5, Doyenné du Comice; 6, Marechal de la Cour; 7, Fondante de Cuerne; 8, Triomphe de Vienne; 9, decayed; 10, Chelmsford Wonder; 11, Catshead; 12, Glastonbury. [Thanks for 2/– for R.G.O.F. Box.—Eds].

Names of Plants.—*A. J. S.* Alonsoa Warscewiczii.—*L. S.* 1, a Bamboo, poor specimen; 2, Lastrea Filix-mas cristata; 3, Hipphophae rhamnoides; 4, Tradescantia virginica; 5, Hypericum calycinum; 6, Polystichum angulare plumosum densum; 7, Phacelia tanacetifolia; 8, Parochetus communis; 9, Hieracium aurantiacum.—*G. H. C.* 1, and 9, Genista hispanica; 2, Cotoneaster horizontalis; 3, and 13 and 14, Berberis spp. not recognised; 4, Cotoneaster microphylla; 5, Epimedium macranthum; 6, Deutzia, send in flower; 7, Escallonia langleyensis; 8, Genista virgata; 10, not recognised; 11, Fuchsia Riccartoni; 12, Berberis vulgaris; 15, not recognised, probably a Nuttallia; 16, Diervilla Eva Rathke; 17, not recognised; 18, Leptospermum scoparium; 19, Berberis japonica Bealei; 20, not recognised, probably an Eleagnus; 21, Tiarella cordifolia.

Variation of Employment.—*E. C.*—Your right to refuse to do the work in question depends entirely upon the precise nature of the terms on which you were engaged. Without further particulars it is impossible to advise you definitely, but assuming that your engagement was limited to the charge of the houses mentioned in your letter, you would be entitled to refuse to do the outside work to which you take exception.

Willows.—*J. L.* So far as we are aware, there is no book dealing solely with the cultivation of Willows.

Communications Received.—J. R.—N. W.—W. K.—E. B.—G. W.—W. A.—W. S.—J. N.—C. T.—C. R.

GARDENING APPOINTMENTS.

Mr. Archibald Ranger, gardener to J. F. Gregory, Esq., Rede Hall, Burstow, Horley, as gardener to the same gentleman at Hadley Bourne, Hadley Green, Barnet.

Mr. H. Welsh, for the past two years and nine months Deputy Superintendent of the Parks and Cemetery Department, Corporation of Eccles, and formerly of Kew, and the L.C.C. Parks Department, as Superintendent and Registrar of Hampstead Borough Cemetery, London. Mr. Welsh commences his new duties on November 1.

MARKETS.

COVENT GARDEN, Tuesday, October 30th, 1928.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz.	10 0–12 0
—elegans	10 0–12 0
Aralia Sieboldi	8 0—9 0
Araucarias, per doz.	30 0–40 0
Asparagus plumosus	12 0–18 0
—Sprengeri	12 0–18 0
Aspidistras, green	16 0–60 0
Aspleniums, doz.	12 0–18 0
—32's	24 0–30 0
—nidus	12 0–15 0
Cacti, per tray, 12's, 15's	5 0—7 0
Chrysanthemums per doz.	15 0–24 0
—white, per doz.	15 0–24 0
—yellow, per doz.	18 0–24 0
—pink, per doz.	21 0–24 0
—bronze, per doz.	12 0–18 0
Crotons, per doz.	30 0–45 0
Cyclamen, per doz.	24 0–36 0

	s. d. s. d.
Cyrtomiums	10 0–12 0
Erica gracilis, per doz.	24 0–30 0
— — 60's, per doz.	12 0–15 0
— — 72's, per doz.	8 0—9 0
—nivalis, per doz.	24 0–36 0
— — 60's, per doz.	12 0–15 0
— — 72's, per doz.	8 0—9 0
Nephrolepis in variety	12 0–18 0
—32's	24 0–36 0
Palms, Kentia,	30 0–48 0
—60's	15 0–18 0
Pteris in variety	10 0–15 0
—large, 60's	5 0—6 0
—small	4 0—5 0
—72's, per tray of 15	2 6—3 0
Solanums, per doz.	12 0–15 0
— 60's, per doz.	9 0–12 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	9 0–10 0
—cuneatum, per doz. bun.	8 0—9 0
Anemone, St. Brigid, per doz.	4 0—8 0
Arums (Richardias), per doz. blooms	6 0—8 0
Asparagus, plumosus, per bun., long trails	2 6—3 0
—med. sprays	2 0—2 6
short ,,	— 1 0
—Sprengeri, bun. long sprays	2 0—2 6
med. ,,	1 0—1 6
short ,,	0 6—1 9
Autumn foliage, various, per doz. bun.	6 0–12 0
Camellias, white, per doz. blooms	3 0—3 6
Carnations, per doz. blooms	2 6—4 6
Chrysanthemums—	
—white, per doz. blooms	2 6—5 0
—yellow, per doz. blooms	2 6—6 0
—bronze, per doz. bunches	10 0–12 0
—bronze, per doz. blooms	2 6—4 6
—pink, per doz. bunches	9 0–12 0
—pink, per doz. blooms	3 0—6 0
—single varieties, disbudded, per doz.	3 0—4 0
—single varieties, spray, per doz. bun.	12 0–18 0
Cornflowers, blue, per doz. bun.	2 6—3 0
Croton leaves, per doz.	1 9—2 6
Fern, French, per doz. bun.	10 0–12 0
Forget-me-nots, per doz. bun.	10 0–12 0
Gardenias, per doz. blooms	4 0—9 0
Heather, white, per doz. bun.	9 0–12 0
Lily-of-the-Valley, per doz. bun.	18 0–30 0

	s. d. s. d.
Lilium longiflorum, long, per bun.	4 6—5 0
— — short, per doz. blooms	— 5 0
—speciosum, long, per bun.	4 6—5 0
— — — short, doz. blooms	4 0—4 6
—speciosum rubrum, long, per doz.	3 6—4 0
— — — short, per doz.	2 0—2 6
Marigolds, per doz. bun.	0—4 0
Myrtle, green, per doz. bun.	1 6—2 6
Nerines, scarlet, per doz. spikes	6 0—8 0
Orchids, per doz.	
—Cattleyas	36 0–60 0
—Cypripediums	8 0–15 0
Roses, per doz. blooms—	
—Mme. Butterfly	2 6—4 6
—Columbia	2 6—3 6
—Golden Ophelia	2 6—3 6
—Richmond	3 0—3 6
—Aaron Ward	1 6—2 0
—Roselandia	2 6—3 6
—HoosierBeauty	3 6—4 0
—Molly Crawford	2 6—4 0
Smilax, per doz. trails	4 6—5 0
Stephanotis, 72 pips	2 6—3 0
Stocks, white, per doz. bun.	6 0–10 0
Violets, Prince of Wales, per doz. bun.	2 6—4 0
French Flowers—	
—Acacia (Mimosa), per doz. bun.	12 0–15 0
—Chillies, loose, per pad	5 0—6 0
—Eucalyptus foliage, per pad	5 0—6 0
—Ruscus foliage, per pad	4 0—5 0
—Solanum berries, loose, per pad	6 0—8 0

Remarks.—In this department the general conditions during the past week have been about the worst during the present Chrysanthemum season. No doubt the favourable weather has been responsible for the very moderate demand, especially during the past week-end. Richardias and Lilium longiflorums, and special lines in Carnations, are the only subjects which have retained normal prices. Chrysanthemums have been far too numerous owing to large quantities of outdoor blooms which are still on sale. Even exhibition blooms only realised a very low price and could not be cleared on Saturday last. More Cattleyas and Cypripediums have been offered. also a few boxes of scarlet Nerines from Guernsey. A few sprays of white Lilac have been received from Holland.

In the pot plant section, Chrysanthemums, Cyclamens, Ericas and Solanums are the chief attractions, the last-named being now much better in quality, but there appears to be no great demand for them at the present. All Ferns are good in quality and requirements are fairly heavy. This also applies to Palms of various sizes, also some good Araucarias, Aspidistras and a few Crotons in forty-eights.

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans—	
—Guernsey, per lb.	1 0—1 6
Beet, per bag	5 0—6 0
Brussel's Sprouts, ½-bag	4 0—6 0
Cabbage, per doz.	2 0—4 0
Celery, washed, per doz.	18 0–24 0
Cucumbers, doz.	5 0—7 0
Lettuce, Cabbage, English, doz.	2 0—3 0
—Cos	2 0—3 0
Mint, per doz. bun.	1 0—1 6
Mushrooms—	
—cups	2 6—3 0
—broilers	1 6—2 0
—"field," per lb.	0 6—1 0

	s. d. s. d.
Peas, English—	
—flats, special	18 0–2 0
Potatos—	
—English, cwt.	4 6—7 6
Savoys, per doz.	2 6—3 0
Tomatos, English, New crop—	
—pink	5 0—6 0
—pink and white	5 0—6 0
—white	3 0—4 0
—blue	3 0—3 6
Old crop—	
—pink	2 6—3 0
—pink and white	2 6—3 0
—white	2 0—2 6
—blue	2 0—2 6
—Guernsey	2 0—4 0
—Jersey	2 0—3 0
—Canary Island, per bundle	14 70–1 0

Remarks.—Although, generally, business is slow, it is just a shade more brisk this week. The demand for English Apples is at a low ebb, even for best dessert sorts, but prices for good Bramley's Seedling fruits are firmer. Stocks of imported Apples on hand are heavy, and large quantities are due to arrive from America. English Doyenné du Comice Pears have been doing badly, prices being unduly low. In this department Pears in several varieties from California are plentiful and cheap and have been serious competitors to English Pears. Hothouse Grapes have been slightly better trade, Holland and Belgium supplies not being so heavy just lately. Peaches are scarce and costly, and Melons have been a fairly good trade.

The Tomato section reports better conditions. English new crop Tomatos have advanced in price and Canary Island Tomatos are also selling well. Cucumber supplies are on the light side and firm prices are being maintained. The Mushroom market has been affected by large supplies of field Mushrooms that have been marketed. Cultivated Mushrooms of best quality have done fairly well, with steady price levels. A few Cauliflowers, mainly from the west of England, are arriving and sell moderately well. Brussels Sprouts are popular and meet a good demand. Forced Mint has sold well this week and the inquiry for salads is being maintained well. The Potato market reports a fairly good inquiry for best sorts, but inferior varieties and grades do not sell well.

GLASGOW.

Business in the cut flower market was again adversely affected by the weather, and prices of Chrysanthemums continue low. Supplies were abundant and mostly in excess of the demand. Good quality blooms of White Thorpe and Yellow Thorpe commanded the highest values of 1s. 6d. to 2s. for 6's; but other varieties sold as follows:—Sanctity, Harvester, Bronze Consul and Poitou, 8d. to 1s.; Mason's Bronze, 1s. 3d. to 1s. 6d.; Exmouth Pink and La Pactole, 1s. to 1s. 6d.; Almirante, 1s. to 1s. 3d.; Pink Consul, 9d. to 1s. 3d.; Delores, 9d. to 1s.; and September Glory and Betty Spark, 10d. to 1s. 3d. Lily-of-the-Valley was worth 2s. per bunch; Richardias, 5s. to 6s.; Carnations, 1s. 6d. to 4s. per dozen; Pink Roses, 2s. 6d. to 3s.; red and white Roses, 1s. to 1s. 6d.; Smilax, 1s. to 1s. 3d. per bunch; and Asparagus Fern, 6d. to 1s.

The very low prices of American Apples continued to be the outstanding feature of the fruit department. McIntosh Red were offered at 7s. and 9s. per case, according to grade; Jonathan, 7s. to 10s.; Delicious, 13s.; Cox's Orange Pippin, 12s. to 14s.; York Imperial, 16s. to 20s. per barrel; Winesap, 18s. to 21s.; Ben Davis, 16s. to 19s.; and Nova Scotian Kings, best grades, 20s. to 23s. Newtown Pippins were practically unsaleable. Winter Nelis Pears sold at 26s. per case; Brazil Oranges, 29s. to 30s.; South African Oranges, 216, 176 and 200 counts, 27s.; Melons, 3s. to 4s. each; hothouse Grapes, 3s. 6d. per lb.; Burnet Plums, 4s. per sieve; Damsons, 1s. 8d. per chip; Lemons, 18s. 6d. per case (300's), and Tomatos, 6½d. per lb.

Vegetable prices were steady, Cucumbers being worth 6s. per dozen; Cauliflowers, 3s. to 5s. 6d.; Lettuce, 2s. per case of 18's; French Beans, 8s. per boat and Mushrooms, 2s. 6d. per lb.

CATALOGUES RECEIVED.

William Fell and Co. (Hexham), Ltd., Hexham.—Forest trees, Roses, fruit trees, etc.

Perry's Hardy Plant Farm, Enfield.—Alpine and herbaceous plants.

Walter Charles Slocock, Goldsworth Old Nursery, Woking.—Rhododendrons and Azaleas.

The Hardy Patent Pick Co., Ltd., Sheffield.—Petrol-driven compressors and air tools.

Wm. Cutbush and Son, Ltd., Barnet, Herts.—Hardy evergreens, trees and flowering shrubs.

Foreign.

Sluis and Groot's, Enkhuizen, Holland.—Vegetable seeds and flower seeds.

THE
Gardeners' Chronicle

No. 2185.—*SATURDAY, NOVEMBER* 10, 1928

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 43·4°.

ACTUAL TEMPERATURE—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday. November 7, 10 a.m. Bar. 29·8. Temp. 46°. Weather, Fine.

Manuring of Fruit Trees. IF one attempts to review the literature on the subject of the manuring of fruit trees, or in fact that relating to trees or shrubs of any description (such as Rubber, Coffee, etc.) the result will be most perplexing, particularly in regard to the use of artificial fertilisers. The conclusions reached by various experimenters appear to be conflicting. American literature abounds in accounts of experiments with Apple trees, but the practical man here will search in vain for the establishment of any principles likely to be of much service to him on his own plantations. There is cause to welcome an account, therefore, of an experiment which yielded perfectly definite results, and from which general conclusions can be drawn. Such an experiment will be found described in an article in the issue of the *Journal of Pomology* for July of this year. As many know, the author of the article, Mr. Grubb, of the East Malling Fruit Research Station, has been conducting for some years past an elaborate experiment designed to settle many of the vexed questions relating to manuring. This experiment was originally laid down in 1913-14, and extends to 240 trees, made up of blocks of sixteen trees of each of fifteen varieties. It appears that the trouble known as Leaf Scorch has been in evidence on these trees for many years. In 1923, as a result of work done by Wallace at the Long Ashton Research Station on the effect of potash on Leaf Scorch, an application of sulphate of potash at the rate of two-and-a-half hundredweights per acre, was given to one-half of the plot, and in the following years (with a break in 1924) the rate was raised to four hundredweights per acre. During all these years the whole plot has received annually liberal dressings of such standard manures as shoddy, dung, meat-meal, bone-meal, etc., all, it will be noticed, of a predominatingly nitrogenous nature. Stated briefly, material was thus provided for contrasting the effects of two kinds of manurial treatment, namely, nitrogen alone versus nitrogen plus potash. Careful records have been maintained of the yield of each tree, with particulars of size, weight, colour of fruit, vegetative growth, etc., and it may be said at once that rarely could be found experimentation carried on in such accurate detail, and better calculated to inspire the confidence of practical men. Here is a brief statement of the results:—Before the beginning of the experiment all the trees were falling off in cropping, both in aggregate weight and average size of fruit; within a year of the first application of potash the trees so treated began to improve. In the last two years of the experiment the improvement in the case of one variety (Rival) has been one hundred per cent., and sixty per cent. in another (Lord Derby); in no case has improvement in greater or less degree been absent. In Mr. Grubb's opinion, the most remarkable cases of all-round improvement have been secured with Beauty of Bath, Grenadier (on Paradise) and James Grieve. "To prove the rule," some exceptions (five in all) in which no marked improvement was obtained, were found, including Cox's Orange Pippin (on untipped trees only); but only in one case (Annie Elizabeth) has there been failure under every description of treatment. In every case, without exception, the incidence of Leaf Scorch is much diminished, the improvement in appearance and vigour of the foliage being most remarkable. Applying a purely economic test, it is found—taking a standard variety such as Lane's Prince Albert as an example—that the crop in 1922 averaged 41 bushels per acre, worth £6, whereas, in 1927, no fewer than 585 bushels, valued at £52, were secured; and in the latter year the crop of Rival was at the rate of £122 per acre. These results may be capable of diverse theoretical interpretations. They may be regarded simply as a potash effect; but in view of a modern trend of thought, it is preferable to regard them as the restoration of a mineral balance disturbed by the relatively heavy applications of nitrogenous manures. But, whatever the scientific interpretation may be, the practical inference to be drawn is plain. Every Apple-grower, whose trees show failing vigour, should give his trees a dressing of potash. In the first year, he should no doubt go warily, and try the effect on say twenty or thirty trees, but if the East Malling results are to be trusted—and never have experiments been more carefully conducted—the result justifying a general application of potash should be apparent within a year.

Retirement of Mr. W. H. Osborn.—On his retirement, after forty-four years spent in the Royal service, Mr. W. H. Osborn, gardener at Buckingham Palace, said good-bye to the King and Queen on Friday, November 2. He was given a special audience by their Majesties at the Palace, and the King presented him with the Royal Victorian Medal, which is given for long and faithful personal service to the Sovereign. Mr. Osborn was also presented with signed portraits of their Majesties, by both the King and the Queen. Mr. Osborn first took service at the Palace as an extra gardener for a fortnight; he has been there ever since. He served under Queen Victoria for sixteen years, and has had charge of the garden since King Edward's succession to the throne. Mr. Osborn is seventy-three years of age.

The Late Mr. Frank Cant.—The well-known rosarian and founder of the firm of Messrs. Frank Cant and Co., Braiswick, Colchester, who died on August 21 last, at the age of seventy-one, left estate valued at £24,203 (net personalty £22,030). He bequeathed £100 to Mr. E. Gage, " his true and faithful friend and chief clerk."

Botanic Garden, Kaunas, Lithuania.—The Botanical Garden at Kaunas, Lithuania, celebrated, on October 7, in the presence of the President of the Republic, its five years' jubilee. The garden has an area of about thirty hectares, including an old park, ponds, fortifications of the ancient Russian fortress, hot-houses, an arboretum, and nurseries for the acclimatisation of trees and shrubs. Besides this, the garden has an area of five hectares for the culture of medicinal plants. The plant collection of the garden comprises about 4,600 species of different plants, and during 1928 seeds were saved from 1,500 species. The establishment carries on an exchange of seeds with the majority of the botanical gardens of the world, *i.e.*, Kew, Edinburgh, Cambridge, Melbourne and some private horticultural establishments. In 1928, 7,200 packets of seeds were sent abroad for exchange purposes. A Botanical Museum and a Laboratory for plant diseases are attached to the garden. Dr. C. Regel, Professor at the University of Lithuania, has been Director since the foundation of the garden, and Mr. C. Meissner is the Curator.

A Hybrid Peach.—Dr. Attilio Ragionieri, of Florence, has sent us a fruit of a new hybrid Peach, which he has named Tos-China November. Many years ago Pére Giraldi sent a species or sub-species of Peach from China to the Florence Botanic Gardens, where it produces large pink flowers freely and large crops of handsome but tasteless fruits that do not reach maturity in the climate of Florence. This plant was crossed with the variety Teton de Vénus, and three late-fruiting Peaches have resulted. The fruit received from Dr. Ragionieri was of large size, three-and-a-quarter inches high and three inches in diameter, red, with heavy crimson mottlings on the sunny side, and pale pinkish-yellow on the shaded side. Tos-China November has white flesh that is reddish around the free stone. The flavour was poor, but as the fruit had been gathered while quite firm and had travelled by post from Italy, we were unable to determine its real quality. Dr. Ragionieri's experiment is an interesting one, and if he succeeds in producing a free-cropping Peach of good quality, that will ripen well at Florence in early November, he will have added one more to his many successes as a raiser.

Kingston By-pass Planting Ceremony.—The first tree—a small Hawthorn—in the scheme for beautifying Kingston By-pass with trees and shrubs, was planted by Mrs. Wilfred Ashley, wife of the Minister of Transport, who is also the President of the Roads Beautifying Association. We understand that bulbs will be planted along that portion of the road which is in the Wimbledon Corporation area.

Grape Fruit Growing in the West Indies.—On October 31, a lecture entitled "The Economic Position of Grape Fruit and its Influence on the West Indies," was given by Professor H. Clark Powell, at the West India Committee Rooms, Trinity Square. Professor Clark Powell, who has been investigating the possibilities of developing Grape Fruit cultivation in the West Indies and British Honduras, on behalf of the Empire Marketing Board, stated that the bulk of Grape Fruits at present came from Florida, but he suggested that as the West Indies could produce fruits of very high quality and were able to market them more cheaply than any other competitor, they had an opportunity of gaining a firm foothold in the markets. Conditions were not favourable in some of the islands, but Trinidad had a large area of land suitable for Grape Fruit culture, and the interior of Dominica was one of the best districts in the world for the production of Grape Fruits. At present, however, there were no planters left in Dominica, all having been ruined in other enterprises. British Honduras was also well suited to Grape Fruit growing; the two finest plantations he had seen in any country were there. In British Honduras the soil required no fertilisation, whereas in Florida fertilisers were necessary. He stated, finally, that if the West Indies commenced expanding in Grape Fruit cultivation, they should proceed cautiously, exercising care in such matters as personal management, planting of good trees, and picking, handling, and shipping the fruits under suitable conditions; grading of the fruits should be taken up immediately.

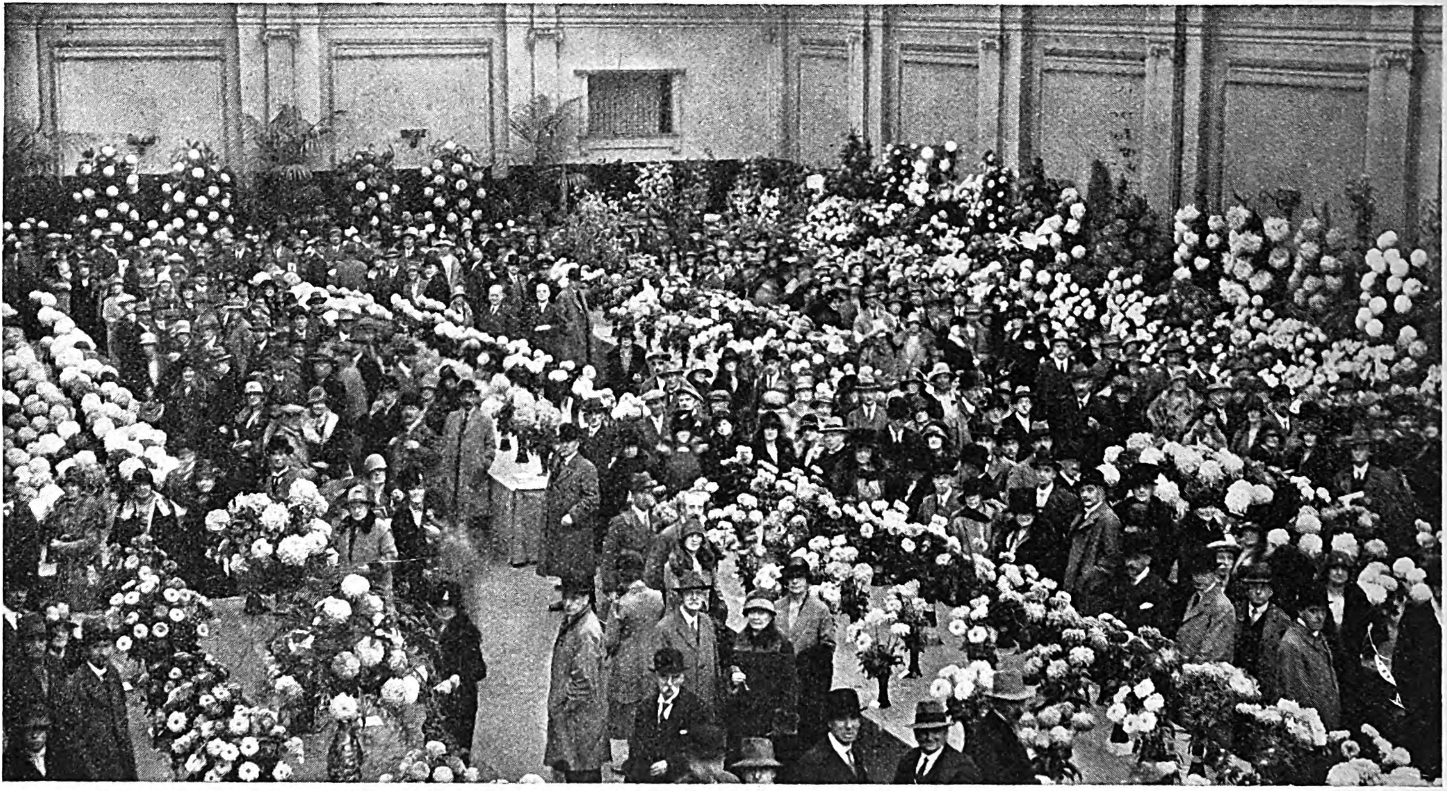

FIG. 169.—NATIONAL CHRYSANTHEMUM SOCIETY'S EXHIBITION AT THE ROYAL HORTICULTURAL SOCIETY'S HALL, ON NOVEMBER 1.

(see p. 376.)

Italian Land Reclamation Scheme.—It was announced in Rome recently that arrangements have been made with various credit institutions for the financing of the Italian Government's Land Reclamation Scheme to the extent of 500,000,000 lire (about £5,600,000) per annum for a period of ten years. The money will be paid over to the National Consortia for land reclamation and irrigation.

New Superintendent of the Belfast Parks.—Mr. G. Howcroft, Curator of Glasgow Green Park, and who has been seven years in the employment of Glasgow Corporation, has been appointed General Superintendent of Parks and Playgrounds in Belfast, at a salary of £450 per annum, rising to £500 by two annual increments of £25, together with a dwelling-house in the Botanic Gardens.

Recipes for Rat Poisons.—In connection with the announcement of the National Rat Week, held from November 5 to November 10, the Ministry of Agriculture and Fisheries gave the following recipes for effective rat poisons:—(1) Barium carbonate, three parts; meal, eight parts; dripping, two parts; with salt as seasoning. The mixture should be made into baits about the size of a Hazel nut. (2) Red squill powder, two parts; bread, three parts; fat, three parts; syrup, two parts. The bread should be crumbled and the ingredients mixed into a paste and set down in small portions. Reasonable care should be taken when using barium carbonate baits to prevent domestic animals or poultry obtaining access to them.

Fine for Not Destroying Weeds.—On October 31, the owner of half-an-acre of land at Purley was summoned before the Croydon County Bench by the Surrey County Council for failing to comply with an order, on July 3, to destroy all noxious weeds growing on his land, by July 11. It was stated for the prosecution that the first regulations of the kind came into force in 1917, when, owing to the War, intensive food production was necessary; the defendant was liable to a fine not exceeding £20, and a daily continuing penalty of £1. The land in question was in a residential district where there were many private gardens, and notice was served after complaints had been received from local residents. The weed inspector visited the land on July 17 and found that nothing had been done, the weeds having been allowed to seed. The defendant was fined £5 and three guineas costs. A similar case to the one quoted above, but in which the defendant was exonerated, came before the magistrates at Willington, Somerset. A landowner, of Elworthy, was summoned by the Somerset County Agricultural Committee for having failed to comply with a notice to cut down or destroy injurious weeds growing on his land. The prosecution stated that the Committee, having received a complaint, instructed their land agent to inspect the land, which he did in company with the landowner. The field was planted with Douglas Fir and Larch trees, and was in a very foul state—there were large quantities of Thistles and Docks, and the Thistledown was seen to be blown on to adjoining fields of standing Wheat. The defendant contended that the Docks were beneficial to the young trees as they helped to conserve moisture; he had consulted the Forestry Department of the Ministry of Agriculture and had been advised to allow the weeds to stand. There was a ninety per cent. successful growth of trees, and he was of the opinion that the weeds were in part responsible for this success. Specimens of Thistledown were exhibited and it was contended for the defence that there were no seeds in it. The Chairman announced that the Bench considered the landowner had acted reasonably, and the case was dismissed.

Public Park Administration.—Mr. W. W. Pettigrew, President of the Association of Parks and Botanic Gardens Superintendents, will lecture on "Some hints on Public Park Administration" (with lantern illustrations), at 6.30 p.m., in the Lecture Hall of the R.H.S., Vincent Square, on Tuesday next, November 13. It is expected that a large attendance of members and others interested in public parks will be present. Those who heard the splendid address given by Mr. Pettigrew at the recent Conference of Parks Representatives will hardly need to be reminded that it is worth travelling a long way to hear him.

Mr. David Bliss Completes Twenty-five Years' Service at Swansea.—The members of the Swansea Parks Committee recently received the following letter from Mr. T. W. Howells, the Mayor:—"Gentlemen, Unfortunately I shall be unable to attend to-morrow's meeting of the Parks Committee, as I shall be exceedingly occupied in connection with the Trade Union Congress. I should like to draw your attention to the fact that Mr. Bliss has completed twenty-five years' service with the Corporation. In that period he has completely transformed the whole of the parks and open spaces of the borough into veritable places of pleasure for the public, and made them comparable to the finest in the country. His sound and far-seeing advice upon the acquisition of land for recreation purposes has resulted in the Corporation following a policy of obtaining open spaces wherever they were needed, with consequent excellent results. I particularly desire to emphasise his enterprise in constructing an educational garden at Singleton, which has earned high praise from those well qualified to bestow it. Mr. Bliss, indeed, has served the Corporation with the utmost efficiency, and his courtesy and urbanity have made him one of our most popular and highly esteemed officials. I suggest that the Committee should extend to Mr. Bliss their most hearty congratulations upon his having completed twenty-five years' most meritorious service with the Corporation." It was subsequently "Resolved that the Corporation cordially endorse the expression so properly made by the Mayor, and extend to Mr. Bliss their hearty congratulations upon his twenty-five years' service with them, which have been such a conspicuous success and so beneficial to the community; and further that this resolution be inscribed on vellum and presented to him."

National Chrysanthemum Society's Exhibition.—In all probability the recent exhibition (reported on pp. 376-378) was the last that the National Chrysanthemum Society will hold in the old hall of the Royal Horticultural Society at Vincent Square. For several years past it has been obvious that greatly increased space was needed to accommodate the exhibits and provide room for the many thousands of visitors who come from far and near to see the show. On November 1, the exhibition opened a few minutes before the advertised time, 1 o'clock, but so great was the queue awaiting admission that five minutes later the hall was inconveniently crowded (Fig. 169), and it remained crowded for several hours. Fellows of the R.H.S. attended in far larger numbers than they did at the Orchid Show held earlier in the week at the New Hall; by arrangement between the R.H.S. and the N.C.S., Fellows are admitted free on production of their pass, but as the passes are transferable, there was a large amount of "transference." The N.C.S.—as do all other "special" societies that hold shows at Westminster—takes the cash paid by non-ticket holders, but as the "special" society provides the show and the prizes, it seems unfair that on such occasions as this the R.H.S. passes should be transferable to an unlimited extent. Next year, the National Chrysanthemum Society will hold its exhibition in the new hall on November 7 and 8.

Potatos for Spain.—Notice was given recently in the *Gaceta de Madrid* of a Royal Order, dated October 10, which permits the importation into Spain, free of duty up to December 31 next, of seed Potatos of the varieties King Edward and Royal Kidney. Consignments of Potatos must be accompanied by the appropriate sanitary certificate and the amount of the customs duties, normally payable, must be guaranteed pending confirmation by the Agricultural Service that the Potatos have been used solely as seed.

Iris Society.—The sixth Annual General Meeting of the Iris Society will be held at the Grosvenor Hotel, Victoria Street, S.W.1, on Thursday, November 15, at 6.15 p.m. The subjects for discussion include (a) Extension of Wisley Trials; (b) Offers of new Challenge Cups; (c) Reconsideration of Dyke's Medal Award; (d) Disposal of surplus Irises at Wisley; (and (e) Nomenclature. The meeting will be followed by Dinner at 7.45 p.m. (morning dress), 10/6 per head exclusive of wines (payable at the table).

Parks Department for Harrogate.—The Harrogate Town Council has decided to establish the Parks, Gardens and Open Spaces section of the Borough's activities as a separate department, and to provide the Superintendent with a house and suitable office accommodation. Mr. J. G. Besant, the Parks Superintendent at Harrogate, was recently on the short list for a similar post under the Belfast Corporation, but withdrew his application when the foregoing decision was made.

Theft of Plants Two Hundred Years Ago.—*Notes and Queries* for November 3 quotes the following paragraph from *The Weekly Journal or British Gazetteer* for November 2, 1728:—"Last Monday night, the Garden Ground belonging to Mr. Cox, of Pye Street, Westminster, was robbed of two hundred White Lily Plants, value £6, and said to be the finest in England." These were probably Richardia (Calla), popularly known as the Arum Lily or Lily of the Nile. They would be under glass at this season and would be more easily secured by thieves than Lilium candidum in the open border.

Appointments for the Ensuing Week.—MONDAY, NOVEMBER 12: United Horticultural Benefit and Provident Society meets; Birmingham and Midland Gardeners' Association's lecture. TUESDAY, NOVEMBER 13: Brighton, Hove and Sussex Horticultural Society's exhibition (three days); Royal Horticultural Society's Committees meet; West of England Chrysanthemum Society's exhibition (three days); Torquay Autumn Show (two days). WEDNESDAY, NOVEMBER 14: Sheffield Chrysanthemum Society meets; Wimbledon Gardeners' Society's exhibition; Winchester Horticultural Society's exhibition (two days); Ayr Chrysanthemum Show; Manchester and Northern Counties Chrysanthemum Society's Show (two days); Pangbourne and District Gardeners' Association's lecture; Gainsborough Chrysanthemum Show (two days); Farnham and District Horticultural Show (two days). THURSDAY, NOVEMBER 15: Newport (Mon.) Horticultural Society's exhibition; Ipswich Gardeners' Association meets. FRIDAY, NOVEMBER 16: Dunfermline Horticultural Society's exhibition (two days); Blackburn Horticultural Society's exhibition (two days); Bolton Horticultural Society's exhibition (two days); Leeds Paxton Society's show (two days); Rotherham Chrysanthemum Society's show (two days); Whitley and Monkseaton Chrysanthemum Society's show (two days). SATURDAY, NOVEMBER 17: British Mycological Society's London Meeting at University College; Crittall Horticultural Society's exhibition.

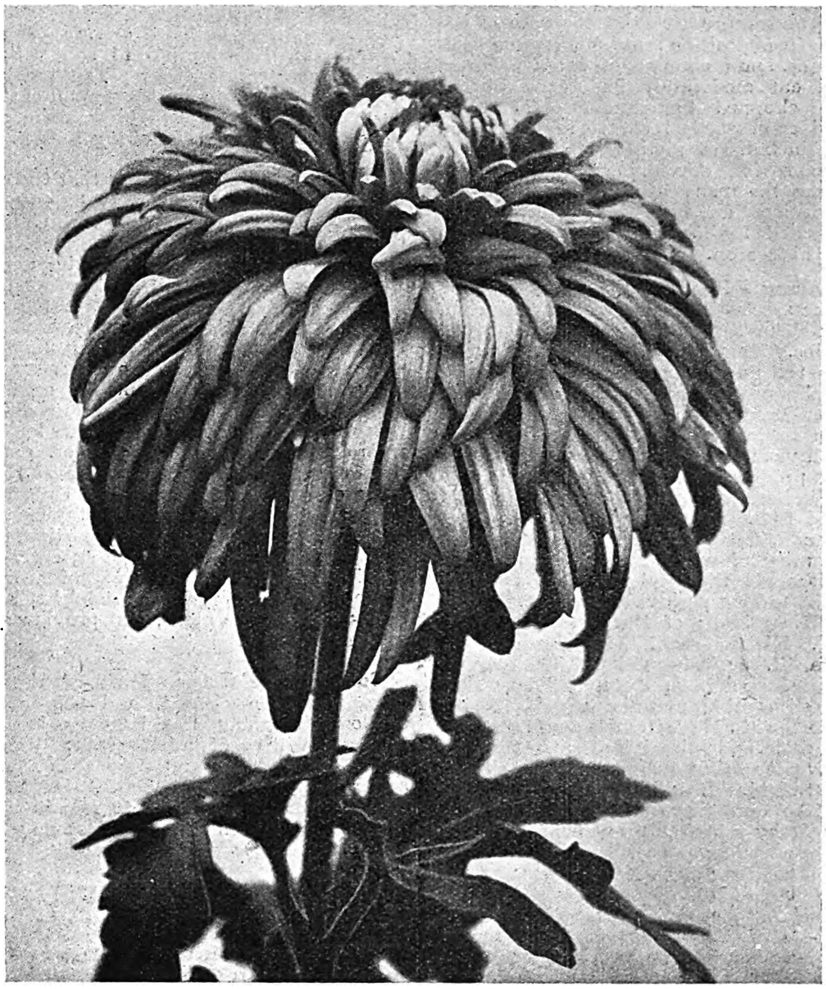

FIG. 170.—CHRYSANTHEMUM MOHAWK.

N.C.S. First Class Certificate, November 1. Colour rich chestnut-crimson. Shown by Messrs. Cragg, Harrison and Cragg. (see p. 376.)

"Gardeners' Chronicle" Seventy-five Years Ago.—*Tree of Ten Thousand Images.*—I have lately become acquainted with a young man by birth a Buddhist, and a native of Mongol Tartary, now converted to Christianity. He told me that he had been on a pilgrimage with his father, when a boy, to the tree of ten thousand images, an account of which is given in Huc's *Travels in Tartary*. I remember seeing an article relating to it in your columns, in which the truth of the story was doubted. I have, therefore, thought it might be interesting to you, to hear from an eye-witness, and one whose word I have no reason to doubt, his account of this marvellous production. His description, which I wrote down from his own dictation, is as follows, viz.:—The tree is near the wall of China, in the City of Cayho (?); the height of it is eight (qu. 80) feet, and the trunk five men could not embrace. The leaves are of different colours, which no doubt has been done by the Llamas; every leaf has a character and the same in each, which would signify in all Arabic writings T -. In August, the tree begins to produce leaves, and they spread the same as feathers, which are also of different colours; and this tree exists now, as the principal object of worship in Tartary, and which people visit on pilgrimage. From his description of the leaf, I thought it resembled Magnolia, and in showing him one, he immediately identified it. He said that the character was caused by some kind of grafting when the tree was young, and that the leaf has it from its earliest appearance. He also assured me that he could colour leaves in the same manner as those on the tree. Though this account differs in some points from Huc's, it certainly confirms it to a great extent. *Samuel Gurney, junr., Carshalton. Gard. Chron., November 5, 1853.*

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

Pleiones. — These easily-grown deciduous Orchids (generally known as Indian Crocuses) when well-ripened, are very free-flowering subjects. At the present time, P. praecox, P. maculata and P. lageneria are making a fine display of flowers, while P. Hookeriana is one of the later-flowering sorts. Pleiones require repotting annually, and this should be attended to directly the flowering period is over. Remove the soil from the bulbs and cut away most of the old roots, leaving a tuft at the base of the bulb to keep it in position; use shallow and well-drained pans, and a compost of equal parts of A.1. fibre, cut moderately fine, good fibrous loam and chopped Sphagnum-moss, adding sharp sand or crushed crocks to keep it open. Distribute the bulbs evenly in the pans and allow enough room for development. Pot them firmly, place the pans near the roof-glass in the intermediate house, when very little water will be needed for several weeks, as growth is slow at this season.

Zygopetalums.—Plants of the robust-growing and popular species Z. Mackayi are now developing flower spikes from the partially developed pseudo-bulbs. They should occupy a moist position in the intermediate house, and require ample supplies of water at the roots, allowing the compost to become fairly dry between each application to prevent the compost becoming sour, which would be detrimental to the fleshy roots and produce unsightly spotting in the foliage. Similar cultural treatment should be afforded to Z. crinitum, Z. intermedium and Z. Perrenoudii, until growth is complete, when a less quantity of water at the roots should suffice, although these plants should never be subjected to long periods of drought. Many of the bulbless kinds of Zygopetalum, which include Z. Klabochorum, Z. Lehmanni, Z. gramineum, Z. coeleste and Z. Wendlandii, are now producing fresh roots, and any that require fresh rooting material should receive attention forthwith. These Orchids resent disturbance at the roots, and unless it is essential, through loss of leaves or being overgrown, they should not be disturbed. If it is necessary to repot, this should be done very carefully, so as not to injure the fleshy roots, and where possible the sour soil should be removed without turning the plant out of the receptacle, working in the fresh compost of fibre and Sphagnum-moss and adding crushed crocks or charcoal as the work proceeds. As the roots should always be kept moist, ample drainage should be provided to avoid saturation. It is often a question of finding the most suitable situations for these Orchids to grow in. They succeed best in a humid atmosphere and even temperature all the year round; a shady corner in a warm house is suitable, but they do not thrive in a hot and dry situation. Thrips are partial to them and should be keenly sought for and destroyed, as they quickly undermine the health of the plants and make the foliage unsightly.

THE KITCHEN GARDEN.

By Allan Falconer, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Early Potato Sets. — Where it is desired to purchase new seed sets, no time should be lost in procuring the necessary quantity, and where sets have been saved from this season's crop they should be set up in trays at once, as some of the earliest varieties are already showing signs of commencing growth. They should be afforded all the light and air possible to produce those sturdy growths which are so desirable and necessary. Later varieties may be attended to whenever conditions are unfavourable for outside work. Vegetable seeds saved during the autumn should now receive attention during inclement weather. After being dried, they may be tied up in paper bags, carefully labelled and put away ready for use when required. In most districts the weather has been favourable for seed-saving, and it has given exhibitors a good chance to save seeds of desirable stocks.

Autumn-sown Onions.—Where autumn sowing of Onions was practised late, owing to the inability to secure seeds of special varieties, the seedlings may be pricked out into cold frames, and should make much stronger plants to put out during early spring than if allowed to remain in the seed-bed; the resultant crop should be heavier, thereby repaying the extra labour involved. All the air possible should be admitted when weather conditions are suitable, leaving the lights off during mild weather.

Chinese Artichokes and Oxalis tuberosa.—The tubers may be lifted any time during this month and, if stored in sand, should keep fresh for a considerable time. The greatest care should be taken to clear the ground of the crops, as every tiny tuber will grow again and be a nuisance during the following season.

Clearing old Hotbeds.—Now that the crops are all cleared, the hot-beds may be turned, after removing the soil from the top, which is usually of a rich nature, and in such a condition to be again useful for early seed-sowing; if placed in ridges, the influence of the weather will sweeten it. A certain portion of the old beds may be thrown in a heap and allowed to decay further for use as top-dressing material for various kitchen-garden crops, retaining the longer material to augment the next supply, which becomes, each year, more difficult to procure, especially for gardens near large towns, where there are few forest trees, and where market gardeners collect all the available horse litter procurable by contract. Unfortunately, peat-moss litter and sawdust is taking the place of straw in the few stables now existing, therefore it is more necessary to make an early start to obtain supplies, and every leaf which may be collected is valuable, as useful hot-beds may be made of leaves alone, and provide a lasting and gentle heat.

Outside Root Crops.—Most of these crops have now been cleared, and the method of shallow ploughing the land as it becomes available will be of great benefit. Where such crops as Parsnips and Jerusalem Artichokes are growing, sufficient may be lifted for immediate use, and the rest allowed to remain until late in December, when the whole crop may be lifted and clamped.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Potting Orchard-house Trees.—Where Apples, Pears, Plums, etc., are cultivated in pots, it is always advisable to have in reserve a few trees that have been grown outside for one season, to ensure a healthy stock of trees for the orchard-house. If these trees have been grown specially for this purpose they should now be lifted and placed in receptacles varying from eight to twelve inches in diameter; there is no gain by placing them in tubs or larger receptacles, provided the roots may be accommodated comfortably in the sizes already mentioned. When potting, allow a fair margin of space in the pots to allow for frequent top-dressing of the roots during the growing season. The soil best suited for trees growing in pots is a fairly heavy, calcareous loam, to which should be added some burnt earth, old mortar-rubble and bonemeal. The compost should be slightly on the dry side so that it may be worked easily around the sides of the pots and made firm by ramming. Too much stress cannot be laid on the importance of firm potting, provided the compost is in suitable condition for this to be done. The work of potting completed, the roots should receive one good watering before plunging the pots in ashes out-of-doors in a somewhat sheltered position with careful attention to smaller details these trees should produce fine fruits the first season after potting. Trees that have been grown under glass for several seasons and fruited, may still be potted if necessary, although this operation should have been carried out at an earlier date but, as the trees are not forced to any extent, it is surprising how such trees fruit even after severe disturbance at the roots.

Orchard-house Figs.—Figs grown in receptacles in the cold orchard-house should not be stood out-of-doors during the winter months, as they are liable to injury during severe frost. Where space is limited in the houses they may be stored in a dry shed, where they may be covered completely with hay, or, better still, Bracken, after the leaves have fallen.

Cucumbers.—Plants raised from seeds sown during the month of August should now have covered most of the space allotted to them, and be cropping freely, if allowed to do so. It is a great mistake, at this season of the year, to allow all the fruits to mature, as this results in the plants soon becoming exhausted, therefore only sufficient fruits to meet the demand should be allowed to mature. A night temperature of 60° to 65° should be maintained, with a rise during the day when there is sunshine. Now that the plants are fruiting they may be greatly benefited by frequent top-dressings of turfy, fibrous loam and leaf-mould, which should encourage surface rooting to keep the plants in a healthy condition. Water should be applied with care and should be warmed to the temperature of the house. During severe frosts the glass should be covered with some material to help to keep up the temperature without over-heating the hot-water pipes.

HARDY FRUIT GARDEN.

By T. E. Tomalin, Gardener to the Earl of Bessborough, Stansted Park, Emsworth, Sussex.

Varieties of Apples to Plant.—Locality is an important factor to be considered when deciding which varieties to plant, and intending planters will be wise to visit a few local gardens or orchards and there observe which varieties are making clean, healthy growth, and giving profitable returns. Subject to this qualification, the following twelve varieties of cooking Apples may be recommended for supplying a succession of fruits:—Early Victoria, Lord Grosvenor, and Grenadier are early sorts; Warner's King, Loddington, Lord Derby, The Queen and Blenheim Pippin for mid-season; Lane's Prince Albert, Newton Wonder, Bramley's Seedling and Alfriston for late keeping. The following twelve varieties comprise a good succession for dessert:—Beauty of Bath, St. Everard, Irish Peach, Worcester Pearmain, American Mother, St. Edmunds Pippin, Ribston Pippin, Cox's Orange Pippin, Cockle's Pippin, Duke of Devonshire, Orleans Reinette and Lord Hindlip.

Pears.—The conditions under which Pear trees flourish vary greatly. In some districts the trees grow freely and carry regular crops in the open garden or orchard, while in others extraordinary measures have to be taken to achieve success, even on the sheltered walls of the kitchen garden. It is therefore advisable, before planting on a large scale in a fresh district, to consult a local horticulturist as to the type of tree and the varieties that are known to succeed locally. The best types for garden walls are the horizontally trained and the fan-trained trees, also the cordons, which may be of the single, double or triple type. For the open garden the best forms are the pyramidal and the bush, while the horizontally trained are useful for furnishing fences or divisions between the various quarters, or as a background for herbaceous borders, in which positions the hardier varieties will often bear fruits of the finest quality. The Pear does not object to a fairly heavy soil, provided it is well drained and the trees are not planted too deeply. For wall trees the border should be excavated four feet wide and eighteen inches deep. A six-inch layer of broken bricks should then be rammed into the bottom, and on these new turves should be placed grass side down, or, failing a supply of these, the rougher particles of the soil may be placed over the drainage. The best of the excavated soil may then be filled in, reinforced with a fair proportion of new loam and with the addition of some mortar-rubble or broken bricks to render it porous. A sprinkling of bone meal added, as the work proceeds, should encourage the right type of growth, but organic manures should be avoided until the trees are cropping well, when they may be applied each spring as a mulch, and the remains dug into the border in the autumn. When applied to newly planted young trees, farmyard manure induces rank, coarse growth which is very susceptible to scab and canker.

PLANTS UNDER GLASS.

By J. COUTTS, Assistant Curator, Royal Gardens, Kew.

Anchusa italica.—The varieties Dropmore and Pride of Dover are very useful for conservatory decoration, as they may be had in flower weeks before the out-of-door plants; and good blue-flowered plants are always welcome. Strong plants should be lifted now and placed in pots of suitable size. They may be grown singly, or several plants may be placed in a ten-inch pot. Plunge them out-of-doors, until such time as they are required; they should not be forced in any way, but brought on in a cool greenhouse.

Begonia Mrs. Peterson.—This fine form of Begonia Gloire de Lorraine is rather a slow grower, therefore, if really good plants are required, it is a good plan to insert a batch of cuttings at the present time; these should make better specimens than those from cuttings rooted early next year.

Helleborus niger.—Christmas Roses, if desired in unspotted purity, should be protected in some way. If it is undesirable to disturb them, they may be covered with hand lights where they grow, or with frames; where the plants have been specially grown in borders for the supply of blooms out-of-doors, means should be taken to protect them from slugs. They may also be grown in pots if they are required for furnishing the cool greenhouse. There are several varieties, of which the large-growing H. altifolius is the best for this purpose; it is also known under the names of H. niger var. major, var. maximus, var. giganteus and var. grandiflorus.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to the DUKE OF DEVONSHIRE, Chatsworth, Bakewell, Derbyshire.

Herbaceous Lobelias.—These Lobelias, of which the cardinalis type and its varieties are the most generally grown, are always admired, and are a welcome addition to the flower borders in late summer and autumn. In a few favoured localities they may possibly pass through the winter without injury, but, generally speaking, it is much safer to lift them from the open ground and lay them in coal ashes or rough leaf-soil in a cold frame, or to box them up and place them under similar conditions for the winter. Very little attention is required during the next few months beyond giving plenty of air during mild weather, and to see that the roots do not suffer from extreme dryness, which, in most cases, is probably responsible for more losses during the winter than any other cause.

Bulbs in Beds or Borders.—Having deeply dug or trenched the flower beds after the removal of the summer bedding plants, as recommended in a former calendar, all bulbs for beds and borders should be planted without delay. Hyacinths and Tulips are usually preferred to give bright effects in positions near the dwelling house; Daffodils look best in grass, but where this latter style of planting is not practicable, beds may be filled solely with them, and should give a fine display in the spring for they provide a striking contrast to the Tulips and Hyacinths. Colour schemes may be arranged with the bedding varieties of Hyacinths and with single and double Tulips. Other changes may be made by using Myosotis as a ground-work for some of the white or pink varieties, while the other bright colours show up exceedingly well on a ground-work of Arabis. Beds of massed Tulips are very gay, and of late years the Darwin and May-flowering Tulips have been grown in greatly increased numbers and should on no account be over-looked. Apart from their value for decorative effect in beds and borders, they should be planted in the reserve garden for cutting for indoor decoration, for which purpose they are deservedly popular and most suitable.

Cannas.—Where these were used as bedding plants during the summer, if not already taken indoors they should be lifted at once. Space may invariably be found for them under the stages in cool houses. These roots should not be neglected during the winter, nor allowed to suffer extremes either of dryness or, on the other hand, too much moisture.

Gladioli.—As the foliage ripens, and before the approach of severe frosts, Gladioli corms should be lifted, labelled and tied up in small bundles. Hang them up to dry preparatory to storing them for the winter. When thoroughly dry, cut the tops off, clean the corms and store them in a dry place. Brown paper bags form convenient receptacles for storing these in, and they should be quite safe so long as the room is frost-proof.

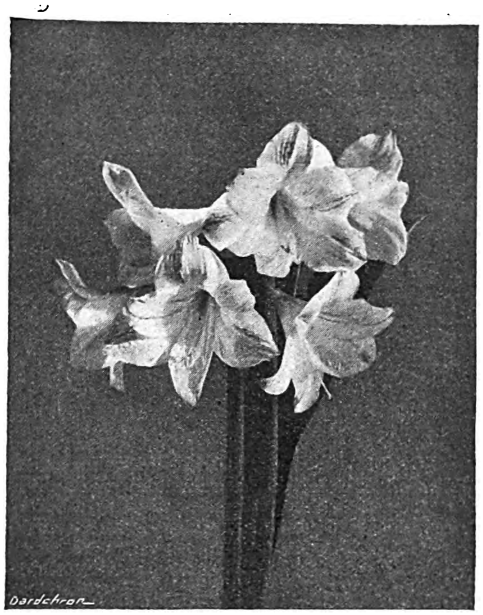

FIG. 171.—A SEEDLING HIPPEASTRUM AT WORMLEY BURY.

(see p. 368.)

Artemisia lactiflora.—This is a really good plant for the waterside, while it also thrives in the herbaceous border if given plenty of water; but it quickly shows signs of distress in periods of drought. It grows four to five feet high and blooms during August and September, or later if in a cool district. The dark green foliage is distinctly ornamental, being finely laciniated, while the flowers are milky-white, borne in panicles, and in effect like a giant Spiraea.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener at Jordanhill Training Centre, Glasgow.

Celery and Leeks.—The final earthing up of both these vegetables should be done now; in the case of Celery it is necessary to heap a fair quantity of soil around the plants in order to protect them from damage by frost, but if some means of warding-off excessive wet may also be practised, it will be found that frost then does considerably less damage. With this aim in view, the top of the ridges should be made so narrow as possible, to shed off heavy rains, while the drains should act perfectly, so that they carry off the surplus water which, on heavy soils at least, is sure to collect during wet weather. Where regular supplies of Celery and Leeks are in demand, a week's supply may be lifted during fine weather and laid in a store or dark shed, to prevent the operators getting wet and dirty and also treading around the trenches when they are sodden. During frosty weather it is also an advantage to have supplies under cover before they are actually required. Leeks, being much hardier than Celery, do not require earthing up for protection from frost, but it is done to lengthen the blanched part, which is the edible portion, and where this may be added to by a few inches it increases the value of the crop.

Bush Fruits.—The pruning of bush fruits may be commenced whenever the leaves have fallen, and where it is proposed to replace worn-out plantations, the bushes should be grubbed out and the soil thoroughly trenched and manured in preparation, if possible, for another crop, as it is in most cases in very poor condition after Gooseberries and Currants have occupied it for a number of years. The new sites, which may have carried a crop of Potatos or early vegetables, if in good condition, should not require any special preparation, but the planting should only be performed when the soil is in good working condition and does not adhere to the boots or tools. Future young plantations may be provided for by taking suitable cuttings of all types of bush fruits and inserting them in nursery rows. This is of special importance in these days of widespread attacks of mite on Black Currants, and mildew on Gooseberries, as where the stock is clear of these pests it is better to raise young plants from one's own clean stock than risk infection from outside.

Roses.—The planting time for all types of Roses has again arrived, and where everything is in readiness, no suitable opportunity should be missed of pushing on with the planting of the Rose bushes. Where these young plants are actually to hand, this work may be speedily performed, but if they are on order from a nursery delay sometimes occurs, and finally they arrive when the weather is broken and unsettled. Under such circumstances the actual planting is better deferred, and the bushes should be heeled in in a convenient spot until the ground is in good condition again. Any repairs to pergolas or other erections for the support of climbing Roses should be attended to now, as it sometimes happens that considerable root-disturbance takes place in setting new poles into position, and while this may not be fatal, it may, if carried out at another time, seriously check the growth of the plants. Only well-seasoned Larch poles of sufficient weight should be used, as nothing can be more disappointing than to find, when cheaper woods, such as Spruce or Pine, have been employed in the construction of these pergolas, how soon they decay.

Leaf-soil.—This useful commodity, so freely produced on heavily-wooded estates and sometimes very little valued, is in constant request in gardens, and an annual supply should be arranged for as the leaves are being collected. Beech and Oak leaves are to be preferred to most of the other kinds, but where trees of these two are not numerous, quite useful leaf-soil may be obtained from a mixture of all kinds of deciduous foliage. Large quantities may be stored, and if turned once or twice, soon decay, when they may be removed to a convenient place. If this latter work is done now, it allows plenty of room for the newly-collected leaves to be deposited, where they in turn may remain for a year or so before being ready for potting purposes. Old leaf-soil is most valuable when planting or improving heavy clay soils, and where obtainable should be used in preference to rich manures.

HARDY FLOWER BORDER.

HERBACEOUS PHLOXES.

Herbaceous Phloxes are among the most useful of our hardy border plants, and few present us with such a wealth and variety of colour during the late summer and autumn months. Of free growth, groups with large heads of self-coloured or oculate flowers, in a marvellous range of shades, are very rich and effective, and their comparatively easy culture contributes to their popularity.

To cultivate Phloxes successfully, they should have a rich soil and a position where they will not be overshadowed by large trees. Few plants feel the effect of drought more quickly, thus, in preparing the soil for them, deep digging and liberal manuring should be practised, and the value of mulching during the growing season cannot be over emphasised. The frequent renewal of the stock is also desirable, as only from young plants in full vigour may those full-sized, stately stems bearing large, pyramidal trusses of flowers, be obtained. Large clumps may be divided in the autumn after flowering, replanting the outer, vigorous portions and discarding the worn-out central parts. Cuttings may also be struck in cold frames in August, using the growths which appear at the base of the stems at this time. It is wise to adopt this method of propagation for reserve stocks of young plants as they frequently make stronger plants than divided clumps. Intensive propagation may also be carried out by means of root-cuttings, and plants may be raised easily from seeds. Of plants raised from seeds sown in heat in March a large proportion should flower at the end of the season and the best may be chosen for subsequent colour planting.

So well as presenting a wide range of colours, herbaceous Phloxes also present a great diversity as regards height, and may thus be employed for all positions in the border where plants ranging from one foot to five feet in height are required. But there is ample material available for furnishing a Phlox border, and it is doubtful whether any other hardy perennial could produce such a massive and gorgeous display of colour as may be effected by the modern varieties of this useful plant. *W. A.*

EREMURI.

These stately plants are among the most striking of the early summer-flowering herbaceous plants, and to flower them satisfactorily the first season, planting should be done early in the autumn—in fact, the earlier the plants are moved after the foliage has died down, the better chance should there be of a satisfactory display next season.

The noble flower spikes which, in the case of the earlier varieties, develop in May and June, range from three or four feet to nearly ten feet in height. The foliage in its early stages is very susceptible to injury by frost or cutting winds, if in an exposed situation. For this reason it is advisable to plant Eremuri where they are sheltered and where some protection against frost may be afforded the delicate foliage, for growth starts very early in the spring. The semi-wild garden, with a background of tall Bamboos, or among dwarf-growing shrubs in a sheltered corner, should be capital places for these plants, their lovely flower spikes invariably attracting attention. They succeed admirably at the back of a wide herbaceous border if the conditions recommended above are obtainable.

A rich, loamy soil, trenched deeply and enriched with decayed manure and leaf-soil, worked in as the trenching proceeds, is an ideal medium for these plants, and they repay good cultivation. Eremuri increase but slowly, and the demand during recent years being very heavy, prices for them are rather high, especially for the newer varieties. Of the older forms, E. robustus is one of the stronger growers; under good cultivation its flower spikes will reach a height of eight to ten feet, the spikes being densely covered with rosy-pink blooms which are sweetly scented; var. Elwesianus, pink, reaches practically the same height; E. himalaicus, white, is somewhat less in stature and is one of the earliest to bloom; while E. Bungei and E. Warei are more recent introductions, and consequently still expensive, but where Eremuri succeed they are all worth including in a good collection of herbaceous plants. *J. C. W.*

ALPINE GARDEN.

HELICHRYSUM BELLIDIOIDES.

Next, perhaps, to H. frigidum, which, incidentally, is not nearly so easily accommodated, this species is the most attractive of the Helichrysums for furnishing the rock garden. It is hardier than the majority of them and, provided it is planted in a suitable position—a warm, rocky slope or ledge is ideal—and gritty, perfectly drained soil, it should survive the winter and continue to flourish indefinitely.

It forms a close mat of long, slender, silky growths, set with small, oval, pointed leaves, deep green and silky beneath; for its growths and foliage alone this subject is well worth its place. However, the attractiveness does not end here, for fairly late in the summer the carpet becomes transformed into a sheet of shining, snowy-whiteness, an effect produced by the numerous small, scaly "Everlasting Flowers" borne on stems three inches or so high.

This species, like many of its relatives, comes from the mountains of southern New Zealand. It is easy to propagate by cuttings, which should be rooted during early summer, the resulting plants being grown in small pots under dry conditions in a cold frame throughout the winter, when they should be found suitable for planting out the following spring.

HELIANTHEMUM TUBERARIA.

Although quite a common plant in rock gardens, this species should by no means be despised, for it is worth growing as much for its autumn effect, when in fruit, as for the attractiveness of the bright, golden-yellow flowers which are produced in dainty trusses during the early summer months.

These latter are produced above flattened tufts of ribbed, hairy, rich green foliage, and when filling a fairly large area of light, loamy, well-drained soil, in the sunniest position available, are conspicuous from a considerable distance, as also are the bronzy-brown seed-pods which succeed them, and which always contain myriads of seeds, which form a ready means of increase, germinating freely and producing flowering plants the year after being sown. If, however, flowering plants are required for immediate effect the clumps may be divided easily in the spring.

H. Tuberaria hails from the Riviera, and, although so easily grown, it is not unusual to find gaps here and there in the bed at the end of the winter, where plants have succumbed to the vagaries of our winter climate, but these losses are readily made good. *M. W.*

ANEMONE VERNALIS.

For a high alpine, this beautiful Anemone is not a fastidious plant. It has flourished for several years here in a dry moraine and looks like going on indefinitely, the clumps gradually increasing in size and in the number of flowers borne. The dark green, deeply-cut leaves, which lie flat on the ground, remain throughout the winter. In April the flower stems rise out of the centre of this low mat of leafage, each with its large oval bud shaggy with tawny fur. When about two inches or three inches in height, the fluffy sepals are thrown back and the goblet-shaped flower reveals an interior of pearly-whiteness, with a wreath of gold at the base. In the fully blown blossom the mantle of silky hairs with which it is entirely invested becomes even more conspicuous than it was in the bud stage, and they glisten with iridescent shades of rose and fawn, silver and gold. These exquisitely beautiful flowers, moreover, not only last many days, perhaps even weeks, but, as they appear in succession one is able to enjoy them throughout the greater part of the spring. Nor is that all, for each flower stem, having doubled its stature meanwhile, produces during the later summer a seed-head of tousled silk, which gleams with the lights of spun glass.

A. vernalis is, of course, perfectly hardy. Although I grow it in a scree mixture there are others who tell us that it does perfectly well in any good rich loam. It is a sound perennial, practically slug-proof in my experience, and a plant that is easily increased from seeds. It is, however, a very variable species, some forms being much superior to others. *J.*

TREES AND SHRUBS.

HYPERICUM CHINENSE.

This little evergreen species is not considered hardy, but as it survived over 20° of frost here last winter without any protection, it may be regarded as robust enough for trial even in localities which are not among the most genial. Here it has not grown above two feet tall. The pale green leaves, which are of thin and delicate texture, are up to three inches in length, and nearly one inch wide; they are tinted with a soft, bronzy-plum colour when young. The flowers, which are borne in loose, terminal clusters, or singly, are often so much as three inches across and a bright, clear yellow. The rather narrow petals do not overlap, which gives the bloom a starred effect, and the numerous golden stamens are exceptionally long and prominent. These flowers do not make a great display with me, since those of each cluster usually open singly, but their large size and vivid colour always attract attention. Moreover, this species has a long flowering season, the first flowers opening in July and the last in October, or even later.

H. chinense has a neat habit of growth, and this, with its lowly stature, renders it suitable for associating with other dwarf shrubs which enjoy full sun, a light, warm soil, and—in cold districts—a sheltered situation. A native of China and Japan, H. chinense was introduced so long ago as 1753, but it seems to have been grown as a greenhouse subject for many years before being tried in the open. *N. Wales.*

GARDEN THORNS.

There are more than one hundred species and varieties of Crataegus in cultivation in these islands, but really first rate specimens are not found in gardens so frequently as their merits deserve. It is not necessary to state that the scarlet-flowering Thorns are beautiful trees, for this is well-known to everyone, but there are many other superbly handsome Thorns, perhaps not so well-known, that are admirably adapted to decorate and enrich the foreground of planted landscapes. The great value of the Thorns lies in their beauty and changeableness; they afford variety of foliage, diversity of character in flowers and fruits, and they are constantly changing their aspect throughout the year. Even at the present time, many of them are clothed with attractively tinted leaves, and when these depart there remains a heavy crop of scarlet or orange-coloured fruits. These carry on their decorativeness until towards the spring, when the new, tender, green leaves appear to be followed quickly by a marvellous wealth of fragrant flowers. The Thorn will live and thrive in almost any soil in which a tree of any kind will grow; no weather will harm it, and there are few such excellent wind-resisters. It also appears to have attractions for the nightingale, for in the summer evenings these trees are vocal with the melody of this superb warbler, which probably finds as rich a feast on the caterpillars infesting the tree as the thrushes do afterwards on the brilliant berries.

Thorns of choice kinds are generally grafted on the common English White Thorn, C. Oxycantha, and one may usually obtain standards varying in height to suit all purposes. There are crimson, scarlet and pink-flowered varieties, in both single and double forms, and in selecting for the shrubbery and for park-like spaces in a large garden, both single and double forms should be planted. The single varieties flower more freely, are more fragrant, and produce a crop of berries, whereas the double ones produce no berries and thus lose this early winter attraction. As smaller bushes towards the front of shrubberies, or as single specimens in open spaces, however, the double-flowered varieties are extremely attractive when in flower. As pot plants also for the conservatory they are invaluable, for they force well and their fine flowers are highly appreciated.

North America possesses a wealth of beautiful species, and in selecting for a good plantation, the following are of outstanding merit :—C. Crus-gallii makes a handsome, spreading, small tree, very distinct in character, the spines conspicuous, the flowers large, the fruits very showy. Closely allied to this species is C. prunifolia, a fine, free-growing tree noted for its large, showy fruits. C. Douglasii is a tall, vigorous growing tree, desirable for its reddish twigs, cut leaves and purplish-black fruits. C. coccinea, the Scarlet Thorn, is handsome in contour, has large leaves borne on long stalks, and few thorns ; its flowers are produced in large, spreading bunches, and the fruits are large, brilliant red, and remain a long time on the tree. C. cordata, the Washington Thorn, is a striking species, with dark, glossy leaves, and bears a profusion of flowers in the spring, followed by masses of small, crimson berries. C. Arnoldiana is a showy species with large, Cherry-like fruits. C. mollis, although one of the earliest introduced species, is still one of the best, and C. durobrivensis is one of the largest-flowered of the North American species.

Among Chinese species, C. pinnatifida major is a striking plant with large, conspicuously-lobed, rich glossy leaves and showy, crimson fruits. C. tanacetifolia has grey, downy leaves and small yellow fruits ; and C. orientalis is a very beautiful species, its grey foliage being particularly attractive in the young stage, while its orange-coloured fruits are conspicuous.

The evergreen Thorns, although closely allied to Crataegus, are now included under Pyracantha, and provide us with some of the finest wall trees we have. They produce, during late spring and early summer, clusters of small white flowers, similar to those of our native Hawthorn, followed by masses of berries in the autumn which make a blaze of colour. P. coccinea is a European species bearing berries of a bright coral-red, while its variety P. c. Lalandii has berries of a deep shade of orange-red and is probably the most popular variety grown. P. Gibbsii is an attractive Chinese species with large leaves and orange-red berries, and its variety, P. G. yunnanensis, is a desirable plant producing small flowers and berries in extraordinary profusion. *A.*

PIPTANTHUS NEPALENSIS.

The Nepaul Laburnum, as this shrub is sometimes called, was fully exposed to over 20° of frost for several successive days here last winter, and it did not suffer beyond losing its leaves. Mr. Bean states, in *Trees and Shrubs Hardy in the British Isles*, that it is not permanently hardy at Kew, but it is evidently reliable enough as a wall shrub not only there, but in much colder districts. I have seen it doing well in sheltered seaside gardens along the west coast, but rather think that it is one of those subjects which might often have a better chance of wintering favourably were it accorded rather spartan treatment, this tending to an earlier ripening and hardening of the wood.

P. nepalensis, a native of the Himalayas and one of the Leguminosae, is a soft-wooded shrub, or small tree, of some six feet to ten feet in height. In normal winters here it is evergreen, or nearly so, the dark green leaves consisting of three leaflets which are longer and broader than those of the common Laburnum. The Pea-shaped flowers, which are over one inch in length, are borne in short racemes in May. They are bright yellow and hairy, as is the younger foliage and calyx, the down on the latter being tawny. In all the milder parts of the country seeds are ripened, and these afford the best means of increase. Any average light loam suits P. nepalensis. It has a reputation for being a short-lived shrub in some gardens, but my own specimen, now about ten years old, has not yet shown signs of decline. *N. Wales.*

EVERGREEN BARBERRIES.

The evergreen Barberries form an extremely useful group of garden shrubs, for all of them are attractive when grown in the shrub border in conjunction with deciduous flowering shrubs, for which they act as foils. Some of them, notably the well-known and deservedly popular B. stenophylla, also B. Darwinii, prove very effective as specimen shrubs on lawns, or in other prominent positions, for when in flower there are few shrubs more striking in appearance, while, being evergreen, their attractiveness is permanent. B. stenophylla is also valuable as an ornamental hedge plant, to which purpose it may be put without the sacrifice of its flowers if pruning is done after the blooms have faded, these being carried on growths produced in the previous season.

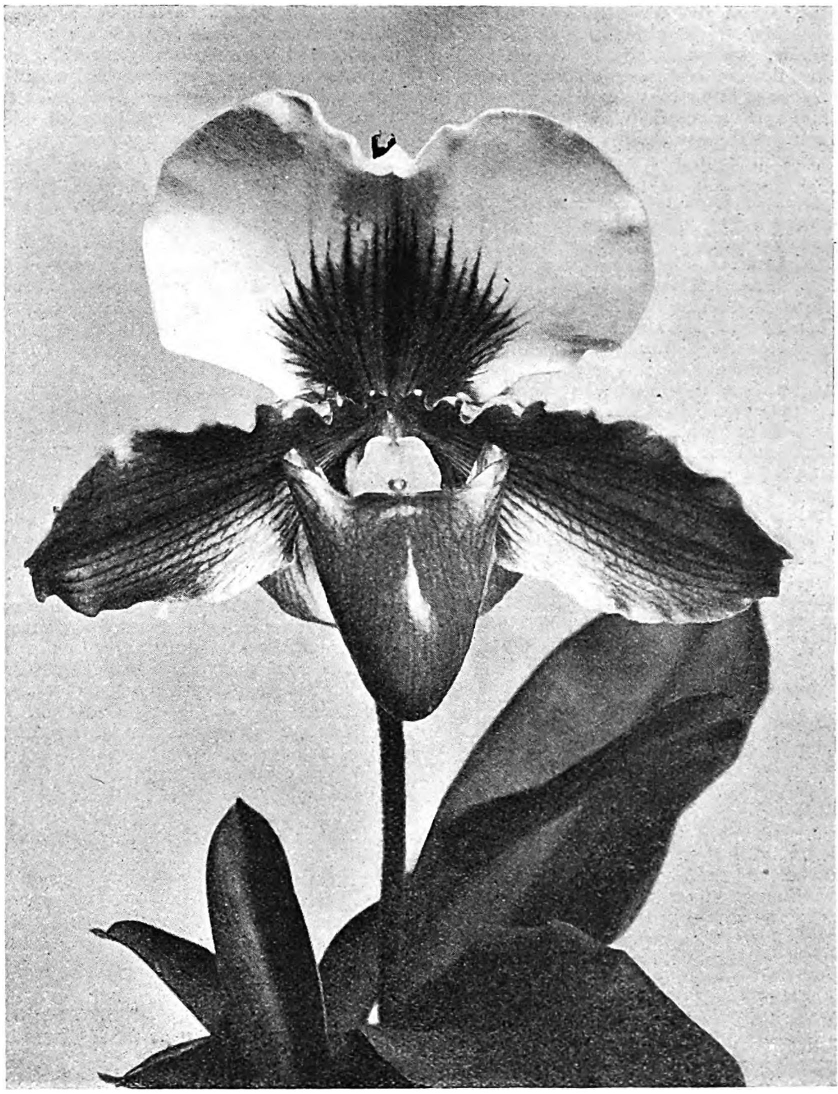

FIG. 172.—CYPRIPEDIUM WALTER MOORE.

R.H.S. First Class Certificate, October 30. Flower white and yellowish-green.
Shown by Miss A. B. Moore, Chardwar, Bourton-on-the-Water. (see p. 357.)

B. Aquifolium, well-known as Mahonia, has its especial value as a ground cover beneath trees, flourishing under either Pine or deciduous trees and proving ornamental at all seasons ; it flowers freely in early spring, often commencing to do so in January, rich yellow blooms being produced in terminal clusters. Although these are produced so early, the weather prevalent at that season seems to have no effect on the production of fruits, which ripen during September, and hang like miniature clusters of Grapes for some considerable time. The foliage of the Mahonia is normally dark green and glossy, but with the approach of winter it takes on a purplish tint, the older leaves assuming bronzy or orange shades, and so it remains throughout the winter.

B. stenophylla is so well-known and admired that a description of it is unnecessary, and this applies also to B. Darwinii ; both are invaluable, free of growth and easy to satisfy with regard to growing conditions. Of B. stenophylla there are, however, several forms which are not so well-known, but which are deserving of note. The variety Irwinii, for instance, is invaluable for planting where the type, on account of its stature, would be out of place ; it is ideal for the rock garden of moderate size or for the front of the mixed shrub border. This is considered the best of the numerous forms, other notable ones being B. s. var. gracilis, a small, compact, low-growing form, and B. s. Brilliant, suitable for the rock garden or bank on account of its low stature and drooping growths, which are clothed with flowers even richer in colour than those of the type. These few are given merely as an indication of the variety of forms obtainable, but when it is considered that B. stenophylla is of hybrid origin, its parents being B. Darwinii and B. empetrifolia, it is not surprising that a large number of seedling forms of variable appearance have been obtained from it and are offered by nurserymen.

Another very attractive evergreen Berberis is B. replicata, one of Mr. G. Forrest's introductions to English gardens from western China. When in flower, this species is distinctly charming. I have a plant which is now about three feet high, and it will, apparently, grow much higher. It flowered freely when less than a foot high, and each year, during late February and March, is transformed into a pyramid of lemon-yellow blossoms, every growth being closely packed with clusters of the small, globular flowers. They are followed by small, elongated, black fruits, but these are of no especial decorative value. The leaves, borne on light brownish stems, are up to three inches in length; narrow, with recurved, sharply-toothed margins; they are rich green on the upper surface and whitish beneath, and in autumn the older ones take on tints of orange and crimson, thereby adding to its beauty. This species is quite hardy, delights in ordinary loamy soil, and is easily increased by layering; by severing the suckers which are frequently produced; or by careful division of the root-stock.

B. acuminata does not rank among the most attractive, but it does not by any means warrant neglect. It is rather loose in habit and attains a height of four or five feet, the growths being armed with long, stiff spines and clothed with long, narrow, spiny-margined leaves. The rather large flowers are borne on long stalks in clusters of four or five; they are bronzy-yellow in colour, and are succeeded by large, bluish-black fruits. This species is free-growing and flourishes in deep, rather moist, loamy soil.

Of compact habit is B. buxifolia, which forms a rounded bush four feet or more in height, the branches being set with tufts of glossy, dark-green leaves. It flowers during March, the rich yellow blooms being produced singly on long, slender stalks. The variety nana is a dwarf, compact form of neat appearance, and is specially suitable for the rock garden.

No shrub border should be without B. pruinosa, a free-growing evergreen species, which is attractive in flower, foliage and fruits, the latter being bluish-black, thickly covered with waxy-white bloom; while B. Hookeri is well-known and extensively planted, its foliage being glossy, deep green on the upper surface and glaucous beneath.

B. insignis is, on the other hand, an uncommon species which is, however, well worth including in a collection. Its erect, light brown stems, which are practically spineless, rise to a height of about four feet. The foliage is quite distinct, the leaves being up to seven inches long and about one inch wide, bright green, stiff, and with spiny toothed margins, borne either singly or in pairs. The flowers are golden-yellow and are produced during May in large clusters. Unfortunately, this species is not so hardy as the majority of the group and should be planted in a fairly sheltered position, well protected by other shrubs.

Among those species which belong to the Mahonia section are B. japonica and B. Fortunei, both highly attractive sorts. B. Fortunei is erect and sparsely branched in habit, the stems being terminated by pinnate leaves, among which, at the present season of the year, slender spikes of creamy-yellow flowers appear. This species, like B. insignis, is only suitable for sheltered situations, or for growing in well favoured districts.

But B. japonica is quite hardy and is especially attractive if grown as a specimen plant in a partially shaded position and in deep, cool, loamy soil, for its leaves are extremely handsome, being a foot or more in length and composed of from nine to fifteen leathery leaflets, which are glossy and dark green in colour. It attains a height of about eight feet, the stout, sparsely-branched growths being terminated by rosettes of leaves which, during winter, are finely tinted, and from among which, during late autumn and for two months or more, clusters of long sprays of sweetly-scented, primrose-yellow flowers are produced. B. japonica is one of the most beautiful winter-flowering shrubs that we have, but there is a rare variety of it which is even more attractive, *i.e.*, var. Bealei. This has larger and more striking leaves, and produces compact, stiffly erect spikes of richly fragrant blooms.

There are several other evergreen species of Berberis which are deserving of attention. B. verruculosa, for instance, forms a fine, rounded bush three feet or more in height, its dense, arching growths being closely set with sharply-toothed, leathery leaves, dark green and glossy on the upper surface and greyish beneath. During the latter part of autumn and onwards through the winter, the older of these leaves take on rich tints of orange and scarlet and so add greatly to the already handsome appearance of this attractive species from China, one of Mr. E. H. Wilson's valuable introductions.

B. Julianae, B. Sargentiana and B. Gagnepainii form a trio of handsome species, of high value in the shrub border. They are all robust in growth, quite hardy, and revel in good, deeply-worked soil. B. Gagnepainii grows to about six feet high, is erect and compact in growth, the stems being armed with slender, triple spines up to one inch in length, and clothed with long, narrow, dull green leaves. The yellow, greenish-tinged flowers are borne in small clusters during June, and are followed by oval, dark purple fruits.

B. Julianae has stout spines, dark green leaves and pale yellow, red-tinted flowers, followed by black fruits coated with bloom; it is very like B. Sargentiana, which grows to eight feet high and is armed with exceptionally formidable spines.

Thus it will be seen, from the selection given above, that the evergreen Barberries constitute quite an extensive group, easy of culture and among the most ornamental evergreen shrubs. They require no special cultural treatment and may, in all instances, be increased by layering, while not a few of them produce suckers freely, which, if separated from the parent plants and grown on, soon form good specimens. Some of them are easily divided, if care is exercised when performing the operation, and the majority ripen seeds which may also be used for purposes of increase.

Finally, if space may be afforded for growing these evergreen Barberries in conjunction with the red-fruited sorts, a very pleasing effect may be obtained. *M. W.*

INDOOR PLANTS.

HIPPEASTRUM HYBRIDS.

For some reason, possibly because they received particularly generous treatment last year, my Hippeastrum hybrids flowered particularly well this year—at least a third of my own seedlings, now five years old, have given two flower stems. One plant (Fig. 171) had six flowers, three on each stem, open at the same time; the flowers were of good size, excellent shape, pure white except for the thin crimson stripe which is shown in the illustration. Another plant has had eight flowers, four on each stem, but in this case the flowers were not so large, as the bulb was smaller. Another good batch of seedlings came into flower during February and March, from seeds sown twenty-seven months ago, and the plants were grown on without a rest, being moved into larger pots when necessary without disturbance. *A. Pam, Wormley Bury.*

BEGONIA HAAGEANA.

This fine plant is a native of Brazil, and its free-flowering habit makes it worthy of a place in any conservatory.

The flowers are a beautiful whitish shade, with a profusion of red hairs on the undersides of the two outer petals, and they are borne in racemes two feet or more in length. The whole plant is suffused with red, which gives it a very rich colouring.

This Begonia may be propagated easily by means of cuttings in spring; they should be rooted in a mixture of loam, leaf-soil and sand, and given gentle heat. Flowers should not be permitted until the plants have attained a good size

There are some fine specimens of B. Haageana in the conservatory at the University Botanic Garden, Cambridge; these have been flowering for several years in twelve-inch pots and show no signs of failing health. Each specimen is about four feet six inches through and carries, roughly, a hundred to a hundred-and-twenty clusters of flowers.

B. Haageana may also be used for baskets, and if given plenty of light it flowers well under such conditions. One thing to remember is that this Begonia promptly shows the ill effects of drought. Frequent applications of liquid manure and soot-water are very beneficial to well-rooted, flowering Begonias. *F. H. Wright, University Botanic Garden, Cambridge.*

ORCHID NOTES AND GLEANINGS.

COELOGYNE CRISTATA.

Several species of this genus flower during the winter months, but none compare with the lovely C. cristata, which is not only one of the finest Coelogynes, but also one of our best winter-flowering Orchids. The flowers, which are large, and of the purest white, with orange-yellow markings on the lips, are produced very freely in long, pendent racemes. It is very easily grown, and if the flowers are kept free from moisture they remain in perfection for a considerable period.

This species does most satisfactorily when grown in baskets or shallow pans filled to about half their depth with crocks, and a compost made up of equal parts of fibre and Sphagnum-moss, with a plentiful sprinkling of small crocks and nodules of charcoal will be found the most conducive to vigorous growth. As the pseudo-bulbs lay almost flat upon the material, the latter should be raised in the middle to a convex outline. An abundance of moisture at the roots and a humid atmosphere, with a stove temperature, are essential during the growing season, but during the winter a dryer atmosphere and a restricted supply of water, with a temperature range of from 50° to 60°, is found to be most congenial to the plants. When the flowering period is over growth should be promoted in a moist heat of 70°, and the roots should be refreshed with new material.

Propagation is effected by division just as the plants are commencing to make new growth, but as large, well-established plants bearing forty or fifty racemes of flowers are so very effective, the cultivator should not be in a hurry to divide the specimens until they show signs of exhaustion. *A.*

DAHLIAS IN POTS.

Too often we find our Dahlias stricken by frost at the end of September, and then, as during this year, a spell of milder weather sets in, when, but for that one frosty morning, our borders might have been gay for another fortnight. But given a fairly airy house or conservatory, in which a temperature of approximately 55° can be maintained, there is no reason why the Dahlia season should not be prolonged for several weeks without elaborate provision.

It is often found that young Dahlias planted in outside borders are late in producing their display of blooms. This is usually mainly due to the cuttings being rooted late. If, however, some of these late-struck cuttings, and more especially of the Decorative types, are potted on as they require it until they occupy ten-inch pots, by the middle of September they should be fine plants, three to four feet tall, according to the variety.

They should then be housed, or even before this date if in a district subject to early frosts, due care being given as to ventilation, watering and feeding, which will be rewarded by a fine display of blooms throughout October and November.

The summer culture is very similar to that afforded Chrysanthemums. Use a good, rich compost, and feed the plants freely, applying any of the well-known plant foods. Expose the plants fully to the sun and air, and stake them early with good, stout stakes, which should be tied to an overhead wire, as is usual with Chrysanthemums.

Insect pests are not very noticeable, chief among them being green fly and earwigs; wasps, too, are given to eating away the tender stems, but their attacks are generally localised to one place on a plant, and spraying with a nicotine insecticide is usually a sure remedy.

For pot work, the larger and stronger-flowering kinds are preferable, also those of pronounced colour, as the more delicate shades of colour tend to fade away altogether as the days grow shorter. The appended list is of varieties that may be depended on to give a good display:

President Wilson, Roy Hay, Hollandia, Porthos, Moorkop, Ladybird, Mr. W. J. Wurfbain, Glory of Nyjkerk and Fakhir.

When it is seen that the plants are finished, they should be gradually dried off and the stems cut down. The plants may remain in the pots all the winter (in a frost-proof structure), and should make fine stock plants for cuttings, or may be planted out in the open border at the proper season. *S. W. D.*

NOTICE OF BOOK.

The Chelsea Physic Garden.

Although this little book,* now in its third edition, has all the freshness of brilliant conversation—and, moreover, is of great value as a sketch of the history of a famous garden—one cannot but see that it has also the defects of its merits. In the two new chapters added to this edition, the romance of the Chelsea Physic Garden is still further linked with Linnaeus's visit to England in 1736, and somewhat indirectly, with the founding of the Linnean Society of London.

I cannot but feel that a hurried selection of sundry details concerning Linnaeus's life is apt to leave a false impression upon the mind of the general reader. To take one instance, I scarcely think that Dr. Dawtrey Drewitt is quite fair to Linnaeus when, on p. 72, he implies that the reason why he was at first badly received both by Philip Miller and Dillenius was that he was given to boasting. Rather, was not the real cause of the friction the prejudice felt by the professional botanists against Linnaeus, whose *Systema Naturae*, just printed, had preceded him to England? The English botanists saw only too plainly that the immense amount of labour devoted to the advancement of botanical knowledge in England, especially in the compilation of the great *Pinax* which Dellenius had in hand, was likely to be negatived by this young Swede—who, moreover, was not a famous man at that time, as Dr. Drewitt would seem to imply. Why was it that Dr. Thomas Shaw, divinity professor at Oxford (whose portrait hangs on the walls of the Linnean Society), greeted Linneaus with joy, and "was especially charming"? The answer is obvious.

One cannot help adding, that it is also rather a pity that the younger Linnaeus should be referred to in this book with the usual casual assumption that he was a more or less worthless individual. While admitting that he lacked the great gifts which had made his father famous for all time, the younger Linnaeus deserves respect as a botanist—the *Supplementum plantarum* being no mean achievement.

The better part of four pages is devoted to discussing the story of Linnaeus falling upon his knees before the Gorse on Putney Heath; but no definite conclusion is reached. What an unfortunate thing it is that this pretty story was ever challenged! It belongs rightly to the realm of fancy and has no bearing on the history of botanic gardens, or of botany generally. The creation of little fairy tales of this kind, having a symbolic value, is surely quite a common phenomenon. Usually the wish is the father of the thought; and when

> "The blood too slowly laves the coral
> shores of thought,"

fancy is mistaken for fact. That is all.

The achievements and influence of the Chelsea Physic Garden, indeed, constitute a romance; but to-day, although both the Garden near the Chelsea Embankment and the Society of Apothecaries in the City still continue to exist, the former is held in trust (owing its preservation to the foresight of Sir Hans Sloane) and the latter really ranks only as a City Company, as it has now given up its active work of preparing and supplying pure drugs. To Romance, the word *Finis* should never be added; and perhaps this ancient Society of Apothecaries, whose first charter was dated 1617, might enter upon another field of romance by collecting and publishing the archives relating to the historical side of horticulture and botany, and by becoming a centre for that study. The historical evidence of the introduction and cultivation of a large number of useful and ornamental plants is sadly lacking; and such evidence would be most quickly assembled by having a recognised centre for its collection. (No doubt this could be carried out without incurring that "irritability" and "acrimony" which Dr. Drewitt seems to consider inevitable in scientific societies!).

It may be permitted to correct a few of the minor errors in this entertaining book. On p. 80, the John Ellis referred to by Dr. Garden was not Governor John Ellis of the West Indies, but John Ellis, the author of the classical book on Corallines, and who (so far as is known) spent his whole life in the British Isles. Again, on p. 101, Dryander is called a pupil of Linnaeus. There is, however, no evidence that he was, although he stayed in Uppsala for eleven years during Linnaeus's time, and had seen the Linnean collections. He took his degree at Lund. On p. 70 occurs a misspelling of the name Linnaea given by Gronovius to the little trailing plant which shares the name of the great naturalist.

In conclusion, one cannot withhold admiration for the immense amount of interesting information contained within the small compass of this book. Indeed, it is a somewhat difficult task to do full justice to it in a short review. As an enthusiast for all that concerns the garden about which he writes so brilliantly, the author has no difficulty in holding the reader's attention, but as a botanical historian he rather fails to convince, simply because the dull, sober facts of history cannot be presented in a sparkling conversational manner without some damage to their relative truth. *S. Savage.*

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* *The Romance of the Apothecaries' Garden at Chelsea.* By F. Dawtrey Drewitt. Third edition. Cambridge University Press, 1928. 7s. 6d. net.

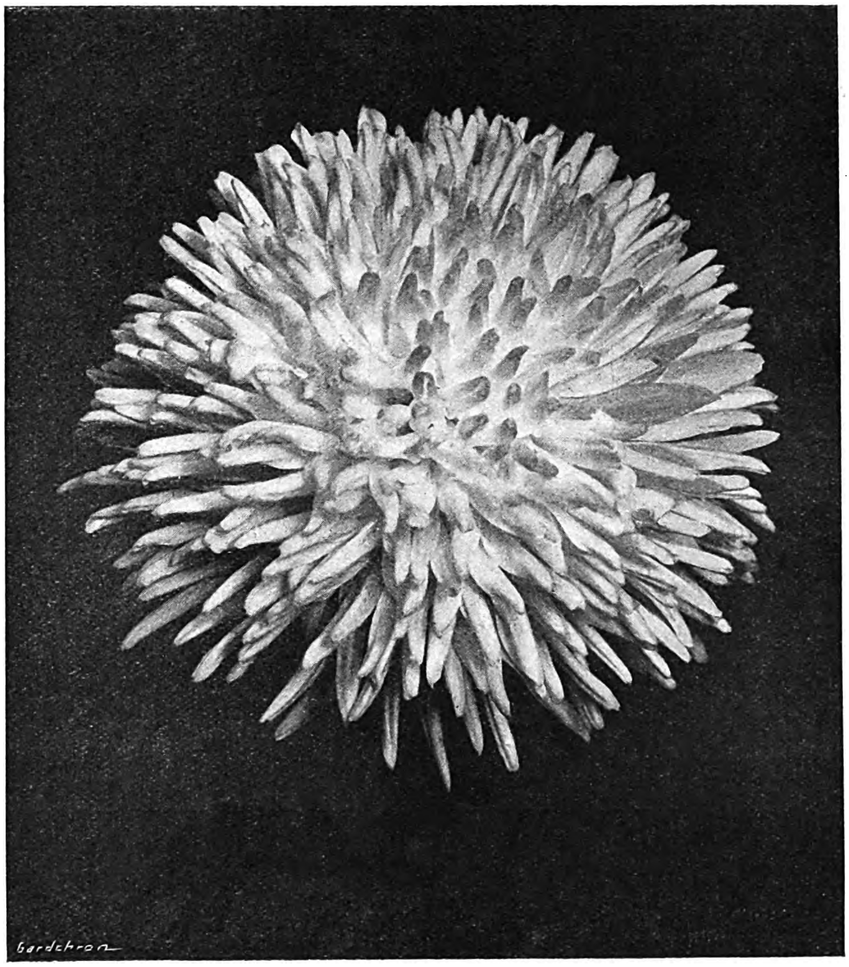

FIG. 173.—CHRYSANTHEMUM MATCHLESS.

R.H.S. Award of Merit, October 30. A good market variety; flowers yellow.

Shown by Mr. H. Shoesmith, junr. (see p. 358.)

PLANTS NEW OR NOTEWORTHY.

SCUTELLARIA PROSTRATA (JACQUEM).

This is another Kashmir plant of no little beauty and merit, but considering that the genus consists of over one-hundred-and-forty species, it is surprising that so few have been found worthy of cultivation. All those usually grown, among the most common being S. alpina, S. baicalensis and S. indica japonica, come short of being considered first-class, either for the rockery or the border.

As in many other genera, the tropical species seem to have assumed the richest colouring and left those of the more temperate climes less brilliant, but, perhaps, more useful to our present fashion in gardening.

Seeds of S. prostrata were sown in the autumn of 1927 and germinated freely; having no knowledge of the plant, as it is probably new to cultivation, they were sown too thickly, the result being great growth and a display of flowers only on the outskirts of the mass.

Seen by a few hardy plant enthusiasts, it has been much admired and may be briefly described as a prostrate, strong-growing species for the rockery, one that would be most effective hanging over a large stone. Leaves small; flowers in short, massive spikes, each spike carrying twenty to thirty flowers, of soft yellow colour, each flower tipped with purple—quaint and attractive.

Of its hardiness there seems no doubt, as it is found on Astan Morg, Kashmir, at a high altitude. It is perennial, and has the appearance of being an abiding plant—not here to-day and gone to-morrow. *T. Hay.*

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PLANT HISTORY IN NOMENCLATURE.

THE RIVAL QUEENS : THE ROSE.

ONE of the charms of the garden lies in the fact that it has many gateways, avenues and means of approach. As all roads lead to Rome, so every subject may lead to the garden. There are such subjects as the chemistry of plants, the geology of the district, the nature of the soil, the action of bees, insects and birds, the use of glass, evolution of tools, grading of fruits, acclimatization, self- and cross-fertilisation, manures, hot-beds and hot-houses, pests and diseases, the seasons, weather and temperature, garden architecture and art, protective devices, pruning, and a host of others which are of a purely practical nature. In addition to these, we have leisure-hour studies, beginning with the Garden of Eden and the first gardener, and including gardening in antiquity, classical allusions and lore, the poetry of the garden, the names of flowers, plant legends and lore, herbals and medicinal plants, or the garden in the pharmacopoeia, to name only a few as they occur while I write.

It is proposed in this series of papers to show another way into the garden, and, as it is difficult to find a heading which is at once brief and clear, it may be well to explain what the object is. Much has been written on the origin and history of plants, much also on their names. We still need, however, a popular work which will show something of the history of flowers and trees as it is revealed in the vocabulary. How does it come about that Chinese and Arabic, Persian and Sanskrit, Greek and German, Hebrew and Latin have each contributed their quota of words to our Gardeners' Dictionaries ? And if, in addition to the names of plants from a score of tongues, we find other words in our language which are directly or indirectly traceable to foreign plants and flowers, such as "turban" or "rosary," how is the fact to be explained ? When we speak of a sycophant, what does it tell us about Figs ? Or when the ladies speak of tea-gowns and parties and cosies, what light do these words throw on our commercial intercourse with the Far East ?

Let us begin with those rival queens, the Rose and Lily, not only because they are well-known, and are universal favourites, but because they are supremely instructive. It is an interesting fact which will serve as guiding thought in this study, that Persia forms the boundary of the two kingdoms over which our rivals reign. East of Persia is under the rule of the Lily, largely represented by the Lotus, while westward the sceptre of the Rose is acknowledged. But in making this general statement it must be understood that we recognise a certain amount of overlapping. The Lotus has in ages past been a great power in Egypt, while the Rose is not unknown in eastern lands. The name and lore of the Rose, however, dominate western Asia and Europe, influencing alike the language, history and religion, while the Lotus or Lily similarly influences the languages, literature and worship of India, China and Japan.

> "What's in a name ? That which we call a Rose,
> By any other name would smell as sweet."

The philosophy of this statement is too deep for the plummet and too subtle for the *plume* of the present writer, but the question—What's in a name ? is one that appeals to him, since the nomenclature of plants has always had for him a peculiar fascination.

It is interesting to try and get back to the days when names were first given, and men tried to differentiate between a Buttercup and Daisy, a Beech and an Oak, a Cedar and a Fir tree. One tries to imagine why this or that particular epithet was applied. The "day's eye"—what poetry it contains ! Sometimes the names of plants in different lands, although they differ with the language, have the same meaning, showing that they possess a characteristic which cannot be overlooked. Sometimes it happens that a native and a foreign name exist side by side, and the study of these synonyms proves very instructive. The native name may be used in prose, is homely, serviceable, ready for every-day use, while the foreigner better fits the mouth of the singer or the pen of the poet. These facts are not merely of antiquarian interest, but frequently have a most intimate bearing on history, commerce, religion and literature ; so that thus we may find in the garden, and in the names of our plants, an epitome of our world-relations.

What volumes are summed up in such every-day names as Potato, Cucumber, Gourd and Melon ; in Orange, Lemon and Citron, Spinach and Lettuce, Rosemary and Lavender, Lily and Rose ! Let us then come back to these rival queens, and see what they have to teach us.

The Rose is found wild in this country. Why then has it a foreign name ? Was there no appellative for this favourite flower until the term Rose was introduced from abroad ? There was, and we still retain it in the phrase, "Hips and Haws." Hips are the fruits of the Wild, Dog or Hep Rose. This is found in Anglo-Saxon variously written, and agreeing with German and other Teutonic forms. Professor Earle has summed up the subject so well that I cannot do better than quote his words.

"Everyone who has tasted the quality of Saxon poetry, will almost postulate that the Saxon race must have had a name for the Rose, long before they colonised this island home. And we are not without relics of such a word. That word *hip* which now signifies the bright fruit of the Briar once signified the plant and the flower. The Anglo-Saxon is *heope,* the Old Saxon *hiopa,* Old High German *hiufa* and *hiufo,* German *Hiefe.* In Cumberland the fruit is called *Choops,* and the Briar is the *Choop-tree.* And whereas *heop bremel* (hip-Bramble) is given for Rubus, it must be remembered that Rubus then stood both for Rosa and Rubus, and that "Bramble" was equally neuter, and that *heop* in *heop bremel* determines it to the meaning of Rose-briar." Thus Chaucer in *The Rime of Sir Thopas*—

> "And swete as is the Bramble flour
> That bereth the red hepe !"

Possibly the name is ultimately related to *jupe* or *jujube,* whose history can be traced in the etymological dictionaries. The idea, as Dr. Prior suggests, finds some support in old writers, and I may add that in German dictionaries the name for hip is *hagebutte.* This was formerly written *hagenbotten, haubotten,* hedge button, and said to signify jujube.

There is, however, another name which ought to have a word of notice : I mean Eglantine. Much discussion, as Prior has pointed out, has centred around this term, both as to its exact meaning, and as to the shrub to which it properly applies. In Milton we read of the "twisted Eglantine," which suggests the Honeysuckle or Woodbine. It is now used of the Sweet Briar, and seems to have been applied to the wild Rose by French writers of olden times ; the derivation from the Latin *aculeus,* a prickle, showing that a Rose rather than a Honeysuckle was intended.

In spite of all this, the Rose is practically known, not only in England and France, but in every western land, by the one endearing name, and although what we call a Rose by any other name might smell as sweet, we cannot bring ourselves to accept such a statement. Our next business, therefore, is to trace the history of this romantic name. *Hilderic Friend.*

(*To be continued.*)

THE USE OF TERATOLOGY* IN HORTICULTURE.

IN a work written some years ago on the principles of plant-teratology, the writer had occasion to emphasise what he regarded as the value and importance to botanical science, in a general way, of a study of abnormal forms of plant life. Yet many botanists, both of the past and present, have paid little or no attention to teratological data, regarding them as of small interest and less value. There is, however, an increasing number who do see some real meaning and significance in these phenomena.

What view do horticulturists hold on this subject ? Are they addicted to the cultivation of "sports" and "freaks" ? Ask the average gardener or nurseryman if these things play an important, or even any, rôle in his scheme of horticulture and, in most cases, his reply will be a repudiation of any dealing with these "malformations," adding that he takes good care to weed them out whenever and wherever they appear. But the horticulturist who commits himself to this rash statement is really "talking without his book," and without actually realising what are sports or abnormalities, and what are not. For, however much these may be, in a general way, despised, it is a fact that many sports are entertained unawares and exceedingly cherished by the gardener.

It is perfectly true that many, perhaps the majority, of sports are quite useless to horticulture and should be eliminated on all possible occasions, as, for instance, fasciated shoots, leaves bearing enations on the surface, or virescent flowers. But it may not be without some interest to give a brief account of those which are generally recognised as being of some, or even of great, utility in horticulture.

ADVENTITIOUS GROWTHS.

In the book above-mentioned a special section is devoted to an account of "adventitious" roots, stems and leaves, *i.e.*, the development of these various organs out of their normal position, or at a time, or under circumstances exceptional for them. Now, in horticulture, the formation of adventitious roots plays a most important rôle, for on them depends very largely the propagation and reproduction of plants. We make cuttings of stems and leaves, relying on the abnormal development of roots from the cut surfaces of shoot, mid-rib, or leaf-stalk. Root cuttings of various plants are continually made in the knowledge that new shoots will arise abnormally from them. The basal part of a bulb, which is morphologically of stem-nature, will, if slit in a certain way, give rise to fresh bulbs along the edges of the cut. Leaf-cuttings are largely used for the abnormal formation of fresh shoots, as in bulbous plants, Begonias and Gloxinias. The normal formation of adventitious shoots on leaves displayed by such plants as Begonia phyllomaniaca, and the Ferns, Asplenium bulbiferum, Cystopteris bulbifera and Polypodium proliferum, is taken advantage of by gardeners for the propagation of these plants.

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*Lit. the Science of Wonders; it is the study of the abnormal forms of life.

FASCIATION AND BRANCHING.

Although it is stated above that fasciated, or banded, stems are of no utility in horticulture, yet there are a few exceptions to this rule. In most collections of succulent plants, one may generally see specimens of the fasciated variety of the Stone-hore (Sedum reflexum monstrosum), which is, therefore, regarded either as an ornamental plant or a curiosity, in any case well worth growing. And do we not at once recall the brilliant Cockscomb, Celosia cristata ? which gardeners sometimes call Amaranthus. Here it is the peduncle and axis of the inflorescence which have developed into the remarkable fan-shaped structure bearing bracts and flowers, both laterally and along the upper arched and very sinuous edge. This abnormality is certainly ornamental as well as curious, and in some collections a great display of it is made.

Abnormally-branched trees are favourites in many arboreta, notably the fastigiate or broom-shaped varieties, *e.g.*, the Lombardy Poplar (Populus nigra italica), the Irish Yew (Taxus baccata fastigiata), the Exeter Elm (Ulmus montana fastigiata), and that form of Lawson's Cypress known as C. L. erecta viridis. Many dwarf and compact varieties adorn our rock-gardens, etc. And what garden landscapes are without the beautiful weeping forms of Birch, Willow, Ash or Elm ? Fruit-growers delight to train their trees into the most unnatural forms of the cordon, espalier, etc., in order to gain larger and more luscious fruits. An instance in which gardeners have forced abnormal and unnatural growth upon plants on account of its great utility in propagation is afforded by the grafting or budding of shoots of one variety or species upon those of another, *e.g.*, of Pear upon Quince, of various garden Roses upon the Manetti or Dog Rose stock, of Cytisus purpureus upon Laburnum vulgare, etc., etc.

ABNORMAL FOLIAGE.

The foliage of many trees renders them very ornamental when the individual leaves become laciniate, *i.e.*, cut or lobed in various ways. These abnormalities are specially grown for their beauty, as in the case of the Fern-leaved Beech and Oak, the cut-leaved Birch, Alder, Hazel, Elder, the laciniate variety of the Bramble, and the Oak-leaved Laburnum. Even greater favourites are the heterophyllous or cut-leaved forms of various Ferns, such as Polypodium vulgare cornubiense, Scolopendrium vulgare endiviifolium and erosum, etc. And almost endless are the number of beautiful, crested forms in many genera of Ferns, a phenomenon which is due to the abnormal multiple forking either of the frond as a whole, or of its lateral divisions, or of both combined. These are excellent examples of sports or abnormalities which are greatly cherished and sought after.

Four- and five-leaved* Clovers are considered exceedingly lucky, and nearly everybody would grow them in the garden if it were possible to do so. There would probably be a sale for such leaves. The opposite phenomenon, viz., that of simplification of the leaf, is well-known to occur, as when trees with compound leaves produce varieties with perfectly simple ones. This is a remarkable sport. The variety monophylla of the common Ash (Fraxinus excelsior) is sometimes seen in gardens.

PROLIFERATED FLOWERS.

Among flowers we very soon discover a number of cases in which "sports" or abnormalities are specially cultivated for their beauty and ornamental value.

Under this heading is the remarkable inflorescence of the Feather Hyacinth (Muscari comosum) in which the flowers are replaced by delicate, elongated branches, representing pedicels, which are again branched in the same way; they are filamentous and of a lovely purple colour, and are formed at the expense of the flowers, which are quite absent. This sport is much more striking and effective than the normal plant.

A large part, if not the whole, of the effect produced by the double form of the species of Rock-Cress, called Arabis albida, is due to the repeated proliferation of the flowers. As compared with this abnormal form, the ordinary normal one is not worth growing. Who would be without the Polyanthus among the treasures of his spring flower border ? The origin of this abnormal form of Primula is rather doubtful. But it is generally regarded as the result of a cross between the wild Primrose and the Cowslip and, probably, between the red varieties of each of these. The Auricula is also probably of hybrid origin.

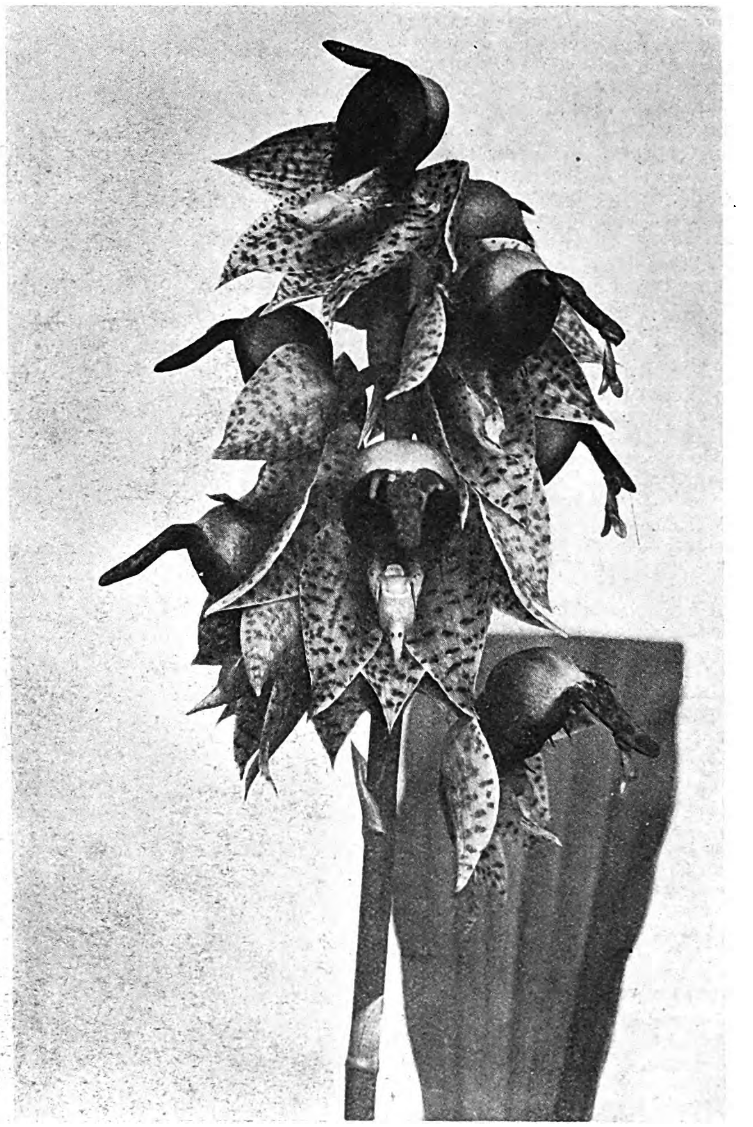

FIG. 174.—CATASETUM CHARLESWORTHII (PROVISIONAL NAME).

R.H.S. Award of Merit, October 30. Flower green and purple. Shown by Messrs. Charlesworth and Co.

(see p. 358.)

FASCIATED FLOWERS.

In these the flower consists of an unusually large number of parts, sepals, petals, stamens and carpels being multiplied far beyond what is met with in the normal flower, this multiplication occurring not in the radial, but in the lateral direction. Most of these cases are either too rare or too bizarre to be cultivated. But the Foxglove bearing a large, terminal, peloric flower is not uncommon as a sport in gardens, and has actually found such favour that some nurserymen now sell the seeds of a special strain or variety. Again, there is a remarkable form of the mountain Scorpion Grass (Myosotis alpestris var. Victoria). The character which marks it out for special attention from growers is the fasciated form of the terminal flower of the inflorescence, which is several times larger than the normal flower.

EXTRA PETALS.

There is no essential distinction between what is called above a "fasciated flower" and one which exhibits "polyphylly," *i.e.*, having an abnormally large number of parts, but within a very limited range. It is increase in size of flower which, as much as anything, is aimed at by modern gardeners, and any character which conduces to this end is welcomed. Hence we find, to cite but one or two instances, that greater value is attached to abnormal flowers of the Canterbury Bell (Campanula Medium) and Auricula which have from one to three extra petals, etc., than to the normal pentamerous flowers. *W. C. Worsdell.*

(*To be continued.*)

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*I believe in some parts five-leaved Clovers are regarded as unlucky.

ON THE CAUSE OF "DIE-BACK" IN PLUM TREES.

THE disease of Plum trees popularly referred to as "die-back" has been known in this country for many years. In some seasons growers experience heavy losses from "die-back," particularly in young plantations, and a thorough investigation into the true nature of the disease and the factors conducive to its incidence is very desirable, in order that the knowledge obtained may be applied, with some hope of success, to the elaboration of measures for reducing the losses incurred. Recent work, carried out at the East Malling Research Station, has yielded the results which offer an explanation as to the true cause of "die-back" in Plum trees, although much still remains to be done in determining the conditions which favour or check outbreaks of the disease.

In many cases affected trees show the first noticeable symptoms of disease early in spring and gradually die during the course of the summer. In others, one or more branches become attacked and are killed.

Various hypotheses have been put forward from time to time to account for these losses. In recent years the disease has been attributed to various fungi, *e.g.*, Eutypella prunastri, and Diaporthe perniciosa, or to unsuitable soil conditions.

It appears certain that the term "die-back" has been used for more than one form of disease. In some instances it has been applied to the dying out of trees planted in water-logged soil, but in Plum trees (and also in Cherries) losses are so prevalent, and they have occurred on such different types of soil, that soil conditions alone cannot be accepted as sufficient explanation for all cases of so-called "die-back."

It has been more generally held, therefore, that some parasitic organism is usually the cause of the injury. Since the diseased trees sooner or later become infested with fungi, these have come under suspicion, and in Plum trees it has been customary, recently, to attribute the disease to Diaporthe perniciosa.

This fungus has been carefully studied by Miss Cayley,* who found that when it was inoculated into young, current year's shoots of Peach, Plum, Apricot and Nectarine, it caused "definite wilt and die-back." Inoculations carried out by the same worker on two-year-old branches of Plum trees, did not, however, cause "the typical symptoms of die-back," although gumming occurred at the points of inoculation. The evidence that Diaporthe perniciosa can kill Plum trees outright or even branches is at present, therefore, not wholly convincing.

The disease appeared on the trial plots of Plum trees at the East Malling Research Station†, so that material was at hand for a study of affected trees. Observations were directed, in the first place, to an examination of the trees for evidence as to the cause of the trouble. The general conditions under which the trees in these plots were growing, were favourable for their good development, as was shown by the normal vigorous growth made by the trees previous to their becoming affected with "die-back." Furthermore, the roots of trees which had been dug up because of the disease were usually still quite healthy, showing that the soil conditions were not unfavourable for good root growth.

The most obvious symptoms of the disease, as observed during the spring and summer, are (1) stunted growth—the young terminal shoots of the current year remaining short; (2) foliage paler in colour and less dense than on normal trees; and (3) premature leaf-fall, or a withering of the leaves while still on the tree.

These external signs of disease are associated, in this type of "die-back," with a brown discoloration of the bark. When the symptoms just recorded are general over the whole tree, the bark over some portion of the stem will be found affected. This diseased area on the stem is usually of some considerable length, and is mostly along one side, so that as that portion not affected resumes growth in the spring, while there is no growth over the diseased area, two longitudinal ridges appear on the stem. If a notch is cut across one of these ridges it will be seen that on one side the bark is sound, while on the other it is dark brown. The limits of the healthy and of the diseased tissues are very sharply marked if the examination is made before the upper part of the tree is actually dead. Below the diseased area the tree will be alive and very often buds are stimulated to grow out into shoots from the lower part of the stem. The development of shoots from the stock of trees worked low is thus a symptom frequently seen. This vigorous growth from the lower part of the stem is clear indication that the failure of the upper part of the tree is not a result of defective root action.

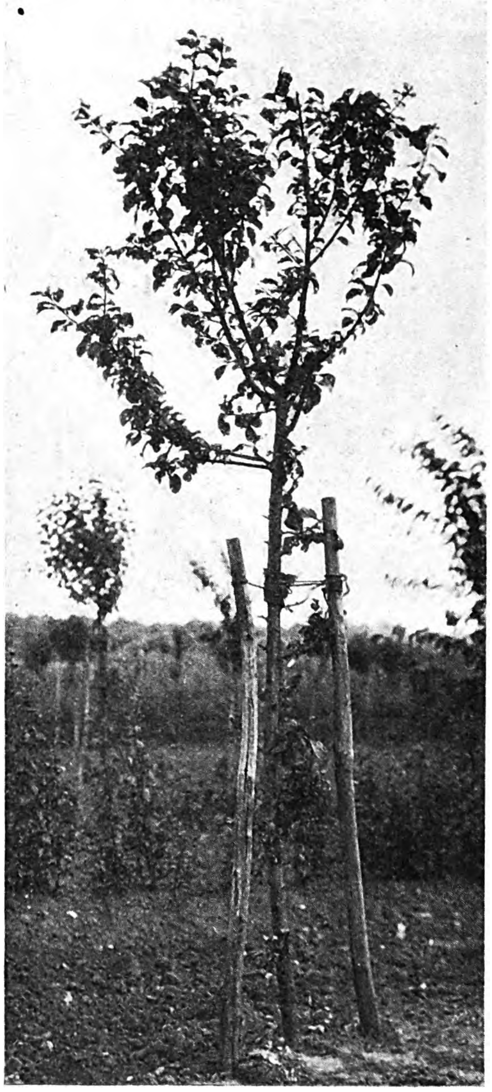

FIG. 175.—AN INFECTED CZAR PLUM TREE.

The leaves at this stage were yellowish, and there was a bacterial canker on the stem. July 3, 1928.

Fungal fructifications often appear on the dead bark before the tree is actually dead, a fact which leads one to suppose that the fungi are parasitic. Microscopic examination of trees at East Malling and of specimens received from other localities showed, however, that at the upper and lower limits of the diseased areas numerous bacteria are present. It was suspected, therefore, that the bacteria might be the primary cause of the trouble, and that the fungi became established on the tissues already killed by the bacteria.

With this idea as a working hypothesis, attempts were made to isolate bacteria from infected bark of diseased trees, and in the spring of 1926, successful isolations were made from several infected trees. One particular type of organism was most frequently met with in these preliminary isolation cultures, and experiments were carried out in the autumn to test its parasitism. Bacterial slime, taken from a pure culture of the organism, was stirred up in a little sterile water so as to make a rather turbid emulsion-like suspension. Drops of this liquid were inserted in cuts made in the bark of Plum trees, some on the stems of young trees, others on the branches of older trees. In the following year the inoculated trees showed the typical symptoms of the disease. The most convincing of these experiments was one in which ten young Victoria Plum trees were each inoculated at a cut on the stem, while ten others were similarly wounded, but drops of sterile water only were placed in the wounds. During the course of the following season, all the inoculated trees died above the points of inoculation, while the control trees were all alive and healthy.

The experiments offer convincing proof therefore that bacteria are the primary cause of this form of "die-back." To distinguish this type of infection it is proposed to refer to the disease as bacterial canker.

Apart from those cases where Plum trees fail from waterlogged soil, or other totally unsuitable conditions, there are diseases, other than bacterial canker, which kill Plum trees or destroy branches, but the symptoms recorded above serve to distinguish the disease here described. The familiar silver leaf disease kills branches or even whole trees, but it may be readily recognised, as its name implies, by the silvery appearance assumed by the foliage before the affected parts are finally killed. The brown rot fungus, Sclerotinia cinerea, may also kill the smaller branches by infection through the flowers, in which case the dying-back is preceded by blossom wilt.

In plantations where bacterial canker is rife, trees, otherwise healthy, may be observed having on their leaves dark brown spots (usually circular, or nearly so) early in the growing season, a condition which is followed later by the falling away of the dead tissues, thus giving a "shot-hole" appearance to the foliage. Although the trees lose a certain amount of their assimilating leaf tissues in this way, the actual damage appears to be slight, as many trees showing "shot-holes" in the foliage year after year continue in vigorous growth. The chief interest in this leaf-spotting lies in the relation that it bears to bacterial canker. A microscopic examination of the young leaf spots shows that they are swarming with bacteria. An organism isolated from such spots was found to be similar (in preliminary cultural tests) to that obtained from the stems of trees suffering from bacterial canker, and furthermore, it was found that inoculations on Plum stems and branches carried out with this leaf-spot organism gave rise to typical bacterial cankers resulting, in those cases where the cankers girdled, in the death of the tree or branch inoculated.

These observations raise interesting issues relating to bacterial canker, for they indicate that the leaf infection is probably a factor in the continued propagation and dissemination of the organism during the summer months, and they suggest the possibility of controlling the canker stage of the disease by reducing leaf infections as, for example, by spraying.

Although at the present stage of the investigation problems with regard to the mode of entry of the bacteria into the host plant and the best means of controlling the disease remain to be elucidated, the facts already ascertained suggest certain hygienic measures for reducing the chances of infection. In plantations and gardens where the disease is known to occur, the trees should be examined in spring for the symptoms mentioned above, and any showing undoubted evidence of stem infection should be uprooted and burnt so soon as the disease can be diagnosed, for the organism is alive in early spring in the cankers.

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*See *Annals of Appl. Biol.*, Vol. X, No. 2, July, 1923.

†See *Ann. Report* East Malling Res. Sta. (13th year) II. *Supplement*, March, 1927.

Experiments are under way to determine the season when infection most readily occurs. The experiments already carried out show that infection may take place in the autumn, and that the organism is active in the tissues of the bark of stems or branches during winter and spring. There is no outward sign of infection, however, until the leaves and shoots appear, when usually the first sign is a slight yellowing of the leaves, accompanied by retarded and stunted growth of the leading shoots. A tree showing such symptoms should be examined for slightly sunken areas on the stem. A notch cut with a knife across the ridge suspected of being the edge of a canker will readily indicate whether the tree is infected.

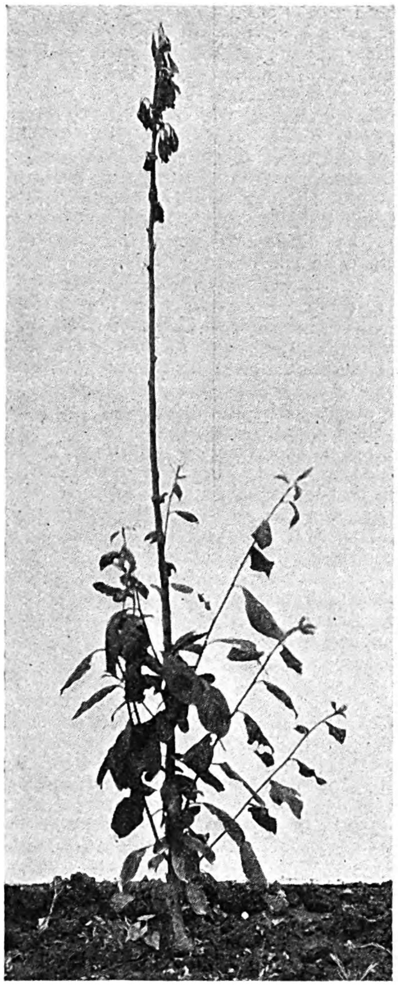

FIG. 176.—A YOUNG PLUM TREE.

(var. Victoria); with a bacterial canker on the stem.

Bacterial canker is probably widespread in Plum growing districts in this country. Specimens showing symptoms of the disease have been received from various localities in Kent and from Worcestershire, Cambridgeshire and Cumberland. Whether the organism is the same in all localities has not yet been determined, as the material has usually arrived too late for isolation of the bacteria to be successful. Isolations from diseased Plum trees obtained from three other localities in Kent have, however, yielded bacteria which appear in preliminary tests to be identical with strains isolated from trees on the East Malling plots. A more detailed comparison of these strains by cultural methods is being carried out, and the parasitism of those recently isolated is being tested.

The writer will be pleased to receive specimens of "die-back" from readers of this article who live in other counties, particularly if the material is sent in the early spring when the organism is still alive in the tissues and can be cultivated. *H. Wormald, Plant Pathologist, East Malling Research Station, Kent.*

THE GENUS PRIMULA.

(Continued from p. 353.)

FLEXILIPES (Balf. f.). Flexuous-stemmed P. (Sikkimensis).

A PRETTY perennial, regarded as a sub-species of P. firmipes. The plant produces a tuft of thin, papery leaves with oval, oblong-oval, or occasionally nearly round blades from one-and-a-half-inch to two-and-a-half inches long, heart-shaped at the base, tapering to somewhat narrow stalks, up to seven inches in length; margins coarsely toothed or shallowly lobed; upper surface more or less smooth, underside thickly or sparsely covered with yellow meal. Flower stem nine to fifteen inches tall, somewhat slender, coated towards the top and among the blossoms with yellow meal, bearing at its apex an umbel of six to eight nodding, fragrant, yellow blossoms. Corolla about three-quarters-of-an-inch long, concave, divided into five short, egg-shaped lobes; tube funnel-shaped, mealy outside and with a mealy ring in the throat. Flowers in July.

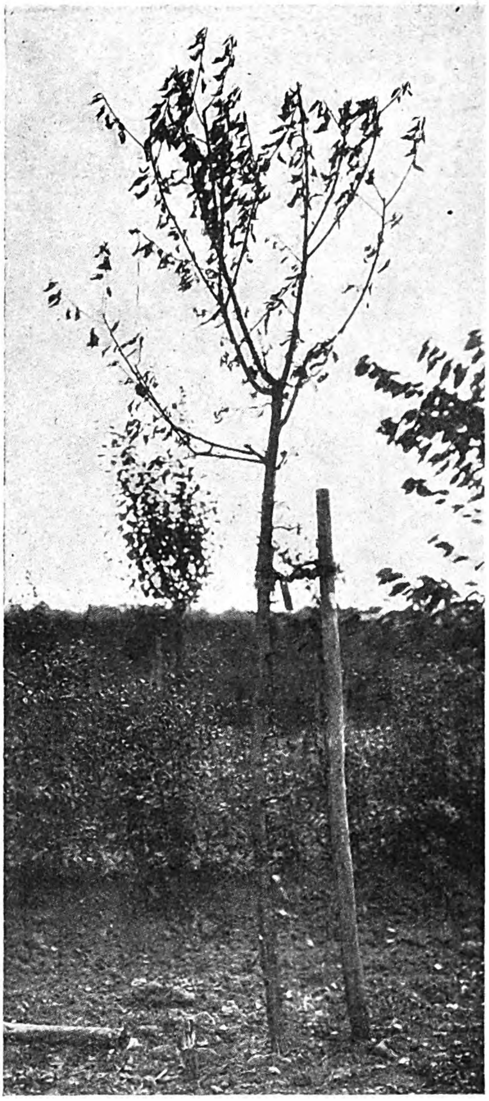

FIG. 177.—AN INFECTED CZAR PLUM TREE.

The same as in Fig. 175, but two months later.

This species is found in damp places in shady spots, on the mountains of the Salween Kiu-chiang Divide, near Tsarong, south-eastern Tibet.

Culture: Fibrous loam and leaf-soil, in a damp, shady spot, should suit it.

FLEXUOSA (S. Turk.). Bokhara Flexuous-stemmed P. (Farinosae.)

A dwarf species not at present in cultivation, with a rosette of non-mealy, membranous leaves with oblong-elliptic, blunt blades one to two inches long, rounded at the tip, gradually tapering at the base to a long wedge-shaped, winged stalk which is, at times, almost three times the length of the blade; margins edged with unequal, sharp teeth as though gnawed by insects; both surfaces covered with minute club-shaped, glandular hairs. Flower stem six to eight inches tall, sub-flexuous, sparsely clothed with minute, club-shaped, glandulous hairs upwards, and bearing an umbel of three to ten slightly nodding, fragrant, lilac-coloured blossoms, on slender stalks about a quarter-of-an-inch long. Corolla more or less flat, three-eights to five-eighths-of-an-inch across, divided into five broadly heart-shaped, deeply notched lobes; tube cylindric, pale yellow, very much longer than the calyx.

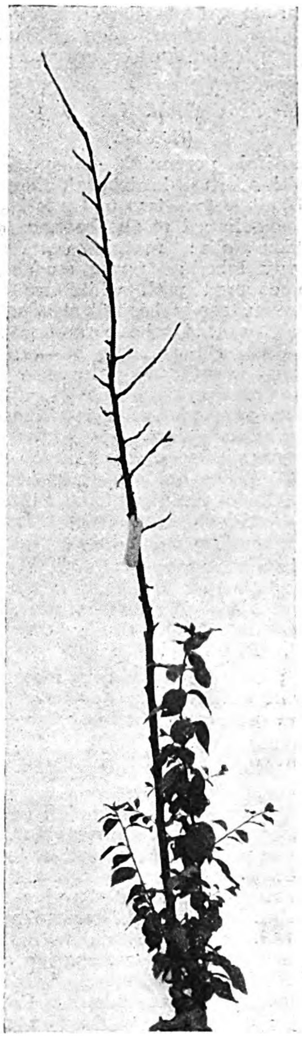

FIG. 178.—A YOUNG PLUM TREE.

Artificially inoculated with a pure culture of the bacterial canker organism in October, 1926. Result as seen in July, 1927.

Grows in damp, elevated pastures in the Province of Schugnan, eastern Buchara, Russian central Asia.

Culture: As for P. farinosa.

FLORIBUNDA (Wall.). Bundle-flowered P. (Verticillata.)

The type of this well-known inhabitant of our greenhouses produces a tuft of glandular-pubescent, non-mealy leaves, with elliptic or oval, blunt or pointed blades, narrowing into winged stalks, in all from two to four inches long; margins coarsely and irregularly toothed. Flower stems numerous, glandular-pubescent. Flowers on stalks of unequal length. Corolla a quarter- to half-an-inch across, golden-yellow, divided into five small, broadly heart-shaped lobes; tube narrowly funnel-shaped, about half-an-inch long, with a small ring at the throat.

Grows in damp, half-shady spots in Afghanistan and the western Himalayas. Introduced in 1883. *Bot. Mag.*, t. 6,712.

Var. grandiflora (Pax.) is a garden form with golden-yellow blossoms about three-quarters-of-an-inch across.

Culture: Good fibrous loam, leaf-soil and sand, in a damp, half-shady spot, should be afforded; it is only suitable for outdoor culture in very mild localities.

FLORIDA (Balf. f.). Gay P.

(Souliei.)

A beautiful perennial sub-species of P. Souliei, with a tuft of horizontal, oblong, elliptic or oval, blunt leaves, two to three inches long, usually heart-shaped at the base, and tapering to a slender stalk; margins coarsely-toothed or shallowly lobed; upper surface smooth, underside covered with white meal. Flower stem six to fourteen inches tall, slender, minutely downy and coated above and among the blossoms with white meal. Flowers fragrant, four to nine in a loose, somewhat one-sided umbel, on mealy stalks of varying length. Corolla more or less funnel-shaped, nearly three-quarters-of-an-inch across, pale blue or bluish-purple, more intense when first expanded; lobes oval or very broadly wedge-shaped, with a broad cleft in the tip; tube funnel-shaped, about half-an-inch long, coated with white meal outside. Flowers in July and August.

Grows in open, stony, alpine pastures, frequently on limestone formation in north-eastern Yunnan, at about 12,000 feet above sea-level. Introduced in 1914. *Gard. Chron.*, 1915, Vol. LVII, Fig. 65, p. 207.

Culture: Plant it in fibrous loam, peat and limestone chips, in a damp, open spot in the rock garden and protect it from wet in winter.

FLORINDAE (Ward). Florinda's P.

(Sikkimensis.)

An extremely robust perennial, with a large tuft of smooth foliage, with oval, blunt, strongly toothed blades six to eight inches long, heart-shaped at the base, where they taper into distinct, deeply-grooved stalks, tinted red, as much as twelve inches in length. Flower stem three to four feet tall, densely covered with white meal among the blossoms, stout, bearing a terminal umbel of thirty to forty drooping, bright sulphur-yellow blossoms with the odour of Cowslips, on curved, mealy stalks three-quarters-to one-and-a-half-inch long. Corolla funnel-shaped, about one inch long and half-an-inch wide, divided into five short, broad, rounded or pointed lobes, powdered with white meal both inside and out. Flowers in July.

Grows on the banks of streams and in shallow water, and is also found in shady bogs, at Rong Chu Tumbaste, south-eastern Tibet, at about 12,000 feet above sea-level. *Gard. Chron.*, 1926, Vol. LXXIX, Fig. 205, p. 399.

Culture: Grow it in rich soil, on the banks of a stream or pond, in shade.

FORBESII (Franch.) Forbes' P.

(Malacoides.)

The type of this well-known annual species produces a tuft of numerous thin, finely hairy leaves, with oval blades one to two inches long, heart-shaped bases and usually blunt tips; they are borne on rounded, hairy stalks, from one inch to three inches in length; margins shallowly lobed or coarsely toothed. Flower stems numerous, six to twenty-four inches tall, slender, hairy below, sprinkled with white meal upwards. Flowers in two to five superposed, many-flowered umbels, on stalks half- to one inch long. Corolla about half-an-inch across, rose-coloured, divided into five heart-shaped, notched lobes; tube cylindrical, twice as long as the calyx. Introduced in 1891.

Grows in damp, half-shady spots on the mountains near Tali and Mengtze, in Yunnan, at about 6,000 feet above sea-level, and also in the Shan States, Upper Burma, at 3,000 feet above sea-level. *Bot. Mag.*, t. 7246.

Culture: Grow it in a compost of good fibrous loam, leaf-soil and sand; it is best treated as a cool greenhouse plant.

FORRESTII (Balf. f.) Forrest's P.

(Bullatae.)

A beautiful, tufted evergreen perennial with, when aged, a remarkably long, woody, root-stock or elongating stem, clothed with the dried stems of old foliage. Leaves fragrant, with oval or elliptic blades from one to six inches long, heart-shaped at the base, borne on rather slender stalks one inch to four inches long; margins irregularly toothed; upper surface rich green, deeply wrinkled, underside densely covered with golden-yellow meal. Flower stem three to eight inches tall, erect, bearing an umbel of ten to twenty or more deep yellow or orange-yellow, fragrant flowers. Corolla about three-quarters-of-an-inch across, divided into five broadly oval or rounded, cleft lobes; tube funnel-shaped, about half-an-inch long, of a deep orange colour. Flowers in May. *Gard. Chron.*, 1909, Vol. XLV, Fig. 129, p. 299.

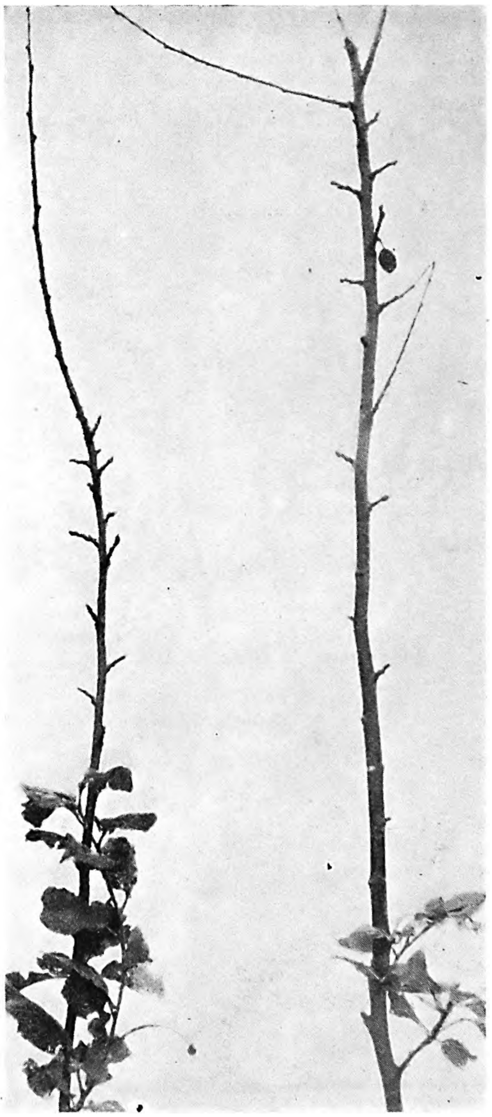

FIG. 179.—PLUM BRANCHES,
(var. Czar), killed by bacterial canker.
(see p. 372).

This remarkable species grows in clefts on the faces of dry limestone cliffs, on the eastern flank of the Lichiang Range, north-western Yunnan, at 9,000 to 10,000 feet above sea-level; the long, pendulous root-stock frequently reaches a length of nearly three feet.

Culture: Sandy loam and limestone chips, and a sheltered spot with protection from wet in winter, are the conditions required; quite hardy under these conditions. *A. W. Darnell.*

(*To be continued.*)

NURSERY NOTES.

MR. W. WELLS, JUNR.

Ranking among the foremost herbaceous plant and alpine nurseries in the country is that of Mr. W. Wells, junr., of Merstham, Surrey. The nursery consists of many acres of land, while recently a new portion has been acquired, and on this two large glasshouses, specially designed for the propagation and growing of alpine plants, have been constructed

On the occasion of our visit, some few weeks ago, the nursery was resplendent with autumn flowering herbaceous plants, chief among which were the Michaelmas Daisies, a speciality of Mr. Wells', and of which he has a remarkably extensive stock. Naturally, Barr's Pink was one of the most prominent sorts, a huge drift of it looking extremely brilliant, while perhaps the finest of the A. Amellus type was the richly coloured Ultramarine. Other sorts which we noted as extremely good, as seen growing naturally in the nursery beds, were the white-flowered George Monro, Maid of Athens, Well's Pink, very free-flowering; Queen Mary, a late variety similar to Climax; Dainty, of the Novi-belgii group, which forms shapely clumps and has small, rich pink blooms; Owen Wells, a good double blue-flowered variety; Little Pink Lady, free-flowering and fairly dwarf; and Little Boy Blue.

Boltonia decurrens, a useful white-flowered herbaceous plant, was very attractive, and a large bed of Pentstemon barbatus was still rich in colour, as also were the many plants of the beautiful Centaurea dealbata. Among the Achillea millifolium varieties, Cerise Queen was outstanding, while notable among the Oriental Poppies, which are grown extensively at Merstham, and many of which were producing second crops of blooms, was the variety Mahonia, of a chocolate crimson shade; also Mrs. Stobbart and Mrs. Perry, in two good shades of pink.

As would be expected, the Heleniums added greatly to the general floral effect, and the dwarf variety, Crimson Beauty, was exceptionally fine. Achillea Perry's White was flowering freely, and the old but still very popular Rudbeckia speciosa provided a large splash of golden-yellow; other good yellow-flowered plants which were conspicuous being Helianthus multiflorus maximus, Rudbeckia Herbstonne, Anthemis Kelwayi, and Solidago Golden Wings.

Japanese Anemones form another group of plants grown extensively by Mr. W. Wells, Junr., and he has also large collections of Lupins and Delphiniums, which seemed to be in very healthy condition, as also did the various Tradescantias, both single- and double-flowered sorts. We noticed large beds of Pyrethrums, in many varieties, also a fine strain of Scabiosa caucasica, and the richly-coloured Trollius pumila, Merstham variety, while Polygonums also played their part in the production of colour so late in the season, notably P. affine and P. amplexicaulis, the latter with rich red inflorescences and red-tinted foliage.

One of the most striking of all plants seen at this nursery was, however, Gypsophila paniculata Bristol Fairy, huge beds of which were lovely sheets of white. Much could be written of other herbaceous plants growing at this nursery, of the various Eryngiums, notably E. Oliverianum; of Sidalceas, especially the variety Lowfield Pink, which was still flowering freely; of Verbascums, Gaillardias and other subjects, but the alpine plants are also deserving of mention.

Mr. Wells' Gentians are well-known, and we were able to inspect the large stocks of G. verna and other choice sorts, both in pots and in the open ground. Primulas, in great variety and including many of the rarer sorts, such as P. Littoniana, are also grown extensively, while we noticed many thousands of pots devoted to Lithospermum prostratum Heavenly Blue; Helianthemums in variety; Meconopsis cambrica fl. pl., a specially good strain; Viola bosniaca, looking extremely healthy; innumerable varieties of the various types of Saxifrages; Ramondias, Soldanellas, Potentillas, in fact, a host of alpine plants, both rare and of general cultivation. A large drift of land was occupied by an extensive collection of Aubrietias, and from these stock plants many thousands of plants are propagated annually.

All the plants which we inspected, both herbaceous and alpine, bore the hallmark of health and vigour, and spoke well for the high standard of production maintained at the Merstham nursery of Mr. W. Wells, junr.

HOME CORRESPONDENCE.

Mazus rugosus.—In your issue of September 29, p. 246, *M. W.* contributes an admirable note under the above heading. I am sure *M. W.* will recognise a slight error. Does not *M. W.* mean Mazus radicans, Cheesem, syn. Mimulus radicans, Hook ?; a New Zealand plant of considerable merit. Mazus rugosus, Lour., is an erect annual, about two inches high, and is a native of the Himalayas. The flowers of this are about a quarter the size of those of Mazus radicans, pretty, but not large enough to be showy; fibrous-rooted, and does not send out runners, neither has it a subterranean root. It succeeds best if sown on a sunny, well-drained spot in the rock garden. An unobstrusive little plant deserving of more notice. *J. Blades, Cambridge.*

Storing Dahlias.—I would like to draw attention of your readers to a very good method of protecting Dahlias from frost, shrivelling and rotting, namely, of keeping them in bags in dry sawdust. They should be dried off and cleansed, then placed in layers upside down, with layers of saw-dust between. Care should be taken to cut off all green portions of stems and any varieties that do not break well up the stems should be cut hard back. My experience is that if this method is employed with care all the tubers may be saved. This is a clean method, as they may be stored in dry sheds, dwelling-houses, etc. *D. Inglis, Bedminster, Bristol.*

The Colours of Flowers.—Those who recently drew attention in your columns to the misleading colour descriptions of flowers given in various catalogues, and who advocated the publication of some colour table or chart to refer to as a recognised authority, may, with many of your readers, be glad to learn that the correspondence has been read with much appreciation on the continent. Through the offices of *The Gardeners' Chronicle*, a letter has been forwarded to me from Mr. Ernst Benary, of Erfurt, stating that the correspondence has been read by him with high interest, and he would like to make known that the question of an international agreement about colour nomenclature in the horticultural world was taken up at last year's International Horticultural Congress at Vienna, and that the question is in the hands of an international committee and, further, that the subject is to come up again in the order of the day at the Congress to be held in London in 1930. With this letter, Mr. Benary enclosed an admirable colour-chart in which no fewer than 728 different tints are given, each of which bears a distinctive letter and number according to Ostwald. It has been realised by Mr. Benary that it was impossible to convey, by words alone, the exact colouring of many of the immense number of flowers included in his catalogue, and this was particularly the case when attempting to describe some of the most beautiful. He has therefore placed the colour numbers given on his chart, sent out with his catalogue, after the descriptions of the flowers given in its pages, so that no purchaser is left in doubt as to the true colours of the blossoms produced by the seeds or plants purchased. For instance, following the description of the Triumph Aster, we find in brackets reference 8, 5 Ra, and 9 Ra, and on referring to the table, we find that the carmine of the 8, 5 Ra passes to the crimson 9, Ra. Each of the 728 tints in the table is easily found, and the chart may be carried in the pocket. Each tint is separated from the rest by a deep black border, and a piece of black paper with an aperture in the centre is included, so that the colour viewed may be entirely isolated from the others. The petal of a flower may be placed upon the tint or tints in the chart which it matches, and the colour numbers given. At the present time, colour harmony is studied much more than it was years ago, and many life-long business friends have, Mr. Benary states, found this system adopted by him the greatest blessing. One may only express the desire that some of our leading horticulturists will soon give us the colour descriptions of the beautiful flowers they raise in the same painstaking, accurate way, and also that much good may result from the coming International Conference to be held in London, although 1930 may seem a long time to wait to some of us. *H. H. Warner.*

Geranium sanguineum var. lancastriense.—I collected this plant in the Isle of Walney some years ago. The flowers produced by the plants growing wild in this habitat, some of which were transplanted into my garden, certainly cannot be described as "a soft clear rose"; crimson-magenta would be a more correct description. There is a form of Geranium sanguineum with charming rosy-pink flowers—a most desirable plant—which has been given the varietal name of roseum. The Kew *Hand List*, however, inexplicably makes var. roseum a synonym of var. lancastriense, which it emphatically is not. It would appear, therefore, that Mr. Stansfield is right, as I should expect him to be, and that *A. T. J.* knows only the rose-pink-flowered variety of G. sanguineum, the origin of which I have been unable to trace. *E. Horton, Liverpool.*

FOREIGN CORRESPONDENCE.

LAVANDULA ABROTANIFOLIA (?)

Under the name Lavandula abrotanifolia, I received a single cutting last spring from the New York Botanical Garden, which I rooted and treated as a cool greenhouse subject. This plant is now, mid-October, in full flower, and I am wondering if it is synonymous with the L. abrotanoides offered in the seed list issued from La Mortola. In any case, it makes quite a charming decorative plant, and I intend to propagate and grow a small batch of it next season.

My plant is now between two and two-and-a-half feet in height, in a five-inch pot. It is semi-woody at the base, and is of loose habit, being dichotomously branched; each branch is terminated by an inflorescence. The flowers are borne in short, dense spikes, branched at the base, on slender peduncles from nine to twelve inches in length. They are rosy-lavender in colour and, like the leaves, possess a distinct and rather pleasing odour. The foliage is decidedly pretty, the opposite leaves being spaced rather distantly on the stems. They are finely and deeply divided in bi-pinnate fashion, the largest being about three inches in length by one-and-a-half inch across at the broadest part. The stems and peduncles are hairy, as also are the leaves, especially on the underside of the mid-rib.

Although not a specially showy plant, this Lavender has a refined and tasteful appearance. The colour is purer than that of the ordinary garden Lavandula vera, and would, I think, associate splendidly with pale yellow-flowered subjects. Judging by the growth of the plant and the fact that I saw it in flower last March, I believe it will continue to flower practically throughout the winter. In that case, a few plants dotted among a batch of Primula kewensis should form a delightful association for embellishing the side stages in the conservatory during the winter months.

VINCA ROSEA.

Vinca rosea—the so-called Madagascar Periwinkle—is a popular summer bedding plant in this part of the world, and it revels in dry, sunny situations, flowering luxuriantly until the coming of frost.

It is an erect plant about one foot or fifteen inches in height, with dark green, Laurel-like leaves and five-petalled, pink flowers, each from one to one-and-a-half inch in diameter, while the corolla tube is very slender and cylindrical, being about one inch in length. A white flowered variety is known under the name alba, and the variety oculata is white, with a pink eye.

This Vinca is treated as an annual and is raised from seeds sown very early in the year. It makes an excellent intermediate house pot plant for the autumn and early winter months. *T. H. Everett, New York.*

WINTER PRUNING OF FRUIT TREES.

The winter pruning of fruit trees is an important task in the fruit-growers' calendar, calling for considerable knowledge and judgment, and, as many advantages accrue from beginning this work so early as practicable, the fall of the leaf may be looked upon as a favourable time to commence.

Like many other arts of garden craft, it is not possible to give rules of procedure to meet every need; so much depends upon the natural tendency of the variety, the stock on which it is worked, the soil and general conditions of cultivation, and the size and shape of the tree desired, that the operator must, of necessity, make a close study of the individual needs of each tree to avoid mistakes. It should not be taken for granted that every tree requires pruning every year; a tree which is well-furnished with fruiting wood and crops freely, generally has little superfluous wood growth to be removed, and the relation of pruning to wood growth and fruit production is the governing factor in the use of the knife. Modern fruit-growers realise that there is no necessity for such repressive measures as were formerly adopted and look on pruning as more or less a necessary evil, to be employed as little as possible; nevertheless, systematic pruning cannot be dispensed with.

The ultimate object of all pruning is that the tree should be furnished with healthy fruiting wood for the production of crops, thus the most important years of pruning are those immediately following planting, while the tree is developing its framework, and once this has been formed less pruning should be necessary. It should be borne in mind that the actual effect of hard pruning is to favour the development of wood growth rather than fruit growth, and although it must often be done for the purpose of correcting the results of years of neglect in old trees and for re-invigorating weak trees, continued hard pruning is a mistake, once these objects have been attained.

In Apple and Pear plantations which have been well cared for, the problem of winter pruning presents no very great difficulties, but naturally, the amount of wood to be removed depends on the size and training of the tree. In its simplest form the cordon-trained tree consists of a single stem furnished with fruiting spurs, and where trees are restricted to such relatively small space the knife is often used more than is good for them. Where possible, it is better to pinch the lateral growths of such trees in the summer, from July onwards, doing the work piecemeal, so as not to make too drastic a reduction at one time, when the winter pruning shall consist of cutting these shortened growths further back and allowing such extension of the lead as space permits. It is due to this constant restriction of growth that cordon-trained trees are relatively short-lived, and judicious winter pruning helps to prolong their life by the regular thinning of crowded fruit spurs and the encouragement of new buds in convenient positions.

The well-trained bush or pyramid tree is really a collection of cordon branches, and the same principles apply to fully developed trees, but in their formation each branch should be allowed to develop so as to be strong and rigid enough to carry its crop of fruits without support. The overcrowding of spurs on the branches, which is apt to take place on mature trees, should be guarded against, for it frequently happens that blossoms on overcrowded growths are abnormal, with immature organs, and thus cannot give rise to satisfactory crops. It also sometimes happens, particularly in the case of Pears, that a considerable amount of useless spray growth is formed among the spurs, and it is a good plan to reduce this by removing it entirely where it is likely to shade the spurs. The surest way to produce perfect blossoms, which will set fruits, is to admit the greatest possible amount of light and air to every part of the tree.

But while, in the management of trees which have been systematically pruned, the use of the knife may be reduced to a minimum, it is often necessary to adopt more drastic measures in pruning trees which have been neglected for a number of years, entailing the removal of comparatively large branches. In such cases, so far as large bush or standard trees are concerned, it is generally wise to spread the work over two or three seasons, opening up the head of the tree sufficiently the first year to let sunlight and air penetrate to the spurs on the interior branches. Neglected espalier trees often almost lose their original form by the upper tier developing a forest-like set of branches, which rob the lower tiers of nourishment and weaken them to such an extent that they fail to carry satisfactory crops. Where the growth is very rank it is sometimes quicker to restore the tree by removing the top tier to a point near the central stem. By this means the lower tiers are strengthened and the upper tier may be replaced by training new branches.

Trees which continuously make very strong growth and produce little or no fruiting wood may only be brought into a fruitful condition by judicious root-pruning. While Apples and Pears resent very severe pruning, its detrimental effect is even more marked in the case of Cherries and Plums and a too vigorous use of the knife, with no attention to the rooting system, frequently leads to disease and finally the loss of the tree. Peaches and Nectarines, which fruit chiefly on the previous year's wood and less on spurs, need somewhat different treatment, the object being to replace the wood which is bearing fruits by new shoots well furnished with fruit buds. The management of the trees thus consists largely in disbudding during the early summer months, and if the fruit-bearing shoots are removed so soon as the fruits are gathered no winter pruning is necessary.

In concluding an article of this description one may mention pruning tools, for the complete success of the operations to be carried out depends largely on their suitability and proper use. The list is not an extensive one, for a saw, a knife and a secateur are all that are necessary for the purpose, but these should be of the best quality obtainable and should be kept perfectly clean and sharp. Further, a medium sized tool which may be handled conveniently is much more serviceable than a heavy, clumsy one. A keen-edged knife in dexterous hands can do good work, and a keen man will see that its edge is kept keen. In less experienced hands there may be some risk of accident in the way of cutting out more than was intended, but the modern, best quality secateurs, with double cutting blades, make clean cuts, are quicker than the knife, and may be used with confidence. Except in dealing with previously neglected trees the saw will not come into much use, but where its use is necessary the rough cut should be trimmed with a keen-edged knife and the painting of the wound with a protective covering is a wise precaution to take. *W. Auton.*

NEW CARNATIONS REGISTERED.

The following new Carnations have been registered by the British Carnation Society.

Cramoisie.—Crimson-brown, shot or striped vermilion; raised by Lieut.-Col. Langford, Harefield, Romsey.

Mrs. McGaw.—Near to variety Lady Allington in colour, medium pink; raised by Mr. T. J. McGaw, St. Leonard's Forest, Horsham.

Countess of Scarborough.—Salmon-pink; registered by Mr. F. Stocks, Lumley Castle Gardens, Chester-le-Street, Durham.

Vivien.—Rose-du-Bois, crimson streaks and flakes; raised by E. Martin Smith, Esq., Codicote Lodge, Welwyn, Herts.

White Bury.—White; raised by E. Martin Smith, Esq., Codicote Lodge, Welwyn, Herts.

The Baron.—Light pink, red streaks; raised by E. Martin Smith, Esq., Codicote Lodge, Welwyn, Herts.

SOCIETIES.

NATIONAL CHRYSANTHEMUM.

November 1 and 2.—On account of the Orchid Show of the Royal Horticultural Society being held earlier in the week, the New Horticultural Hall was not available for the annual show of Chrysanthemums. Entries were so numerous as to require all the floor space of the old Horticultural Hall, Westminster, and also part of the annexe. The large trade displays, which occupied all the wall space, attracted a great deal of well merited admiration from the numerous visitors. Most of the competitive classes were well filled, and the general quality of the blooms, especially the large Japanese varieties, reached a very high standard of excellence. While, judging by the prominence given in some of the trade displays, the colour value of the Incurved Chrysanthemum is recognised by a not inconsiderable number of growers, this type, as a show flower, has but few devotees. Its contemporaries, the Pompon, the Anemone-flowered and the Reflexed varieties, also appear to have had their day, and, we regret to state, there are no signs of any revival.

It has long been known to the Committee of the National Chrysanthemum Society that the standard show board is totally inadequate to display the present-day exhibition Japanese varieties, and, if any confirmation were needed, it was forthcoming on the present occasion, when many of the magnificent blooms were sadly overcrowded. The "Experimental Class" for which the Society provided show boards with tube holes set ten inches apart, made it clear that the executive realise the urgency of making a change in the standard of show-boards required at its exhibitions. The new class, for a display of cut Decorative Chrysanthemums arranged on the floor, did not induce such competition as might have been anticipated, but it was a delightful feature of the show, and now that Messrs. Cragg, Harrison and Cragg have shown that a charming group may be arranged within the conditions of the competition, we confidently expect more entries at future shows. The arrangements all worked so smoothly and "according to plan," that within a few minutes of the advertised time of opening the hall was filled with members and visitors.

New Varieties.

The Floral Committee met during the morning of the first day of the annual show and granted seven First Class Certificates. The Committee wished "to see again" Maud Freestone, a white spray variety, shown by Mr. C. May.

First Class Certificates.

Sultan.—A very attractive Japanese variety of market size and type. It is a shapely flower made up of rolled florets of rich, velvety-crimson colour. Shown by Mr. H. Shoesmith, Junr.

Merrivale.—This is a market Japanese variety of good size and rather flattish shape. The colour is a rich chestnut, and the florets have a golden reverse.

Mohawk.—A very shapely market Japanese variety of bright terra-cotta colouring and a golden reverse which is conspicuous in the centre of the flower (see Fig. 170, p. 363). This and the above variety were shown by Messrs. Cragg, Harrison and Cragg.

Edith Pearce.—An exhibition Japanese variety of large size. The colour is ivory-white on the mature florets and very pale primrose in the centre of the bloom. Shown by Mr. E. H. Pearce, Long Sutton Gardens, Basingstoke.

William Haslehurst.—A large Incurving-Japanese variety. The long, broad florets are of silvery-pink colour, with a pale reverse. Shown by Messrs. Keith Luxford and Co.

Kirklands Crimson.—A large Single Chrysanthemum of good form. The ray florets are of bright, velvety-crimson colour, and there is a small yellow zone. Shown by Mr. A. Pettingell, Kirklands Gardens, New Barnet.

Captain John Dalgety.—A large Japanese bloom which has broad, drooping florets that curl at the tips. The colour is a soft pink, which becomes paler towards the centre of the flower with age.

Mr. F. Fawle.—A medium-sized and shapely Japanese variety with broad, pointed florets of deep mauve colour. This and the above variety were shown by Mr. W. Baxter, Lockerley Hall Gardens, Romsey.

Open Classes.

The following classes were open to all amateur members of the Society, but not to the trade. The four exhibits of thirty-six Japanese blooms, three blooms each of twelve varieties arranged, in vases and placed on low staging, made a splendid display. The best collection was shown by the Hon. Sir John Ward, C.V.O. (gr. Mr. Charles Beckett), Chilton, Hungerford, who had superb blooms of Majestic, Red Majestic, W. Rigby, Mrs. B. Carpenter, Victory, Yellow Majestic, Julia, Mrs. A. Holden, Charles Davis, Mrs. Algernon Davis, Mrs. M. Sargent and Mrs. Keith Luxford. Captain R. B. Brassey (gr. Mr. J. G. Quinn), Cottesbroke Hall, Northampton, was a very good second in this large class, and his excellent blooms were especially noteworthy for the rich colour of such yellow sorts as Charles Davis, Mrs. F. C. Maples and W. Rigby, while the specimens of Mrs. A. Holden, Duchess of Westminster and Mrs. B. Carpenter were also uncommonly good. Viscount Hambledon (gr. Mr. W. Turnham), Greenlands, Henley-on-Thames, who was third, had particularly good blooms of Majestic, Yellow Majestic, Victory and Edith Cavell.

Although there were only two exhibits of eighteen Japanese blooms, in six varieties, they were of superb quality, and the Hon. Sir John Ward again won the first prize with a noteworthy exhibit. His varieties were Birmingham, Mrs. D. S. Ashton, Mrs. Algernon Davis, Louisa Pockett, Red Majestic and Yellow Majestic. The Dowager Lady Annaly (gr. Mr. D. Cameron), Holdenby House, Northampton, was second, with a fine collection which included W. Rigby, Mrs. George Monro, junr., Julia and Mrs. Algernon Davis.

The Holmes Memorial Challenge Cup class retains its popularity with exhibits of large Japanese blooms shown on boards, and on the present occasion there were four exhibits of thirty-six distinct varieties. The Hon. Sir John Ward added to his triumphs by again winning the first prize, with a magnificent exhibit of even quality. As we have stated, the standard boards do not permit the full display of such monster blooms, but even in their overcrowded state it could be seen that each one possessed the breadth and depth of a first-rate bloom, and was in the "pink of condition." The yellow varieties were prominent, and these included Melody, Lady E. Miller, Yellow Majestic, Mrs. R. C. Pulling, W. Rigby and Princess Mary. Such crimsons as Mrs. A. Holden, Mrs. Keith Luxford and Mr. W. Perry and the white varieties Queen Mary and Olive Sanders, were also of great excellence. R. L. V. Sherwood, Esq. (gr. Mr. J. Heath), St. Gatien House, Haymarket, was second in this noteworthy class, and he also had the yellow varieties in splendid colour. His very best were Princess Mary, Yellow Majestic, W. Rigby and Mrs. R. C. Pulling, while the specimens of H. E. Converse, Mrs. George Monro, junr., Cissie Brunton and Mrs. Arthur Brown, were of high quality. Mr. George Curran, Nottingham, was third, and his best blooms were Lady Talbot, Yellow Majestic, Shirley Golden, Mrs. George Monro, junr., and Mrs. A. Holden.

The four exhibits of twenty-four distinct Japanese varieties continued the high standard of excellence shown in the previous class. The President's prize was won by Lady Melchett, Melchet Court, Romsey, with a splendid collection. Such varieties as Mrs. George Monro, junr., Mauritania, Aquitania and Mrs. A. Holden were of vivid colouring, while W. Rigby, Yellow Majestic and Mrs. R. C. Pulling were of rich yellow tone. Captain Brassey was a good second, and showed, among yellow sorts, Mrs R. C. Pulling, W. Rigby, Belle Chinoise and Yellow Majestic, with great depth of colouring, while his specimens of Mrs. A. Holden, Mrs. George Monro, junr., and Aquitania were also excellent. R. L. V. Sherwood, Esq., was third, and he had beautiful examples of Louisa Pockett, Yellow Majestic and Norman Chittenden.

The Experimental Class, for which the Society provided boards with tube-holes ten inches apart, induced eight exhibitors to each put up twelve splendid Japanese blooms. The best of these many admirable collections was that shown by Mrs. Pearson (gr. Mr. C. Hodgson), Acton Place, Sudbury, Suffolk, whose varieties were Julia, Mrs. A. Brown, Mrs. K. Luxford, Mrs. A. Davis, Majestic, Mrs. R. C. Pulling, Mrs. Gilbert Drabble, Thalia, Mrs. E. T. Tickle, Mrs. M. Sergent, Red Majestic and T. W. Pockett. The Dowager Lady Annaly was second, with a well set up exhibit of fine blooms which included Red Majestic, W. Rigby, Mrs. A. Holden, Lady E. Miller and Harold Wells. R. L. V. Sherwood, Esq., was third, and Mrs. Guthrie (gr. Mr. P. Burr), East Haddon Hall, Northampton, was fourth in this important class.

The class for six distinct Japanese varieties, shown on boards, also induced very good competition. The first prize was won by Mrs. A. Heath (gr. Mr. F. J. Cripps), Ennmore, Beckley, who had splendid blooms of Julia, Mrs. Algernon Davis, W. Rigby and Mrs. B. Carpenter. Mrs. C. Pearson, who was a good second, showed Mr. T. Slack, Mrs. A. Brown and Majestic, of high quality. W. S. Graves, Esq. (gr. Mr. J. Marshall), Newells, Horsham, was third.

The colour classes, which each requires three Japanese blooms in vases, were not quite so full as on some former occasions, but there was no falling off in quality. Louisa Pockett, shown by T. S. Parry, Esq., was the best white, and Queen Mary, shown by the Hon. Sir John Ward, was second. Birmingham, of intense colour, and shown by Lady Annaly, was the first prize crimson; and Mr. Keith Luxford, shown by the Hon. Sir John Ward, won the second prize. Lady Talbot, shown by Mr. George Curran, was the best of six yellow varieties, with Lady E. Miller, shown by the Hon. Sir John Ward, second. The rich amber-coloured Majestic, shown by the Hon. Sir John Ward and Mrs. C. Pearson, respectively, was first and third in the class for Any Other Colour; and the deep rose Mrs. B. Carpenter, shown by W. G. Groves, Esq., was second.

On the whole, the Incurved varieties were not a distinguished gathering, although Mrs. H. Fisher (gr. Mr. T. Finch), Purley, won the first prizes in three classes quite easily. Her six varieties, in vases, well illustrated the decorative value of this one time favourite type of Chrysanthemum. The varieties were Progress, Captain Kettle, Ondine, Mrs. G. Denyer, Mrs. G. P. Bryce and Embleme Poitevine. S. W. Wickens, Esq., Southsea, who was second, had good vases of Romance, Captain Kettle and T. Dove. Mrs. Fisher's first prize twelve and six Incurved varieties shown on boards, included Captain Kettle, C. H. Curtis, Ondine, Mrs. B. Hankey, Clara Wells, Progress and Calypso. In neither case was the second prize awarded.

There was quite a revival with Decorative Chrysanthemums, which were more extensively shown and of better quality than on most recent occasions. Of the six exhibits of six vases of distinct varieties, the first prize collection was a very good one from T. S. Parry, Esq. (gr. Mr. A. Meads), Westbrook, Hay, Boxmoor, who showed Sunshine, Red Sunshine, A. Roots, Felix, L. Burt and In Memoriam. Viscount Hambledon had good vases of Wizard, Felix and Blanche du Poitou in his second prize exhibit. Gus Mayer, Esq. (gr. Mr. R. Cottam), Woldingham, who was third, was the only exhibitor of six vases of Anemone-flowered varieties, and was awarded the first prize for moderate vases of Aphrodite, Thora, Mabel Weston, Bronze Thora and other varieties. S. W. Wickens, Esq., was the only exhibitor of six vases of Pompons, and was awarded the first prize. His collection included Ethel, Mary Pickford and Golden Climax.

Lady Annaly was first with nine vases of large singles, which included the varieties Supreme, W. J. Godfrey, Phyllis Cooper and Catriona. John Rowlett, Esq. (gr. Mr. H. Hammond), West Hill, Sanderstead, was a good second, and his nine included Ennismore, Supreme and Golden Seal. Miss M. Hedges, Sydenham, was first with Joan Edwards in the class for one vase of small-flowered Singles; Gus Mayer, Esq., who was second, was the only exhibitor of a display of Singles.

CLASSES OPEN TO ALL.

The George Monro Challenge Cup and first cash prize were won by Mr. H. Woolman, who staged twelve excellent vases of large Singles. His chief varieties were Mrs. R. Harris, Miss Mary Powell, Mrs. W. J. Godfrey, Susan, Stewart Smith, Yellow Stewart Smith, Phyllis Cooper, Golden Seal and Nona. Viscount Hambledon was second, and he had lovely vases of Augusta, Annette, Nona and Supreme. E. Martin Smith, Esq. (gr. Mr. G. J. Miller), Codicote Lodge, Welwyn, was third.

Messrs. Cragg, Harrison and Cragg were decidedly first in the new class for a display of cut Chrysanthemums arranged on a floor space. The competition allowed the use of pot plants and cut foliage, and although sufficient Codiaeums (Crotons) and Ferns in pots, and cut foliage to give the needed variety, were employed, the group was largely of Chrysanthemums of ideal decorative size and type. Their chief sorts were Iolanthe, Comus, Mohawk, Mr. R. F. Felton, Strephos, Amice, Golden Seal and Merrivale. Gus Mayer. Esq., was second, and he associated sprays of Berberis and Rose hips, with such Chrysanthemums as Wizard, H. W. Thorpe and Iolanthe. Gus Mayer, Esq., was the only exhibitor of six vases of Anemone Singles, and was awarded the first prize.

The class for six vases of large Singles brought some excellent flowers. The first prize was won by Mrs. C. Pearson, who included Mrs. W. J. Godfrey, Robert Collins and Molly Godfrey in an admirable exhibit. The King's Acre Nurseries, Ltd., were a good second. J. S. Parry, Esq., who staged Supreme, Gold Seal and Red Molly Godfrey in perfect condition, was first in the class for three vases of Large Singles, and Lady Annaly, who had splendid vases of Supreme and Mrs. T. Hancock, was second.

The new class, requiring one specimen Chrysanthemum, did not induce the competition it deserves. There were two entries, but only an exhibit of a splendid plant of Mrs. Keith Luxford, from Captain A. H. B. Wright, The Rookery, Marlow who was rightly awarded the Silver Challenge Cup, which he offered.

FLORAL DECORATIONS.

In the section for Floral Decorations many artistic exhibits were staged which displayed the value of the different types of Chrysanthemums for distinct forms of decoration.

Mr. A. E. Taylor, Hillside Terrace, Winchester, was first in the class for one vase of single Chrysanthemums (trade excluded), with a dainty arrangement of blooms in several shades, well set off by Berberis Aquifolium foliage and Asparagus sprays; second, Gus Mayer, Esq. (gr. Mr. R. Cottam), Wistler Wood, Woldingham.

In the class for one vase of large exhibition Japanese blooms, the stately arrangement of splendid flowers of two shades—creamy-white and yellow—brightened by bronzy Oak foliage and sprays of Asparagus Fern, exhibited by Miss N. Hedges, Kirkdale, Sydenham, was awarded the first prize, the King's Acre Nurseries. Ltd., won the second prize; while Gus Mayer, Esq., was first in the class for a single vase of large, Incurved blooms, his exhibit consisting of finely-shaped, golden and cream-coloured specimens.

Very attractive were the exhibits in the class for a basket of Chrysanthemums, Miss N. Hedges being placed first for a charmingly arranged basket of bronze and yellow Decorative sorts, with here and there a rich crimson bloom, together with Asparagus sprays and a few well-coloured Codiaeum leaves. The second prize exhibit, by the King's Acre Nurseries, Ltd., was of yellowish-bronze and bronzy-crimson sorts, in conjunction with well-coloured vine foliage.

G. Richardson, Esq. (gr. Mr. J. Vanstone), Hollymead, Tulse Hill, with a magnificent vase of giant blooms of Japanese varieties in white and yellow shades, secured the first prize for an arrangement of Chrysanthemum blooms suitable for a hall table or sideboard decoration; Gus Mayer, Esq., was second. Mrs. Widgery (gr. Mr. J. Clement), Ellesmere, Snaresbrook, was first for a vase of five blooms of Japanese varieties, with good specimens of Red Majestic, Julia and W. Rigbey; Gus Mayer, Esq., being second; while G. Richardson, Esq., was first for a large vase of Chrysanthemums with a very attractive arrangement, Gus, Mayer, Esq., again occupying the second position.

For one vase of Single Chrysanthemums, Mr. A. E. Taylor was first, with charmingly arranged blooms in various shades; the vase exhibited by Mr. H. Bull, Windsor Road, Finchley, securing for him the second award.

There were several extremely attractive exhibits in the class for one vase of large Single Chrysanthemums, J. Rowlett, Esq. (gr. Mr. H. Hammond), West Hill, Sanderstead, being deservedly first; and Mr. A. E. Taylor, second; while for a bowl of Single Chrysanthemums, the arrangement of orange-red, cream and yellow blooms, in conjunction with richly-tinted Berberis foliage, secured for G. Richardson, Esq., the first place; Mr. A. E. Taylor, second.

CUT BLOOMS: AMATEURS.

In the several sections devoted to cut blooms, for amateurs only, some of the finest blooms in the show were to be seen. In some of the classes the entries were very numerous and competition exceedingly keen.

For twelve Japanese Chrysanthemums, in section A., Mr. G. Curran was first, with grand specimens of Shirley Golden, T. W. Pockett W. Turner and Julia; while in the class for six Japanese blooms, distinct, the same exhibitor was again successful, with splendid examples of Mrs. B. Carpenter, W. Turner, Lady Talbot, General Petain, A. F. Tolfield and T. W. Pockett; Mr. H. E. S. Debenham, Queen's Road, Wimbledon, was second. Mr. S. W. Wickens, Osborne Road, Southsea, received the premier award for six Incurved blooms, Mr. J. Rowlett being second; while in the class for three vases of Japanese sorts, three blooms in each, Mr. H. E. S. Debenham was first, with choice blooms of Red Majestic, Yellow Majestic and Bronze Majestic; Mrs. Widgery secured the second place with specimen flowers of Majestic, Red Majestic, Julia, Mrs. G. Drabble, W. Rigby and Mrs. Algernon Davis.

There were several splendid exhibits in the class for six vases of Single Chrysanthemums, H. E. Miller, Esq. (gr. Mr. J. Cheer), Beech Avenue, Purley, being first, with vases of Mrs. W. J. Godfrey, Catriona, Supreme, Robert Collins, Nora and Susan; the second award was secured by Mrs. H. Fisher, Godstone Road, Purley.

In Section B, the best exhibit of twelve Japanese blooms was that set up by Mr. W. Staley, Village Road, Alverstoke, who had two blooms respectively of Majestic, Yellow Majestic and Red Majestic, and one each of Dawn of Day, Mrs. H. Wells and Scythia. Mr. G. Curran was second. Mr. H. E. S. Debenham, showed the best six Japanese blooms, distinct, his varieties being Bronze Majestic, Red Majestic, Yellow Majestic, W. Rigby, General Petain and Louisa Pockett; Mr. B Carpenter, Elm Park Road, Church End, Finchley, was placed second.

Mr. H. Bull was first in the class for six Incurved blooms, showing specimens of Romance, Progress and H. W. Thorpe; the second prize being secured by Mr. C. Townsend, Harrow Road, Willesden.

The class in this section for three vases of Japanese blooms provided some of the finest exhibits in the show, the specimens of Majestic, Red Majestic, Yellow Majestic, Albania, Mrs. R. C. Pulling and Thalia, with which Mr. Benjamin Franklin, Chesfield, Stevenage, easily secured the first award, being exceptionally fine. Mr. B. Carpenter was second with nine blooms of Charles Davis. In the final class, for three vases of Single Chrysanthemums, Mr. A. E. Taylor was successful with three unnamed sorts, Mr. S. W. Wickens being second.

Non-Competitive Exhibits.

The exhibits staged by the Chrysanthemum-growing section of the trade contributed greatly to the success of the show, for the walls of the hall were completely lined with exhibits, consisting, in all instances, of blooms in great variety and splendid condition.

Against the wall, on the left-hand side of the entrance, was a well-arranged group by Mr. H. Woolman, consisting of giant Japanese sorts, together with Anemone-flowered and Single varieties in excellent variety. Among Japanese sorts the finest blooms were of Yellow Majestic, the lovely white Queen Mary, Mrs. T. Slack, Mrs. R. C. Pulling, a good yellow; Thalia, dull crimson, pale reverse; Nottingham, white, tinged with pink; and Plymouth, rich red, yellowish reverse; while Ondine, creamy-white, was a good incurved sort. The Wizard, bronzy-terra-cotta, and Mrs. R. F. Felton, glowing crimson, were two noteworthy Decorative varieties; while the most striking of the many large single-flowered varieties were Raleigh, rich crimson; Phyllis Cooper, golden; B. Greenfield, rich purplish-rose; Miss May Powell, and Exmouth Pink.

Both quantity and quality were represented by the display set up by the King's Acre Nurseries, Ltd., but while the latter virtue was commendable, the former was considerably overdone, for we thought that the large group was far too solid to be really attractive. Japanese varieties formed the bulk of the display; these were arranged in giant sheaves, packed closely together, the most prominent sorts being Mrs. R. C. Pulling, T. W. Pockett, Mrs. H. Wells, with incurved, creamy-white petals; Majestic, golden-amber; and Edith Cavell, yellow and orange. Other sorts which were well shown included the rich rose-pink, Single Catriona; Uxbridge Pink, Jean Pattison, and Bronze Cranfordia, Mabel Weston being a good white Anemone-flowered variety.

Very tastefully arranged was the magnificent group which filled one end of the hall, from the nurseries of Mr. H. J. Jones. The background consisted of huge pillars of good blooms of various Japanese varieties, interspersed with spreading Palms, among the finest being Mrs. Sophie Ogden, rich golden-yellow; Mrs. H. J. Batty, with close-packed, incurved petals, rose-pink with a pale reverse; Birmingham and Daily Sketch. Other varieties displayed, of this section, were the white Mrs. E. H. Barnes; F. P. Steward, rich red, the reverse sides of the petals being paler; Miss Ada Ellis, a good lavender-pink; Mrs. Claude Ewin, pale yellow; and Col. Walter à Beckett. Jean Pattison was shown exceedingly well, as also was E. Reeves; while the best among the many fine single-flowered sorts were Mrs. Edwards, coppery-orange; Mary Edwards, rich yellow; Mrs. W. E. Andrews, yellow and apricot, and Miss Eva Hudd, glowing scarlet-crimson. A really magnificent display.

In Mr. William Yandell's closely-packed corner group we noticed good blooms of such choice garden varieties as Minstrel, deep crimson; Goldfinder, golden-yellow; Mrs. Phil Page, bronze; Mrs. C. H. Curtis, Harvester, Royal Salute and Sanctity.

An extensive collection was set up by Mr. A. G. Vinten, consisting chiefly of Decorative and Single-flowered sorts. Among the former, those which made special appeal were Balcombe Pink, Salmon Uxbridge, Bronze Uxbridge, Blanche du Poitou, Atalanta, Jean Pattison, and the velvety-crimson Enton Beauty; while the most striking of the single varieties were Exmouth Pink, Heroine, bright pink; October Pink, Jessica, orange-red; Sparkler, deep scarlet; Mrs. Sydney Hughes, apricot-pink; J. H. Blythe, Golden Seal and Augusta, large, rich primrose-yellow.

Next to Mr. A. G. Vinten's group was a remarkably fine arrangement of Chrysanthemums by Messrs. Keith Luxford and Co. The background of the group was of Japanese sorts, striking among which were Captivation, Edward Page, a good white; Mauretania, Freya and Thalia; but the bulk of the exhibit consisted of vases of single varieties, among which the outstanding were Winsome, Absolute, R. B. Burge, Miss M. Powell, Lady Sanders, rich golden-yellow; Enid, Catriona, Oriole and Augusta. There were several Anemone-flowered varieties and Mayford Yellow was an outstanding Decorative sort.

Messrs. W. Wells and Co. set up an extensive collection of varieties representing all types. Among the Japanese Chrysanthemums we noted Lady Edward Miller, Mrs. A. Holden, Mrs. Harold Wells, Birmingham and Viscount Chinda, while of Incurved varieties, Alice Honour, Captain Kettle and Progress were noteworthy. Susan and G. Fox-Wilson were two good single-flowered sorts and the best of the Decorative varieties were Felix, The Wizard, George Carpenter and Mrs. R. F. Felton.

The small group set up by Messrs. J. W. Cole and Son contained several choice varieties, notably Scythia, Majestic, Mrs. Harold Wells, and Mrs. A. Holden, among the Japanese sorts; Miss Gena Harwood, a pale buff-coloured Cactus Chrysanthemum; Mrs. T. Hancock, Everlasting and Rona, a trio of single-flowered varieties; and Mrs. R. F. Felton and Primrose Poitou, two good Decorative sorts.

Single-flowered and Decorative varieties constituted the group arranged by Mr. H. Clarke, the former type being very prominent. The best were Exmouth Pink, Jessica, Mrs. Frank Drill, Godfrey's Gem, Catriona, Supreme and Miranda; The Wizard and Fifi were noteworthy Decorative varieties in this exhibit.

NATIONAL SWEET PEA.

Annual General Meeting.

October 31.—The above Society held a very successful Annual General Meeting of members at the Horticultural Hall, Westminster, on this date. When the President, Mr. E. H. Christy, opened the proceedings there was a large attendance.

The Report, which, being printed and circulated, was taken as read, records that not only were two shows held during the year under review, but that arrangements have been made for holding two shows in 1929, while the retiring President, in a pleasant speech, which held the attention of the large gathering, more than hinted that it was well within the possibilities that the policy of holding two shows annually was established. If this, as we conclude means that the Society will hold a London Show and a Provincial Show each year, the prospects are excellent, and the members are to be congratulated on the splendid foundation work done by its committee and officers, which has resulted in this most desirable state of affairs.

A dissection of the Balance Sheet shows the Society to be in a sound financial condition. That its year ends with September brings certain drawbacks, but we understand that since the statement of accounts was drawn up, the large sum due from "sundry debtors" has been received, and that all the creditors have been paid, leaving a credit balance for the year of £152 15s. 6d., which, with £100 invested in five per cent. National War Bonds and a little over £200 on deposit, makes a nice "nest egg." The chief items of income were annual subscriptions, £322 5s.; Donations, £313 1s. 6d.; and fees for Novelty Trials, £36 13s. 3d.; while the principal expenditure items were medals, prizes and other expenses connected with the two exhibitions, £256 17s. 8d.; Printing and Stationery, £157 8s. 11d.; Postages, £26 13s. 3d., and Secretary's Salary and bonus, £100.

It was not surprising that such a Report and Balance Sheet were unanimously adopted; the discussion on them resolved largely into ways and means of inducing dilatory members to pay their subscriptions promptly, and this is a complaint from which nearly all, if not all, societies suffer. We note that each year the Society's balance sheet records the receipt of considerable sums relating to subscriptions "for other years." and as the amount for the year under review is even larger than usual it is evident that, although there are outstanding subscriptions, much has been done in the matter.

With a slight addition, Mr. G. H. Burt's proposed alteration of the rule relating to the nomination of members for the Floral Committee, was carried.

The Report of the Floral Committee for the year was read by its Chairman and, as we reported last July, it records that the Society is indebted to Messrs. E. W. King and Co., Ltd., for excellent trials of novelties. The Report also contains the list of awards made by the Committee. As the novelty trials are to be grown by Messrs. Robert Bolton and Son, at Halstead, next year, the continued success of this most important feature of the Society's work is, so far as humanely possible, assured. The Floral Committee for 1929, as elected at this annual meeting, is Messrs. F. J. Rogers, E. H. Christy, C. H. Curtis, J. Randall, F. T. Wheler (amateurs), G. H. Burt, D. Allan, J. Stevenson and C. H. Rundle (trade).

Thanks to the enterprise of several members and the generosity of enthusiasts, the Henry Eckford Memorial Fund is now firmly established and the Report, read by Mr. C. H. Curtis, must have been as gratifying to the Trustees of the fund as to the members of the Society. The announcement that the Eckford Memorial Gold Medal for the year had been awarded to Mr. E. W. King was received with enthusiasm.

The election of Mr. Harold Beale as President of the Society for 1929 was immensely popular, and Mr. F. J. Rogers, who has long been a member of Committee and is a well-known amateur exhibitor, was unanimously elected Chairman of Committee for the year. Mr. J. M. Bridgeford, the Honorary Treasurer, and Mr. A. C. Bartlett, the Secretary, were re-elected Through pressure of circumstances, Mr. H. A. Perkin, Mr. H. Mortimer and Mr. J. C. Coats retired from the General Committee. The other members were re-elected with the addition of Messrs. G. H. Tolman, T. Baines, Alfred Dawkins A. W. Richards and the Rev. Frank Collins.

An agreeable finish to a most pleasant and satisfactory annual meeting was the thoughtful invitation to tea from the retiring President, Mr. E. H. Christy, and Mr. Alfred Dawkins, Chairman of Committee.

CARDIFF AND DISTRICT GARDENERS'.

At the fortnightly meeting of the above Association held at the Queen's Hotel, Cardiff, on October 16, Mr. W. Bennett presided. The lecturer for the evening was Mr. J. Basham, who owns one of the most up-to-date fruit gardens in South Wales, the subject on which he spoke being "The Pruning and Care of Fruit Trees." He dealt fully not only with methods of pruning, but with many other details connected with fruit culture. He emphasised the importance of thinning, not only of the fruits, but also of the fruit buds, especially in the case of trees making fruit buds at the expense of wood. Mr. Basham is a great believer in the use of air-slaked lime as a preventive against leaf spot and scab, and this he dusts over the trees just before the buds commence growth. The lecture was delivered in a clear and concise manner and was enjoyed by all the members present.

The various questions put to Mr. Basham were answered in a free and practical manner, and at the conclusion, Mr. G. E. Davies, seconded by Mr. A. Fry, proposed a hearty vote of thanks to the lecturer. In responding, Mr. Basham invited the members to visit his gardens during next summer at Llaniltemo, St. Fagans.

ROYAL HORTICULTURAL OF ABERDEEN.

There was a very gratifying attendance at the annual general meeting of this Society, held in Aberdeen on October 27. Mr. W. B. Clark, Superintendent of Aberdeen's public parks, and Vice-Chairman of the Society, presided in the absence of Sir Thomas Jaffrey, the Chairman.

In moving the adoption of the Report and Balance Sheet for the year, the Chairman expressed the pleasure of the members over the fine success of their annual show in August last. He reminded those present that while the Society received no financial support from Aberdeen Town Council, as was the custom for many years, the Council had granted them the privilege of holding the annual show in the charming surroundings of Hazlehead, the latest acquired and most beautiful park in Aberdeen. That was a very great privilege, and formed the equivalent to a very substantial donation. The income for the year amounted to £765, and the expenditure to £595, leaving a surplus of £170, £35 of which was applied to reducing the value of exhibition furnishings, etc. This left £135 to be added to the sum at the credit of the Society, now amounting to £475, in addition to £320 of bequests held for specific purposes. The report and accounts were unanimously adopted.

The Honorary President, Lord Provost Lewis, was re-elected, and the name of Mr. J. Cromar Watt was added to the list of Honorary Vice-Presidents. Sir Thomas Jaffrey and Mr. J. B. Rennett, advocate, were cordially re-elected Chairman and Secretary respectively. There were eight vacancies in the directorate, and these, after a vote by ballot, were filled by Messrs. Alex. Edward, G. A. Wyllie, D. Coutts, John Davidson, William Grant, J. M. Dunn, W. Morrison and G. Tocher.

GUILDFORD AND DISTRICT GARDENERS'.

On the invitation of the Committee of this Association, Mr. Burgess, the Surrey County Council Horticultural expert, visited Guildford on October 23 and lectured on "Some recent discoveries in Horticultural Research, and their application to the Gardener."

The object of research and experiment was, he stated, to find solutions for the many problems which were always confronting the horticulturist. In fact, no problem stood by itself, it was bound up with others, or led to others.

A brief account was given of the establishment of the Rothamsted Experimental Station, which was one of the first institutions where practical experiment joined forces with scientific research in trying to solve problems of manures and soils.

Mr. Burgess then went on to speak of other experimental stations with which he was acquainted, at Chesham, Worthing, Wye (Kent), East Malling, Bristol, Leeds, Reading and so on. At each of these some particular side of horticulture is kept under observation, whereby some stock is improved or pest and diseases combated and sometimes wholly overcome, either by destroying the pest or discovering immune varieties of plants.

The lecture contained hints for the destruction of soil pests—leather jackets, woodlice, slugs, club-root—and also for the capsid bug. For this, on Apple trees, a spraying with tar-distillate was recommended in the third week in February, at which time the eggs are vulnerable. The same preparation could be used with advantage upon Plum trees in January.

Another interesting part of the lecture dealt with the search for virus-disease-free Potatos which, when found in sufficient quantity, would obviate the necessity of going to Scotland for sets. Mr. Burgess recommended the members present to obtain and study *Research and the Farmer*, published by the Ministry of Agriculture.

The next meeting will be on November 12, when Mr. Burt, of Messrs. E. W. King and Co., Coggeshall, will lecture on Sweet Peas.

Obituary.

Friedrich von Oheimb.—We regret to learn of the death, on October 11, in his seventy-ninth year, of Herrn F. von Oheimb, a well-known writer on horticultural subjects in the German gardening press. He was associated with Graf Silva Tarouca in his famous work on forestry, being the author of the section on Rhododendrons, his favourite subjects. He also wrote a volume *Gartenglüch von Heute*, which reflected his great love for gardening and his keen observation of everything connected with horticulture. He was instrumental in the foundation of the German Dendrological Society, and had lately been elected an honorary member. He was laid to rest in the park where he had amassed his collection of greatly loved trees and shrubs, in a spot he had himself previously indicated, among high Cupressus and Rose hedges.

ANSWERS TO CORRESPONDENTS.

Best Subject for Screen Hedge.—*A. W. R.* The most attractive hedge for your purpose would be one composed of Cupressus macrocarpa, plants of which may be obtained from any nurseryman who deals in hedge plants, at quite a reasonable price.

Cutting Back Santolina Chamaecyparissus.—*M. M. M.* We would advise you to cut your plants back just before growth becomes active in the spring. This shrub is able to withstand severe treatment, and after being cut back should break freely into growth again and form attractive specimens the same year.

Fish Dying in a Pool.—*C. B.* Creosote is only slightly soluble in water, although it would be injurious to fish if present in quantity. A slip of Pine-wood dipped into creosote and afterwards into hydrochloric acid, turns a greenish-blue on exposure to the air. If there is only in moderate quantity in the water, the greenish-blue colour could not be strong. Clean water has neither smell, taste nor colour. Saprolegnia ferox (the salmon disease) sometimes attacks fish in ponds. This may be seen about the gills and eyes of diseased fish, which should be carefully sponged with a very dilute solution of formaldehyde (formalin). The lack of sufficient oxygen in the water of small pools is a frequent cause of fish dying. There should be water plants in the water that remain evergreen all the winter. Elodea canadensis (Water Thyme) is a very convenient one and may be procured from ditches and ponds. Some of it could be thrown into the water from time to time, even if it dies, to give off oxygen. Early in last century a bellows, with a piece of rubber tubing attached to the nozzle, was much used for blowing air into the water of small tanks, pools, and fish globes. If there are Water Lilies or other aquatics in the pool you should remove decaying portions from time to time.

Gardener's Insurance, etc.—*F. A. R.* In reply to your questions:—(1) yes; (2) no; (3) employers usually make up the amount of sick benefit received to the value of the wages, but no definite decision has yet been given as to whether they are legally liable to do this.

Hardy Plants for Suburban Border.—*T. R. P.* (1) Tall-growing herbaceous plants are, as a rule, not satisfactory for small, enclosed gardens surrounded with fences and walls. Among herbaceous plants Phloxes do very well, and thrive in slight shade, on the east and north-east side of fences; they require generous treatment. Other herbaceous plants that should do are Lychnis (Agrostemma) coronaria, Alyssum saxatile compactum; Anemone japonica vars. Lady Ardilaun, Queen Charlotte and Whirlwind; these succeed in shaded places, as also do Solomon's Seal, Polygonatum multiflorum and Lily-of-the-Valley. Other plants of moderate growth are Aquilegias, Armerias, Aster Amellus var. King Grorge, Asters Little Boy Blue and Little Pink Lady, Solidago missouriensis, Aubrietias, Campanula carpatica vars., Campanula Portenschlagiana, Dictamnus Fraxinella, Epimediums, in partial shade; Erigeron Merstham Glory, Funkia Sieboldii, Geum Mrs. Bradshaw, Gypsophila paniculata, single and double; Helenium Crimson Beauty, H. pumilum magnificum and H. Wyndley, and Hemerocallis. The stronger-growing Flag Irises should also do well, Lythrum virgatum Rose Queen, Nepeta Mussini, with Polygonum affine, Rudbeckia speciosa, Salvia nemorosa, Statice latifolia, Veronica Royal Blue, and Pinks, while many dwarf edging plants should also succeed. It is, however, only by personal experience that you will be able to select the plants that will do well under your conditions. (2) All the foregoing may be planted soon; during the spring you may plant Antirrhinums and should also sow seeds of some of the dwarf growing annuals. (3) It is difficult to say what would grow in a border mostly composed of builders' rubbish. Antirrhinums, however, succeed in poor soil, as do also the dwarf Tropaeolums, if the position is sunny; you could also try a selection of Helianthemums (Rock Roses). (4) There is a male form of Aucuba japonica variegata, as well as of the green form.

Names of Plants.—*E. D.* 1, Corydalis thalictrifolia; 2, Cardiospermum Halicacabum; 3, Sedum lineare var. variegatum (syn. S. sarmentosum var. variegatum); 4, Sedum crassipes.—*A. B. W.* 1, Gilia capitata; 2, Linaria repens; 3, Origanum vulgare; 4, Datura Stramonium; 5, Salix Caprea; 6, Cobaea scandens.—*W. S.* 1, Veronica, probably a form of V. speciosa (send when in flower); 2, V. angustifolia; 3, V. pinguifolia 4, a form of Berberis Thunbergii; 5, probably Helichrysum (Azothamnus) rosmarinifolium. —*W. C. W.* Probably Chrysanthemum Phoenix.—*W. J. W.* Hippophae rhamnoides. —*A. G.* 1, Pyrus Sorbus var. pyriformis; 2, Cupressus Lawsoniana compacta; 3, Berberis Darwinii, Ptelea trifoliata 5, Vitis Labrusca.—*W. W.* 1, Osmanthus illicifolius; 2, Myrtus communis; 3, Euonymus europeaus var. fructu albo; 4, Senecio tanguticus; 5, Erigeron mucronatus; 6, Akebia quinata; 7, Physostegia virginiana; 8, Chrysanthemum uliginosum; 9, not recognised.

Names of Fruits.—*W. J. W.* Baumann's Rienette.—*W. W.* Uvedales St. Germain. —*C. F. M.* French Crab.—*H. W. B.* 1, Newton Wonder; 2, Bismarck; 3, Warner's King; 4, Reinette du Canada; 5, Marguerite Marillat; 6, damaged, probably Doyenné du Comice.

Orange Rust on Roses.—*G. S.* Remove from the branches and from the ground all leaves which are showing signs of infection, and burn them, as these bear the winter-spores of the fungus and so carry the disease over to next season; also cut off and burn any diseased growths. Next spring, just before the leaves expand, spray with potassium permanganate solution (one ounce in five pints of water, with two ounces of soap added); or dust with liver of sulphur. Bordeaux mixture is also recommended and would probably prove effective.

Peach Border Soil.—*A. H.* We are unable to undertake the analysis of your soil, but would suggest that you communicate with the Director of the R.H.S. Gardens, Wisley, Surrey, with a view to having it properly analysed.

Pruning and Propagating Shrubs.—*G. W. H.* Olearias require little, or no, pruning, but if any is necessary it should be done in spring. Propagate by cuttings out-of-doors in autumn. Euonymus should be pruned in spring just as growth is commencing. The evergreen species are propagated by cuttings, placed over bottom-heat in summer, or in a cold frame in autumn. The deciduous species are easily raised from seeds sown in spring. Aucubas require no pruning, but, if necessary, may be shaped in spring; propagate by layering, or by cuttings in a cold frame in August. Ivies should be clipped in spring so soon as the new growth shows; increase is by cuttings of ripened wood at almost any time. Privet and Ligustrum are synonymous, and may be pruned hard in spring, and again in autumn if growth is vigorous; easily increased by cuttings inserted in winter. The shrub for identification should be sent in flower.

Rose Bush Dying Back.—*A. Y. C.* No disease was present on the Rose bush sent, but the roots are in a very unhealthy condition due to the poor condition of the soil. The position is unsuitable for the growing of Roses—waterlogged soil and an enclosed area produces a stagnant atmosphere. Good drainage is essential.

Communications Received.—P. D. W.—C. D.—A. R.—W. C. W.—G. P. B.—J. P.—W. Y.—H. N. K.—T. P.—W. A.—B. M.

MARKETS.

COVENT GARDEN, Tuesday, November 6th, 1928.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz. ...	10 0-12 0
—elegans ...	10 0-12 0
Aralia Sieboldi	8 0—9 0
Araucarias, per doz.	30 0-40 0
Asparagus plumosus ...	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistras, green ...	16 0-60 0
Aspleniums, doz.	12 0-18 0
—32's	24 0-30 0
—nidus ...	12 0-15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Chrysanthemums per doz. ...	15 0-24 0
—white, per doz.	15 0-24 0
—yellow, per doz.	18 0-24 0
—pink, per doz.	21 0-24 0
—bronze, per doz.	12 0-18 0
Crotons, per doz.	30 0-45 0
Cyclamen, per doz.	24 0-36 0

	s. d. s. d.
Cyrtomiums ...	10 0-12 0
Erica gracilis, per doz. ...	24 0-30 0
— — 60's, per doz.	12 0-15 0
— — 72's, per doz.	6 0—8 0
—nivalis, per doz.	24 0-36 0
— — 60's, per doz.	12 0-15 0
— — 72's, per doz.	6 0—8 0
Nephrolepis in variety ...	12 0-18 0
—32's	24 0-36 0
Palms, Kentia,	30 0-48 0
—60's	15 0-18 0
Pteris in variety	10 0-15 0
—large, 60's ...	5 0—6 0
—small... ...	4 0—5 0
—72's, per tray of 15... ...	2 6—3 0
Solanums, per doz.	12 0-15 0
— 60's, per doz.	9 0-12 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	9 0-10 0
—cuneatum, per doz. bun. ...	8 0—9 0
Anemone, St. Brigid, per doz.	4 0—6 0
Arums (Richardias), per doz. blooms ...	5 0—6 0
Asparagus, plumosus, per bun., long trails ...	2 6—3 0
—med. sprays	2 0—2 6
short „	— 1 0
—Sprengeri, bun. long sprays...	2 0—2 6
med. „ ...	1 0—1 6
short „ ...	0 6—1 9
Autumn foliage, various, per doz. bun. ...	6 0-12 0
Camellias, white, per doz. blooms	3 0—3 6
Carnations, per doz. blooms	2 6—4 6
Chrysanthemums—	
—white, per doz. blooms ...	2 6—5 0
—yellow, per doz. blooms ...	2 6—6 0
—bronze, per doz. bunches ...	10 0-12 0
—bronze, per doz. blooms ...	2 6—4 6
—pink, per doz. bunches ...	12 0-15 0
—pink, per doz. blooms ...	3 0—6 0
—single varieties, disbudded, per doz.	3 0—4 0
—single varieties, spray, per doz. bun.... ...	12 0-18 0
Cornflowers, blue, per doz. bun.	2 6—3 0
Croton leaves, per doz. ...	1 9—2 6
Fern, French, per doz. bun.	10 0-12 0
Forget-me-nots, per doz. bun.	10 0-12 0
Gardenias, per doz. blooms	4 0—9 0
Heather, white, per doz. bun.	9 0-12 0

	s. d. s. d.
Lily-of-the-Valley, per doz. bun.	18 0-30 0
Lilium longiflorum, long, per bun.	3 0—3 6
— — short, per doz. blooms...	3 0—3 6
—speciosum rubrum, long, per doz. ...	3 6—4 0
— — — short, per doz. ...	2 0—2 6
Marigolds, per doz. bun. ...	3 0—4 0
Myrtle, green, per doz. bun.	1 6—2 6
Nerines, scarlet, per doz. spikes	8 0—9 0
Orchids, per doz.	
—Cattleyas ...	24 0-36 0
—Cypripediums	8 0-15 0
Roses, per doz. blooms—	
—Mme. Butterfly	2 6—4 6
—Columbia ...	2 6—3 6
—Golden Ophelia	2 6—3 6
—Richmond ...	3 0—4 6
—Roselandia ...	2 6—4 6
—Hoosier Beauty	4 0—5 0
—Molly Crawford	2 6—4 0
Smilax, per doz. trails ...	4 6—5 0
Stephanotis, 72 pips	2 6—3 0
Stocks, white, per doz. bun. ...	6 0-10 0
Violets, Prince of Wales, per doz. bun.... ...	2 6—4 0
French Flowers—	
—Acacia (Mimosa), per doz. bun.	12 0-15 0
—Chilies, loose, per pad ...	4 0—5 0
—Eucalyptus foliage, per pad	5 0—6 0
—Ruscus foliage, per pad ...	4 0—5 0
—Solanum berries, loose, per pad	6 0—8 0

REMARKS.—After a very bad fortnight, especially with regard to Chrysanthemums, the general conditions are more favourable. Roses in particular are now on the decrease and prices are firmer; white and scarlet blooms may be in more demand towards the end of the week in preparation for Armistice Day. Among Chrysanthemums, single varieties are attracting more attention, disbudded blooms of Florrie King, Phyllis Cooper and Absolute being in demand; while other red and bronze and white sorts are arriving in fine quality. Sprays in bunches are also obtainable in the above colours. Other varieties, disbudded, are Mrs. Roots, Thorpe, Valet, Ivy Gay, Mrs Wilson, Romance, Yellow Thorpe, Jean Pattison, Golden Sunshine, Market Red and In Memoriam. Spray sorts are Lizze Adcock, Source d'Or, Jean Pattison, Market Red, Pink Hubert, Valet, Parson's White and Blanch de Poitou. Lilium longiflorum blooms having suddenly increased in quantity, are more than sufficient for requirements. Richardias are much improved in quality. Lily-of-the-Valley continues fairly plentiful, small consignments having arrived from Holland. Roses are also arriving from this quarter. All foliage continues plentiful, Asparagus plumosus, A. Sprengeri and Maidenhair Fern being especially so. A few Christmas Trees are already on sale in this department, also Laurel foliage and Rosemary. Supplies of French flowers are becoming more plentiful and now include Parma Violets and better Marguerites, more Solanums and Capsicums, also Acacia (Mimosa). All these are now arriving in better condition owing to the cooler weather.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples, English—	
—Cox's Orange Pippin ½-bushel	6 0-15 0
—Bramley's Seedling	6 0-12 0
—Newtown Wonder	5 0-10 0
—Lane's Prince Albert ...	6 0-10 0
—Californian—Newtown, per case	9 0-10 0
—American Jonathan... ...	7 0—8 0
—Oregon, per case	14 0-14 6
—Blenheim Pippin, ½-bushel	3 6—5 0
—King of the Pippins, ½-bushel ...	3 0—5 0
Apples, Nova Scotian—	
—Cox's Orange Pippin, ½-barrel	22 0-25 0
—Ribston Pippin, per barrel	18 0-21 0
—Blenheim Pippin, per barrel	15 0-22 0
—King's, per barrel ...	18 0-26 0
Bananas, per bun.... ...	1-0 25 0

	s. d. s. d.
Grapes, English—	
—Muscat of Alexandria, per lb.	2 0—5 0
—Alicante ...	0 9—2 6
—Canon Hall Muscat, per lb.	2 6—5 0
—Gros Colmar...	1 3—3 0
Grapes, Almeria, per barrel ...	10 0-21 0
Grape Fruits—	
—Honduras ...	— 35 0
—Jamaica ...	— 32 6
—Porto Rico ...	— 35 0
Lemons, Messina and Palermo, per case ...	26 0-47 6
—Naples ...	35 0-40 0
—Valencia, 24's and 36's ...	15 0-17 0
Oranges—	
Valencia, Late	20 0-24 0
—Jaffa... ...	14 0-16 0
Peaches, hothouse, per doz.	6 0-30 0
Pears, Californian—	
—Winter Nelis	19 0-20 0
—Beurre d'Anjou	19 0-21 0
—Doyenné du Comice, ½-case	11 6-13 0
Pears, English—	
—Doyenné du Comice, ½-bushel case ...	7 0-10 0
—trays ...	3 0—6 0
Pineapples, case	17 0-27 6

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans—	
—Guernsey, per lb.	1 0—2 0
Beet, per bag ...	5 0—6 0
Brussel's Sprouts, ½-bag ...	4 0—6 0
Cabbage, per doz.	2 0—4 0
Celery, washed, per doz. ...	18 0-24 0
Cucumbers, doz.	6 0—8 0
Lettuce, Cabbage, English, doz.	1 0—2 0
Mint, per doz. bun. ...	4 0—8 0
Mushrooms—	
—cups... ...	2 6—3 0
—broilers ...	1 6—2 0
—"field," per lb.	0 10-1 4

	s. d. s. d.
Peas, English—	
—flats, special	18 0-22 0
Potatos—	
—English, cwt.	3 0—7 0
Savoys, per doz.	2 6—3 0
Tomatos, English, New crop—	
—pink	5 0—7 0
—pink and white ...	5 6—7 0
—white ...	4 0—5 0
—blue	4 0—5 0
Old crop—	
—pink	3 0—4 0
—pink and white ...	3 0—4 0
—white ...	3 0—4 0
—blue	2 0—2 6
—Guernsey ...	2 0—4 0
—Jersey ...	2 0—4 0
—Canary Island, per bundle ...	20 0-23 0

REMARKS.—There has been some slight improvement in the general demand, but even so, conditions are not particularly brisk. The Grape department reports firmer conditions, due to shorter supplies from the Continent. The few Peaches that are available are selling well The Apple market is not brisk, although there are signs of improvement. Ample stocks of imported Apples are on hand, prices of which are comparatively low. In the English Apple section better trade is now ruling; quantities are certainly not heavy, but well-packed cooking and dessert Apples are selling at better prices. English Pears are now meeting a better reception and quotations show a considerable advance over those of a short time ago. New crop English Tomatos now sell at much better prices than have been ruling for some time. Teneriffe Tomatos are available and sell well. Cucumbers are scarce and prices are higher. Mushrooms are in better demand; the few field Mushrooms that are arriving also sell well. French Beans from Guernsey show an increase in price in spite of large quantities from France and Madeira. Cauliflowers have been a bright spot in the vegetable market, the colder weather bringing slightly increased values all round in that section. New Potatos from the Azores are selling with slightly more freedom; the old Potato market is steady, with little or no variation in price.

GLASGOW.

Prices of cut flower continued in favour of buyers during the past week, and Chrysanthemums, both locally grown and from the south, were very plentiful. Pink Consul, Golden Marvel, Exmouth Pink and Mason's Bronze, were worth from 1s. to 1s. 6d. per bunch of 6's; Mrs. Roots 1s. 2d. to 1s. 4d.; Almirante, 10d. to 1s. 4d.; Cranfordia, Pink Chieftain and Phyllis Cooper, 1s. to 1s. 3d.; La Pactole, 9d. to 1s. 3d.; Blanche de Poitou, 1s. to 1s. 2d.; Jean Pattison, 10d. to 1s. 2d.; Pink Delight and Joan Edwards, 10d. to 1s.; and Dolores, 9d. to 1s. Pink Roses ranged in price from 2s. to 3s. per dozen; red and white Roses, 1s. to 1s. 3d.; Carnations, 2s. to 4s. 6d.; Lily-of-the-Valley, 1s. to 1s. 6d. per bunch; Richardias, 4s. to 5s.; L. speciosum, 3s.; Smilax, 9d. to 1s. 3d.; and Asparagus, 6d. to 1s.

In the fruit market, prices for American Apples further dropped to unremunerative levels, the like of which has not been experienced for many years. McIntosh Red sold so low as 5s. 9d. per case, while Jonathans were bought at 6s. 6d. In the case of these and other cheaper qualities, the condition of the fruits was poor. United States consignments of Delicious having been heated in transit. For extra fancy grades of McIntosh Red and Jonathan, prices were quoted 7s. 6d. and 10s., respectively. Cox's Orange Pippin ranged from 12s. to 14s.; York Imperial, 14s. to 20s. per barrel; Winesap, 13s. to 20s.; and Ben Davis, 13s. to 18s. South African Oranges (200, 176 and 150 counts) averaged 26s. per case, and Jamaica Oranges, 22s.; Grape Fruits (80's, 96's and 112's) were 26s.; and Winter Nelis and Anderson's Pears, 26s. Scotch Burnet Plums sold at 3s. per sieve; English Colmar Grapes, 2s. to 4s.; Muscats, 4s. to 5s. 6d.; Pineapples, 3s. to 3s. 6d. each; and Blackberries, 4d. to 5d. per lb. Continental fruits were quoted as follows:—Pears, 6s. to 7s. per box; Grapes, 4s. to 8s.; and Cranberries, 10s. to 20s.

Vegetable prices were higher in places, Cucumbers being worth 12s. per dozen; Tomatos, 8d. per lb.; Lettuce, 2s. per box of 18; Cauliflowers, 3s. 6d. to 5s. per dozen; French Beans, 1s. 3d. per lb.; and Mushrooms, 2s. 6d.

CATALOGUES RECEIVED.

W. DRUMMOND AND SONS, LTD., Stirling and Dublin.—Roses; forest, ornamental and fruit trees, shrubs; etc.

H. J. JONES, Ryecroft Nurseries, Hither Green Lane, Lewisham, S.E.13. — Chrysanthemums.

CLIBRANS, LTD., The King's Nurserymen, Altrincham.—Chrysanthemums.

HURST AND SON, 152, Houndsditch, E.1.—Vegetable and flower seeds.

W. SMITH AND SON, LTD., Aberdeen.—Forest trees fruit trees, Roses, etc.

GARDENING APPOINTMENTS.

Mr. W. J. Watts, for three years gardener to K. H. WRIGHT, Esq., Watlands House, Scaynes Hill, Sussex, as gardener to CHARLES ALLEN, Esq., Free Chase, Warninglid, Sussex. [Thanks for 2/- for R.G.O.F. Box.—EDS.].

Mr. L. S. Mousley, for the past two years gardener to the late C. L. AGNEW, Esq., Over Peover, Knutsford, and previously inside foreman at Bodnant and Ashby St. Ledgers, as Gardener and Deputy Superintendent of the Parks and Cemetery Department of the Corporation of Eccles. [Thanks for 2/6 for R.G.O.F. Box.—EDS].

Mr. H. Andrews, for the past three years second gardener at Brockham Park, Betchworth, Surrey, as gardener to JOHN W. BEALEY, Esq., Little Mynthurst Farm, Charlwood, Surrey. [Thanks for 2/- for R.G.O.F. Box.—EDS.].

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THE
Gardeners' Chronicle

No. 2186.—*SATURDAY, NOVEMBER* 17, 1928

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Supplement Plate:
Rhododendron intricatum.

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 42.0°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, November 14, 10 a.m. Bar. 30.1. Temp. 49°. Weather, Fine.

Creative Evolution.

Although there is no end to the making of books on the subject of evolution, there are many reasons why *Creation by Evolution** should be universally read. Those who hold that present life is the changed, perfected or degenerative outcome of past life should read it, and those who, for one reason or another, are not yet convinced of evolution should also read it; for they will at least find that the doctrine of creative evolution is no narrow one, but a thesis which illuminates — although it does not explain all life and all the countless manifestations of life—societies and governments no less than individual plants and animals. As Henry Fairfield Osborn points out in the brief but striking Foreword, animate nature seems to differ fundamentally from inanimate. Whereas lifeless things, undergoing complication by the compounding of simple things, give rise to new forms without the creation of new forces, living things undergo incessant creative change whereby not only new forms and new characters, but also new powers, are evolved. The evolutionary point of view which dominates thought at the present time is admirably expressed by Sir Charles Sherrington in the Introduction to *Creation by Evolution*—"We can recognise in man's estate a nature that relates us to much we might fain discard, and yet a nature that has been a passport for our further travel upward, and has qualified us to achieve not only what man in the aggregate has achieved but what individual man at his best stands for. . . . . The creation of man perceived as a gradual and still operative evolutionary process, which . . . . . will not leave him where he is, bears broadly and profoundly on the interpretation of all human activities." The first chapter of this book defines evolution, showing that it is a universal process of orderly changes. The author, David Starr Jordan, claims inferentially that modern biologists have in the main discarded the Darwinian view of the origin of species by natural selection. That powerful eliminating agent acts not by way of originating new species, but in such a way as to ensure that all members of a species shall in some measure be fitted to their environment. In the making of species, both Mr. Jordan and Professor J. Arthur Thomson show that geography plays a great part; in other words, barriers, geographical or other, which segregate groups of animals lead to the appearance of species. Thus in the Galapagos Islands—belonging to an ancient peninsula which became first an island and then an archipelago—there is a peculiar fauna which comprises the Giant Tortoises described by Darwin in the *Voyage of the Beagle*. There are ten different islands, and each has a distinct species of turtle; nay more, in Albemarle, the largest island, there are no fewer than five species of turtle. Incessant variation, which goes on in all living things, found its chance in those islands where isolation prevented the general mixing or blending which would otherwise have eliminated successive variations. Evidence of evolution may, of course, be indirect, and therefore at best presumptive, or it may be direct. Professor Jennings, for example, gives a striking instance of the origin of diverse, distinct and stable forms derived from a single amoeba, an unicellular organism which propagates itself by division. The fascinating story of vestigial organs, reduced and useless remnants of structures which were once important, is told by Professor Parker and illuminates the paradox that Nature is both progressive and conservative. Insects with wings which are useless, cave animals with eyeballs under the skin, whales with "internal" hind legs, wisdom teeth which, like wisdom itself, may so linger that they are never cut, and vermiform appendices which often have to be cut because, although always useless, they may become harmful. Other chapters treat of the evidence for evolution derived from individual development, embryology and the geographical distribution of animals. Plants which provide striking testimony in favour of evolution are somewhat neglected in this volume, but the story of their evolution is told by C. Stuart Gager, Director of the Brooklyn Botanical Gardens. Unfortunately, the evidence as presented is too condensed and slender to carry conviction to a botanist. This neglect of the testimony of plants is indeed the only blemish in an admirable work, written in truly scientific, dispassionate temper, concerned to state truth and not to make converts. The evidence from fossil plants which is presented by Professor Berry mitigates to some extent this criticism. In the older rocks are fossils of Seaweeds; land plants only become abundant as fossils in the middle Palaeozoic (Devonian) period. Fossils of this period reveal a wealth of varied vegetation, seed-bearing Ferns, arborescent Club-mosses as well as simpler forms. With the coal measures come the large tree-like Club-mosses, tree-like Horse-tails, many seed-bearing Ferns and trees suggestive of modern Cycads and the "Temple Tree," Ginkgo biloba. As the Palaeozoic era wanes, the typical coal plants dwindle and Cycads and Coniferous trees begin to appear. The vast mid-period known as Mesozoic was the age of Cycadaceus plants. In the Jurassic era Ferns reduced in size and Cycads and Conifers flourished. Then, so far as is known, flowering plants appeared in the Lower Cretaceous period and evolution, proceeding rapidly, brought into existence floras not unlike those which now cover the earth and these floras were in full flower before the Cretaceous period had run its course. Thus, albeit that the evidence is perforce halting, the plant joins with the animal in testifying to the truth of the doctrine of creative evolution.

Our Supplement Plate.—With our present issue we have pleasure in presenting, as our Supplement Plate, an illustration of Rhododendron intricatum, a valuable member of the Lapponicum series, and much prized as a dwarf shrub suitable for the rock garden or other situations where shrubs of low stature are required; it is also very effective when grown in pots for the adornment of the alpine house, as it flowers freely when only a few inches high. It finally attains a height of about two feet, is compact and rounded in form, the scurfy shoots being clothed with small, rounded-ovate, leaves, dark green above and pale beneath, and terminated by clusters of violet-purple flowers, fading to lilac. A native of Szechuan, western China, Rhododendron intricatum is quite hardy in this country. It was introduced by Wilson, for Messrs. Veitch, in 1904.

Colchester Roses at the Guildhall.—At the Guildhall banquet held on Friday, November 9, the tables were decorated with Roses from the open fields of Messrs. Benjamin R. Cant and Sons, Ltd., The Old Rose Garden, Colchester. Some of the varieties cut thus late were Mrs. Beatty, Rev. F. Page Roberts, Covent Garden, Madame Butterfly, Shot Silk and Los Angeles.

Record Potato Crops.—A popular competition in many allotment societies is one which provides prizes for the heaviest yield resulting from one pound of seed-sets of Potatos. Crops obtained under special cultivation are often very heavy, but we do not know to whom belongs the honour of raising the heaviest crop. We learn of 492 lbs. from 1 lb. of sets, and this result was followed by the enormous yield of 835 lbs. from 1 lb. of the variety Colleen, raised by Mr. A. G. Adams, Banstead Grange Gardens, Banstead, Surrey, who cut his sets into one hundred-and-forty-six pieces at planting time. Can anyone beat this record?

French Honour for Mrs. Edward Harding. It is announced that the French Republic has bestowed the honour of Chevalier du Méritè Agricole upon Mrs. Edward Harding, of New York and Plainfield, New Jersey, U.S.A., in recognition of her horticultural activities. Mrs. Harding has long been known as a Paeony enthusiast, while she also specialises in Irises and Lilacs, of both of which she has magnificent collections. The bulk of her choice plants are of French origin, for she has always been an admirer of France and has kept in close touch with French horticulture. She has written two books on the Paeony, and for the second, entitled "Peonies in the Little Garden," Mrs. Harding was awarded a medal by the Société Nationale d'Horticulture de France. Mrs. Harding is the third woman to receive the honour of Chevalier du Mérito Agricole, the other two being Madame Philippe de Vilmorin, of France, and Miss Ellen Willmott, of England.

Garden Sketches.—Miss Mary Elwes has an interesting little "one woman" show of water-colours, chiefly of gardens in this and other countries, at the Bucknall Gallery, Ebury Street. She has travelled extensively, notably in America, and has brought back attractive sketches of noted gardens there, including that of Mr.

**Creation by Evolution, a Consensus of Present-day Knowledge as set forth by Leading Authorities*. Edited by Francis Mason. New York. The Macmillan Company, 1928. Price 22s. (post free).

Robert Brewster, at Avalon, Mount Kisco, sixty miles from New York. Among English sketches is one of a Laburnum pergola, an unusual feature, in Miss Waukhope's garden at Haslemere, and an attractive view of Sir William Mitchell Cott's Coldharbour garden, giving wide views of the Sussex landscape over a hedge of Rhododendrons topping a low brick wall. An unusual note is struck by a sketch of a Brazilian garden by moonlight, a study in deep blue, splashed with myriads of brilliant white lights reflected in the Bay of Rio which the garden overhangs; and a Finnish garden, with bright pink Phloxes growing between the slender trunks of tall Birches, suggests the limitations imposed by the low temperatures of these northern gardens, and the skill with which they are overcome by employing to the best effect the few available subjects. The warm beauty of Lady Swettenham's Jamaica garden is a complete contrast, with its rampant Dracaena hedge and luxuriant growth of Bougainvillea spectabilis,

By-law for Protection of Wild Flowers.—At a meeting held on November 6, the Hertfordshire County Council passed a by-law making it an offence to uproot wild flowers or Ferns in any part of the county. This by-law has been made following complaints that the beautiful woods and lanes of Hertfordshire have, in several cases, been almost denuded of wild flowers by motorists and others. Another by-law made by the Council prohibits the littering of the County highways with paper or other waste material.

Stag's Hill, Guildford.—This fine Surrey site has been chosen by the Guildford Diocesan Conference for the new Guildford Cathedral. Lord Onslow, owner of the land, has presented the site, together with five additional acres, for ecclesiastical purposes; he has also offered to lease a further fourteen adjoining acres for five years with the option to purchase at a price not exceeding £400 per acre. These offers have been accepted, and it is now contended that, next to Lincoln, Guildford Cathedral will occupy the finest cathedral site in the country.

Over-abundant Chrysanthemums.—So far as the flower markets are concerned, there has been, and still is, a superabundance of cut Chrysanthemums with consequent low prices for the growers and difficulties for the salesmen. This excessive supply is not confined, however, to this country, as American horticultural journals all refer to the evils of over production. The growers in the north and middle states appear to be particularly bitter against the Californian growers who, they contend, have flooded the markets with outdoor-grown Chrysanthemums at a time when local stocks of flowers are particularly heavy.

Lectures Arranged by Cheshunt Research Station.—The lectures arranged by the Experimental and Research Station, Cheshunt, which commenced on November 14, at Relph Hall, Elm Arches, and which all who are interested are cordially invited to attend, are as follow:—November 14, "Garden Pests," by Mr. E. R. Speyer, M.A.; November 29, "Bulbs," by Mr. E. A. Bowles, M.A.; December 12, "Boilers," by Mr. C. H. Shoults; January 9, 1929, "Recent Experiences with Cucumbers and Tomatos," by Mr. E. Vogel and Mr. F. Russell; January 23, "Roses," by Mr. W. E. Chaplin; February 6, "Plant Geography," by Dr. W. F. Bewley; February 20 (to be arranged); and March 6, open night. The lectures commence at 8 p.m.

Mote Park Estate, Maidstone.—It is announced that the Maidstone Town Council, at a special meeting held on November 7, decided to accept an offer by Lord Bearsted to sell to the Corporation the historic Mote Park estate, for the sum of £50,000. The purchase will be made subject to the Ministry of Health sanctioning the raising of the necessary loan. Mote Park is situated on the outskirts of Maidstone and comprises about 490 acres; it contains the Kent County Cricket Ground, which is not, however, included in the sale. It was stated that Lord Bearsted had promised to give to the Corporation a sum of £10,000 if it decided to convert the mansion into a convalescent home. With regard to the cricket ground, it is stated that Lord Bearsted proposed to make arrangements that will ensure its preservation for the purposes of our great national game.

Dr. U. P. Hedrick.—Dr. U. P. Hedrick, head of the Division of Horticulture since 1905, has been appointed by the Trustees of the Cornell University as Director of the New York Agricultural Experiment Station at Geneva, New York, U.S.A. Dr. Hedrick comes to his new position well equipped by training and experience to cope with the administrative problems of an agricultural research institution. Chief of the division of horticulture at the station since 1905, he has also been Vice-Director of the station since 1921. He was born in Independence, Iowa, in 1870, and was reared on a farm. He graduated from the Michigan Agricultural College in 1893, and received his M.S. degree from that institution in 1895, serving as assistant horticulturist for two years. From 1895 to 1897 he was Professor of Botany and horticulturist at the Oregon Agricultural College, and from 1897 to 1899 held similar positions at the Utah Agricultural College. In 1899 he returned to Michigan Agricultural College as Professor of Horticulture, remaining at the Michigan Institute until 1905, when he came to Geneva. The honorary degree of Doctor of Science was conferred upon Dr. Hedrick by Hobart College in 1913. Since its organisation, the Geneva Station has occupied a prominent place among agricultural research institutions of the country, particularly with respect to its contributions to horticultural science. Important among these contributions is the series of monographs dealing with the hardy fruits of which Dr. Hedrick is the senior author. These works include *The Grapes of New York, The Plums of New York, The Cherries of New York, The Peaches of New York, The Pears of New York*, and *The Small Fruits of New York*, all volumes of considerable size, freely illustrated and eminently useful. Dr. Hedrick also edited a vast accumulation of notes left by Dr. E. L. Sturtevant, the first Director of the Station, on the edible plants of the world. These notes were later published by the Station as *Sturtevant's Notes on Edible Plants*. He is also author of a *Manual of American Grape-growing, Cyclopedia of Hardy Fruits*, and *Systematic Pomology*. In 1925, Dr. Hedrick was awarded the George Robert White medal, America's highest horticultural award, by the Massachusetts Horticultural Society, trustee of the George Robert White fund. This award, made once a year, is given to "the man or woman, commercial firm or institution in the United States or other countries that has done most in recent years to advance interest in horticulture in its broadest sense." Of the fifteen awards made prior to 1925, only one other experiment station worker had been thus honoured. Among the scientific societies, Dr. Hedrick holds membership in the American Association for the Advancement of Science, the Society for Horticultural Science, of which he was President in 1913; the American Pomological Society, the Royal Horticultural Society of England, the New York State Horticultural Society, of which he was President in 1919; Sigma Zi, an honorary research fraternity; and honorary membership in the Massachusetts Horticultural Society. He was also a member of the National Research Council from 1920 and 1923. During his more than twenty-three years of residence in New York, Dr. Hedrick has acquired a wide acquaintance among the fruit growers and the agricultural leaders of the Empire State, and possesses first-hand knowledge of the problems that confront New York agriculture. Dr. Hedrick is the sixth Director of the Geneva Station, his predecessors, with their terms of office, being as follows:—Dr. E. L. Sturtevant, 1882-87; Dr. Peter Collier, 1887-95; Dr. W. H. Jordan, 1896-1921; Dr. R. W. Thatcher, 1921-1927; and Professor F. B. Morrison, 1927-28.

DR. U. P. HEDRICK.

Lectures at the East Anglian Institute.—Among the Lectures and Discussions to be given at the East Anglian Institute of Agriculture, King Edwards Avenue, Chelmsford, during the present session, those of interest to horticulturists are:—"The Cultivation of the Cricket Bat Willow," by J. Butler Ormond, on November 19, at 7 p.m.; "The Cultivation of Sugar Beet," by F. Rayns, M.A., Director of the Norfolk Agricultural Station, on January 21, 1929, at 7 p.m.; "Soil Problems," by Professor N. M. Comber, D.Sc., on February 18, at 7 p.m.; and "The Spraying of Fruit Trees," by F. R. Petherbridge, M.A., on March 11, at 7 p.m.

"The Times" War Graves Number.—With the issue of *The Times* for November 10, a Supplement dealing with the War Graves was published as a tribute to the fallen and also to those who have been so successful in bringing order out of chaos, with the result that the huge cemeteries—illustrations of many of which were given—wherein rest those who made the Supreme Sacrifice during the Great War, have been made beautiful throughout all the war zones. Praise is indeed due to the Imperial War Graves Commission, whose task was at the outset such an onerous one, but one that has been crowned with success. In France alone there are 2,000 British War Cemeteries; Belgium has 500, and these, together with those farther afield, are maintained by the War Graves Commission and its magnificent band of workers to the very great satisfaction of those who remain to mourn their losses,

Legacies to Gardeners.—The Rev. John Miles Moss, of Birthwaite Edge, Windermere, who died on July 10, left £100 to his gardener, Mr. George Galloway.—The late Mr. Robert Hancock, of Duryard Lea, Cowley Road, Exeter, who died on September 16, left £100 to his gardener, Mr. Arthur Bellworthy.—The late Canan Joseph Udell Norman Bardsley, of The Vicarage, Lancaster, who died on July 8, left £100 to his gardener, Mr. Herbert Hargreaves.

Mediaeval Cultivation in Erfurt.—In the November issue of *Gartenwelt* (Berlin), there are some interesting notes on the antiquity of Erfurt as a centre of outdoor plant cultivation, and it would appear that in the middle ages the inhabitants of the district were known as the "gardeners of the Holy Roman Empire." By the beginning of the twelfth century, the vineyards of Erfurt had acquired a considerable reputation—in the year 1186 it is recorded that the harvest began at the commencement of August. The decline of this industry was due, in the first place, to a reduction of the population in the seventeenth century through the ravages of the plague; in 1683, no fewer than 10,000 persons in the town of Erfurt alone fell victims to the pestilence. For want of labour, it was impossible to keep the vineyards in proper condition, and vegetables began to take the place of vines; the Potato came to be recognised as a food of considerable value, and much ground was given up to its cultivation At the beginning of the nineteenth century, the ground occupied by vineyards was only one-fourth of that so occupied two hundred years before, and at the present time the industry has completely disappeared from the district.

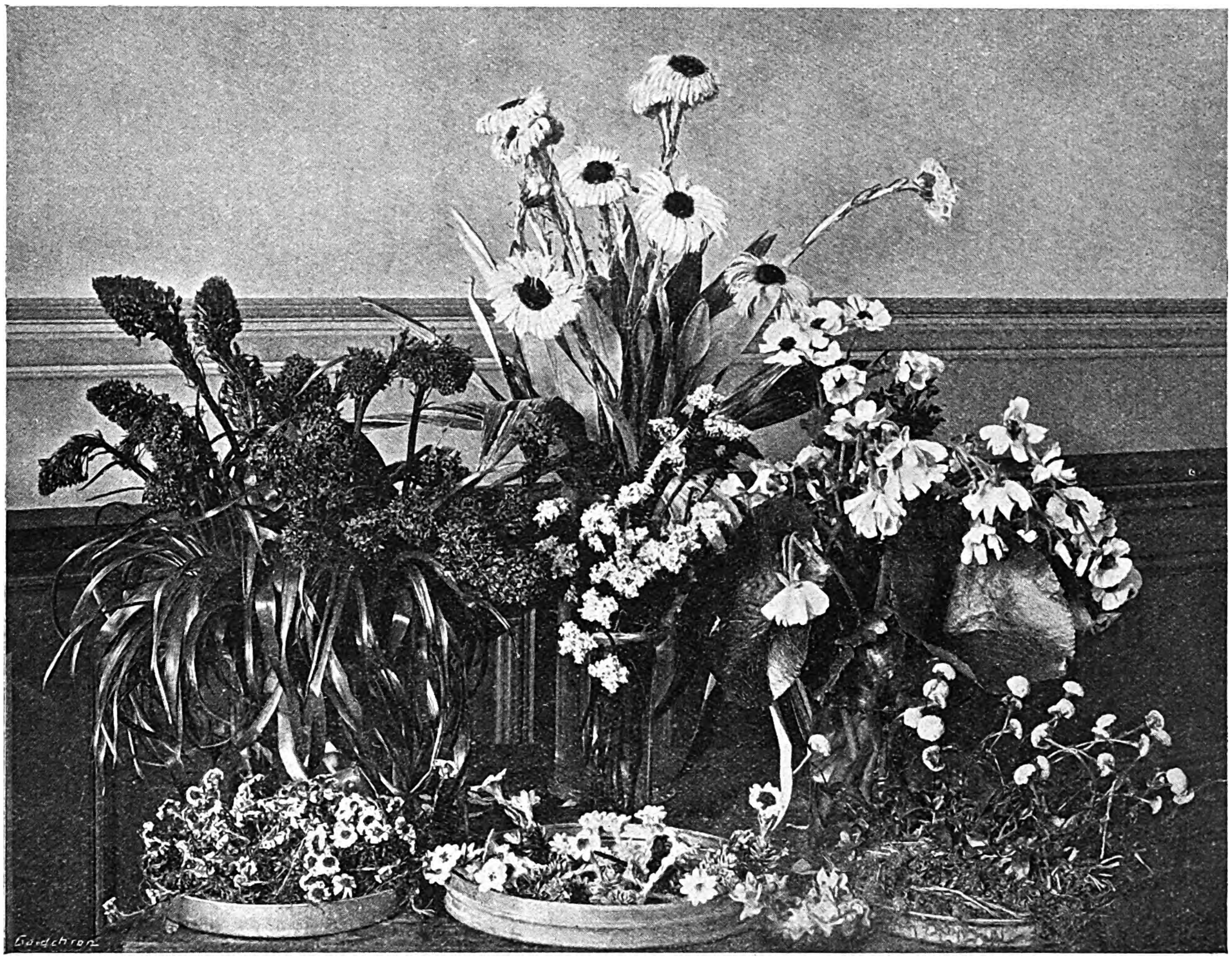

FIG. 180.—A NEW ZEALAND FLOWER SHOW.
(see p. 388.)

Bulbinella (Chrysobactron) Hookeri. Celmisia petiolata. Ranunculus Lyallii.
Helichrysum bellidioides (in pan.) Leucogenes Leontopodium. (in pan.) Craspedia uniflora. (in pan.)

British Mycological Society.—A meeting of this Society will be held in the Botanical Department, University College, Gower Street, W.C., on Saturday, November 17, at 11 a.m., when Dr. B. Barnes will lecture on "The Production of Variations in Botrytis cinerea by Heating the Spores"; Dr. W. R. I. Cook will discuss "A new Sorosphaera"; Mr. R. Paulson will deal with "The Interpretation of the Microscopic Images of the Gonidium in Xanthoria parietina." Miss Wakefield and Mr. W. Buddin will give an address on "The Fungus causing Carnation Leaf Rot"; and Mr. S. P. Wiltshire's subject will be "A Stemphylium Sultant of an Alternaria."

Presentation to Mr. F. Holton.—A party of amateur and professional gardeners and friends from Market Drayton, Shropshire, and district, recently met at the Red Lion Hotel, Market Drayton, to do honour to one of their colleagues, Mr. F. Holton, of Old Springs, Market Drayton, who is retiring after thirty-six years' service at Old Springs. The function had been ably organised by Mr. G. B. Hubank. After dinner, the toast of Mr. Holton was proposed by Mr. Catt, of Buntingsdale, who said Mr. Holton had been gardener for fifty years, thirty-six of which had been spent at Old Springs—a fine record. He wished Mr. and Mrs. Holton many years of happiness and good health in their retirement. Mr. Barlow, of Platswood, then handed to Mr. Holton a silver-mounted walking stick, suitably inscribed. In reply, Mr. Holton expressed his thanks for the kindness shown him, and said he would prize their gift very much, and would always be pleased to see any of his friends at Hereford. Mr. G. B. Hubank proposed the health of the Chairman, Mr. J. Mills, of Shavington. Other toasts included "The Visitors," proposed by Councillor J. Bennett, and responded to by Mr. Land, and "The Artistes," proposed by Mr. Woodcock and responded to by Mr. Gee of Crewe. Songs were rendered during the evening by Messrs. Gee, C. Butterfield, and Fisher.

Appointments for the Ensuing Week.—Monday, November 19: Harrogate Horticultural Association meets. Tuesday, November 20: Birmingham Chrysanthemum Society's exhibition (three days); Winchester Horticultural Society meets. Wednesday, November 21: Hull and East Riding Chrysanthemum Society's Exhibition (two days); Wimbledon Gardeners' Society meets; Harrogate Horticultural Association's exhibition (two days); Buxton Chrysanthemum Society's exhibition; Ayr Chrysanthemum Society's show; Ulster Horticultural Society's exhibition (two days); Newcastle Horticultural Society's exhibition (two days); Pangbourne and District Gardeners' Association lecture. Thursday, November 22: Ipswich Gardeners' Association's exhibition. Friday, November 23: Leeds Paxton Society's exhibition (two days). Saturday, November 24: Burnley Horticultural Society's exhibition.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Frauds on Seedsmen.*—Will you put the various members of the seed trade on their guard against a tall, gentlemanly-looking Frenchman who, nearly a year ago, called at our counting-house, and with all the address and easy manner for which that nation is so distinguished, he represented himself to be a younger brother of M. Vilmorin ainé, of Paris; that he had been in prison for his political creed; and having engaged your sympathy by sundry bursts of grief, backed by strong action, all performed with the greatest tact, he concluded by saying that he was on the eve of starting for Liverpool, to embark on board a ship to take him to Valparaiso, where he had formerly lived, and where, with his family, he trusted to remain unmolested; but alas! he had not quite enough money for the railway, and the ship was to sail that night or to-morrow morning, etc. Upon being questioned, he gave answers respecting different members of the Vilmorin family, which, of course, upon enquiry, turned out to be all false, and, in fact, his whole tale throughout a lie. We, happily, did not give him anything, but as I hear that he has been within these few months to a seedsman and nearly extracted a sovereign or two out of his pocket with the same tale, I trust that you will put the public on its guard. He is tall, rather dark, and of rather military carriage, and in his appearance and address like a poor gentleman. *R. Wrench. Gard. Chron., November* 12, 1853.

Publication Received.—*Letters from The Steppe,* by William Bateson; Methuen and Co., Ltd., 36, Essex Street, W.C.2.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

Epidendrums.—Members of this genus, which possess Reed-like stems, such as E. Boundii, E. Wallisii, E. evectum, E. O'Brienianum and E. radicans, are robust growers and thrive well in an intermediate temperature, where specimens should produce flowers for many weeks during the year. The taller-growing sorts make good subjects for covering pillars, bare walls and the ends of Orchid and plant houses. When they are grown in the warmest house the plants are liable to attack from thrips, which may be kept in check by frequent syringing during favourable weather, and abundance of water at the roots during the growing season. Specimens that have finished flowering and have grown too tall for their position, may have a good portion of their top growths removed with aerial roots attached. If six of these are arranged near the edge of a seven-inch pot and placed in a humid atmosphere for a few weeks, they should quickly establish themselves and eventually develop into good specimens. The frequent syringing of the plants and pots should convey sufficient water to the compost until the roots are well established in it. Well-drained receptacles should be used, while Osmunda fibre with a little Sphagnum-moss and broken charcoal added provides a suitable compost. For those kinds which produce a number of side-shoots, annual propagation should be practised to maintain a vigorous stock, removing the side-shoots when roots are developing; place several shoots in one pot and grow them on as advised for the tall kinds.

Epidendrum Endresio-Wallisii and E. elegantulum. — These two kinds are now growing strongly, and producing an abundance of roots; the plants require plenty of moisture at the roots at this season and should produce a display of flowers for several weeks in the late spring months. The smaller-growing and beautiful E. spectabile (generally known as Barkeria spectabilis) is now in flower, several fine specimens bearing racemes of pale rose-lilac flowers, each with a lip dotted with bright red; this succeeds well in a light, airy position in the intermediate house and should be kept fairly dry at the roots after the flowers are removed. In its native habitat this species grows in exposed positions and is subjected to long periods of drought, therefore it should not be saturated at the roots at any time.

Promenaeas.—This group of free-flowering and dwarf-growing Orchids is sometimes included under Zygopetalum, but is sufficiently distinct to retain its original name in collections. The three kinds usually cultivated are P. citrina, P. stapelioides and P. Crawshayiana, which thrive when planted in well-drained, shallow pans, in a compost of Osmunda fibre and Sphagnum-moss, and suspended near the roof-glass at the cool end of the intermediate house. Shading is necessary during the spring and summer months, as direct sunshine quickly injures the tender foliage. Ample watering is required at the roots during the growing season, and although naturally a less quantity is needed during the winter, the compost should not be allowed to remain dry for long periods. Owing to the generally moist conditions maintained at the roots, fresh additions of compost are required frequently, by removing any that is becoming sour and replacing it by working in fresh material carefully among the roots. Should the compost be found impoverished right through, it is best to repot the plant, although they take some time to re-establish themselves. If kept in vigorous health by careful attention to the cultural details enumerated above, these Orchids make a bright display of flowers every year.

THE KITCHEN GARDEN.

By Allan Falconer, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Globe Artichokes.—During severe weather, protection should be given to Globe Artichokes, as they are rather tender. The plants should have all decayed leaves and rubbish removed from them, and a layer of ashes placed around them, and during sharp frosts protected with litter or Bracken, but this should be removed when the weather is mild. A supply of young plants should be propagated each season by carefully taking off suckers during November, with so many roots as possible, and placing them in pots or boxes in a cold frame for the winter. Suckers may also be removed at planting time with some roots attached and, if planted firmly, should make good plants, but the former method is recommended.

Cold Frames.—During the winter, special attention is necessary to plants growing in frames, especially in districts where the atmosphere is excessively moist, and every opportunity to admit air or remove the lights should be taken advantage of. Keep the soil stirred between growing plants, removing any rubbish or decayed leaves so soon as detected, and keeping a sharp look-out for slugs, which may be destroyed by the use of Sanitas powder.

Peas and Broad Beans.—Except in very favoured districts, sowing Peas and Broad Bean seeds outside at this time of the year is not to be recommended, but where glass is available, early dishes of both Peas and Broad Beans may be obtained. Perhaps the most suitable method is to grow the plants in pots from eight to ten inches in diameter, as these may be moved about in the spring if space is required for other crops. Well-drained pots, half-filled with a mixture of loam, leaf-soil and old Mushroom-bed manure, with a sprinkling of bone-meal added, should be prepared in which to sow Peas during November. The seeds should be dipped in paraffin, to protect them from mice, and sown with a view to thinning to four or five plants in a pot. As fire-heat should be avoided, a cold house or frame will be found quite suitable to place them in, and as growth proceeds the plants require top-dressing and staking, and all the air and light possible to keep them sturdy. Batches may also be grown in boxes and transferred to borders in houses or frames as space becomes available; if sufficient space is allowed between each row, late Tomatos may eventually be planted between them. As the Peas are removed, the Tomato plants should fill the space, and neither crop be detrimental to the other. The question of varieties is best decided by the structure available, but the taller-growing varieties usually produce larger crops. The same cultural details as for Peas apply to Broad Beans, except that it is sometimes a little difficult to get the flowers to set; if, however, every attention is given to supplying them with air and moisture, good crops may be produced from the Leviathan types.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Early Peaches.—To obtain ripe Peaches during the latter part of April, preparations should now be made. Pot trees are, I consider, most suitable for this early crop. When selecting Peaches and Nectarines for starting into growth next month, choose trees of early varieties that are well set with buds. Trees that have been forced early for several years and have been carefully overhauled with regard to drainage, and have been top-dressed, as previously advised, should be cleansed with a soft-soap and sulphur wash before placing them in position. If they were well disbudded and the growths kept pinched regularly during the growing season, very little if any pruning is necessary now, but if this regulation of growth was neglected, all superfluous shoots should be removed. Mild bottom-heat is to be recommended for this early crop, therefore, where sufficient leaves are to be obtained, there is nothing better to ensure a steady heat. No heat from the hot-water pipes should be necessary for the first fortnight, unless severe frost is experienced; the night temperature may fall to 40° before heat from this source is needed. During mild, sunny weather, the trees may be sprayed with tepid water about noon, early enough to allow them to become dry by nightfall. Varieties to be recommended for early crops are Duke of York and Hale's Early Peaches; and Cardinal and River's Early Nectarines.

Pot Figs.—Where ripe Figs are required early in the season, the present is a suitable time to prepare a structure for this purpose; for preference, one that is compact rather than lofty. The wood-work and glass should be washed with a strong solution of soft soap, while the walls should receive a coating of lime-wash. The trees should also be washed with Gishurst compound or some other suitable insecticide. The cultural details, for the present, are as recommended for early pot Peaches. Varieties best suited for this early crop are St. John, Pingo de Mel and Brown Turkey.

Late Vineries.—Afford the Grapes in these vineries a cool and dry atmosphere, using only sufficient fire-heat to prevent a stagnant atmosphere, and admit air through both the bottom and top ventilators, regulating them according to outside conditions. The bunches should be examined frequently for decaying berries, which should, of course, be removed. Where the borders are entirely under glass they should not be allowed to become too dry; but when watering is necessary, choose a fine day and water early, keeping the ventilators open throughout the day, and allowing a little warmth in the hot-water pipes. Outside borders should be covered with some material to ward off excessive rains.

PLANTS UNDER GLASS.

By J. Coutts, Assistant Curator, Royal Gardens, Kew.

Gladioli.—The small-flowered varieties included in the nanus and ramosus sections are very useful for providing a supply of cut flowers, as well as for conservatory decoration, G. Colvillei and its white varieties alba and The Bride being largely grown for supplies of cut flowers. There are many other beautiful sorts, notably Blushing Bride, Peach Blossom, Non Plus Ultra, G. Ackermanni, King Edward and G. cardinalis elegans, some of the newer varieties being Abundance, Nymph, Robinhood, Rosabella and Groenendaal. Six corms should be placed in a six-inch pot, but if required in quantity for a supply of cut flowers, they are best grown in boxes, placing the corms some three inches apart. They should be placed in cold frames, or may be stood out-of-doors at the foot of a wall and covered with ashes or fibre until they are well rooted, when they should be removed to cold frames, until such time as they are required; hard forcing is not necessary, or, indeed, desirable.

Carnations.—The perpetual-flowering varieties which are so useful for supplies of cut flowers, should benefit from gentle feeding, using an approved Carnation manure for this purpose. Care should, however, be exercised in applying manure, especially during the winter months, as an excess of manure at any time causes the flowers to decay. No more fire-heat should be used than is necessary to maintain a brisk and buoyant atmosphere, and air should be admitted on every favourable occasion. An average temperature of 50° is high enough.

Indian Azaleas.—Where these are required for early flowering, a number of plants, according to requirements, may be placed in a house where they may be grown in a temperature of 55° to 60°. They should be syringed twice a day and a moist atmosphere maintained; this should prevent attacks by thrips, to which pest they are somewhat subject. For early-forcing, Deutsche Perle and other early-flowering varieties should be selected; the many fine varieties of Rhododendron (Azalea) obtusum and R. Kaempferi, are invaluable for early work, as many of them force very readily, and they are more charming and daintier than those of the large-flowered Indian section. They are readily increased by means of cuttings, and small specimens may be flowered in sixty-sized pots. Cuttings about three inches in length, of half-ripened shoots, root readily in a close case with slight bottom heat at command.

HARDY FRUIT GARDEN.

By T. E. Tomalin, Gardener to the Earl of Bessborough, Stansted Park, Emsworth, Sussex.

Planting.—It is generally agreed that the month of November is the best time for planting fruit trees and, although this is so, it is also true that planting may be done at any time when conditions are suitable, between the end of October and the end of March, but, as a rule, trees planted before Christmas make better headway the following season than those planted after that date. It is in any case inadvisable to plant during very wet weather, when the ground is wet and sticky, especially on heavy soils. Should fruit trees arrive from the nursery before the ground is ready for their reception, or during unfavourable weather, they may be carefully unpacked and heeled in in a sheltered corner. If the roots are seen to be dry when unpacked, they should be dipped in a tank of water before being covered with soil, and if they are likely to remain any length of time in this position, the ground over the roots should be well mulched with strawy manure. A supply of stakes of suitable heights should be prepared beforehand, because it is much the best plan to insert the stake before the roots are covered, as it obviates the risk of injury to the latter. The depth at which to plant may usually be ascertained by the soil mark on the stem of each tree when received, but in any case, three inches of soil over the uppermost layer of roots is sufficient, and there is no doubt that non-success with fruit trees is occasioned more often through planting too deeply than the reverse. The hole should be made somewhat larger than the area covered by the spread of the roots. All broken roots and jagged ends should be trimmed off, and the several layers of roots should be laid out horizontally at their proper level, the soil being built up to each layer in turn. When the hole has thus been filled to the surface level, the soil should be thoroughly firmed about the roots by treading or ramming after which the rest of the soil may be added, and the operation completed with the provision of a mulch of strawy manure, which should cover the area of the hole.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to the Duke of Devonshire, Chatsworth, Bakewell, Derbyshire.

Bulbous Irises.—The English, Spanish and Dutch Irises are among the most beautiful of our spring flowers, with the added advantage of being most satisfactory for cut flower decoration, and the bulbs should be planted now, whenever the ground is in a suitable condition for working. They are universal favourites, and as they may be procured at a very moderate cost, they should be grown in quantity. When required for cutting, they may be grown in beds in the reserve garden; or, if space is limited, these and other bulbs may be grown in the fruit quarters, where they should do exceedingly well. When required for packing, they should be cut just before the blooms expand, when they pack much better and arrive at their destination in perfect condition; they open quickly when placed in water, and last much longer than if allowed to open before cutting. The Spanish Irises come into bloom some time in advance of the English section, and although the blooms are considerably smaller, they are valuable on account of their earliness. Chrysoloro, Gold of California and Cajanus are good yellow sorts; Snowball, Queen Wilhelmina and Flora are white-flowered; and Philomela, L'Unique, Excelsior and Beauty, in blue shades, complete a selection that should suit in many cases. Blue Giant, Blue Coeleste, Grand Vainqueur, King of the Blues, Mont Blanc, Othello and Perfection are excellent forms of English Iris, the flowers of which are massive, and the colours, especially of the blue shades, rich and attractive. They come into bloom when the Spanish varieties are practically over. The Dutch section, of more recent introduction, appear to be intermediate between the two groups named, and should certainly be grown where bulbous Irises are appreciated.

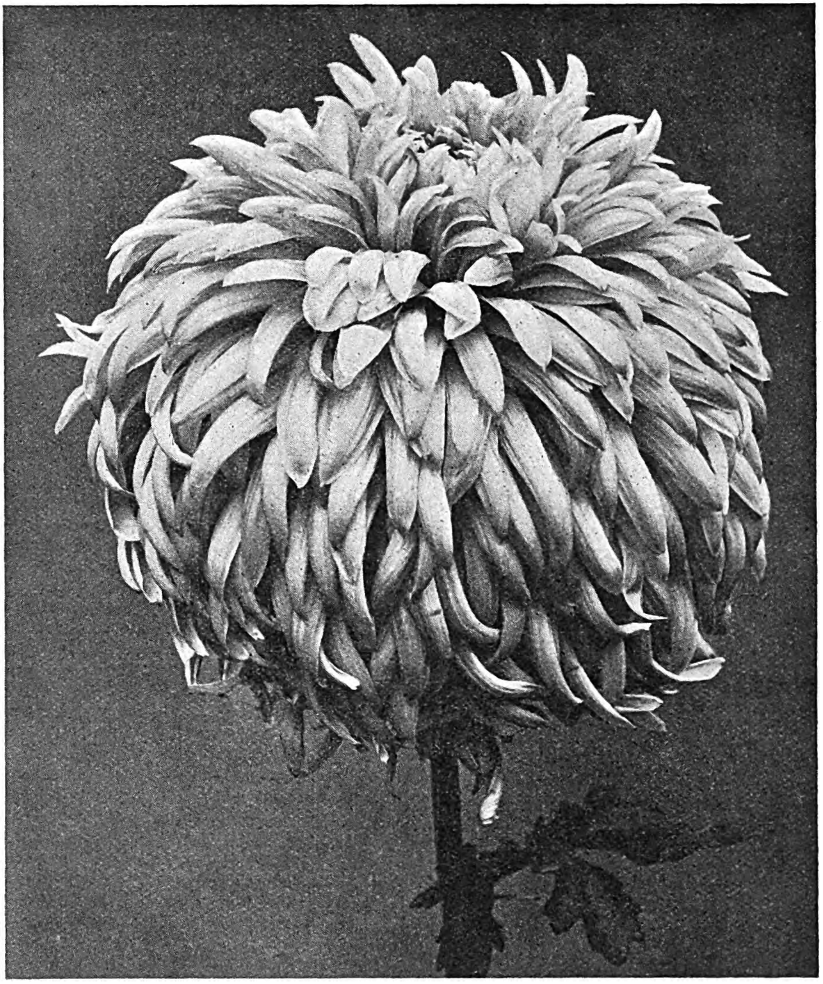

FIG. 181.—CHRYSANTHEMUM MR. F. FAWLE.

N.C.S. First Class Certificate, November 1. Colour deep mauve. Shown by Mr. W. Baxter, Lockerley Hall Gardens, Romsey.

(see p. 376.)

Border Chrysanthemums.—On wet and retentive soils, many varieties of border Chrysanthemums have a tendency to die in the winter and, to guard against loss in this way, the roots should now be lifted and placed in boxes in a cold, freely ventilated frame, or, if frame space is limited, they may usually be wintered quite safely if laid in coal ashes in a sheltered corner, or under a wall. The stems should be cut back to about six inches, and a label fastened securely to each variety to avoid confusion when the time for propagating and replanting arrives.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener at Jordanhill Training Centre, Glasgow.

Early Bulbs.—All bulbs which were potted or boxed from six to eight weeks ago should now be examined, and those showing sufficient growth removed from the plunging material and placed in a cold frame or greenhouse for a time. The remainder may be returned to the plunging bed for a week or two longer, when they also should be removed before growth has become too drawn. Where flowers are required for Christmas decoration, etc., a good batch of each variety that is sufficiently advanced in growth and, of course, correspondingly well-rooted, should now be gradually forced by placing them in a shaded house with a temperature of 50° to 55° at night. After a fortnight or three weeks, when the root action has become active, this temperature may be gradually increased, and it is then only a matter of daily attention to produce plenty of flowers at the desired time. Where Roman and other miniature Hyacinths, and Tulips, are intended to be arranged in bowls along with Ferns or other foliage plants, they are best grown in boxes, and when actually making up a selection may easily be made of those about the same stage of growth for each pan or bowl.

Rhubarb.—Early supplies of forced Rhubarb may not be in great demand this season, owing to the plentiful crop of Apples in most districts, but where it is required for Christmas, no time should be lost in digging up sufficient crowns to form the earliest batch. These may with advantage be exposed to any frost which might occur while they are out of the soil, but even lying high and dry for a few days also helps to prepare them for forcing. The crowns used for this purpose should also have been nursed during the autumn months by refraining from pulling the stalks, and thus allowing them to ripen gradually, and restore to the roots a proportion of the energy they require for another effort. Any dark, heated chamber is suitable for forcing Rhubarb, where sufficient moisture may be maintained by frequent applications of tepid water, as dryness is fatal. Leaf mould or light soil should be packed around the roots to retain moisture rather than to encourage root action.

AUTUMN TINTS AT WISLEY.

Few people fail to note the beauty of trees and shrubs during the dying glories of the autumn. Some people attribute the various colours to the oxidation of the cell contents, but by the time the broad-leaved deciduous subjects assume their autumn tints there is very little real live matter in the leaves, this having all been drafted into the persistent parts of the plants. During the last week of October I had the opportunity of passing through the gardens and shrubberies of the Royal Horticultural Society at Wisley.

Outside the gardens and everywhere on the route, I think the English Elms were never seen to better advantage in the autumn. Every tree might be described as golden-yellow from top to bottom, or golden on the top and greenish-yellow below, according to the stage of development; while the Beeches were ruddy-chestnut. A considerable amount of colour is scattered throughout the rockery. The leaves of Rhus typhina have changed to scarlet, with a yellow reverse fading to white. A large clump of Clethra alnifolia makes a yellow mass. Many others of the members of the Heath family give brighter colours; Oxydendron arboreum being particularly fine, varying from blackish-crimson, to bronzy-crimson and yellow. Situation has much to do with this. The finest bush was broken down by the snowstorm last Christmas. Almost every leaf of Viburnum Opulus on the rockery was dark red, though elsewhere it may be yellow. Soil and situation must account for such variations. A Larch, said to be one hundred years old when presented to the Society in 1905, and from Japan, was covered all over with hedgehog-like tufts of pale yellow-brown. A large, bushy tree of Cryptomeria japonica elegans was notable for the winter-brown of the leaves now distinctly encroaching on the sea-green hue of summer.

In the seven-acres field, autumn tints, berries and coloured bark maybe said to vie for attention. The Canadian emblem, Acer dasycarpum, had upper leaves of dark purple, while those below were yellow and pale green. The metallic bronze of the plicate leaves of Viburnum tomentosum offered a strong contrast; the Indian yellow of the leaves of Betula Delavayi Forrestii another. On the edge of the large pond, Rhus Cotinus foliis purpureis was highly attractive in its clothing of crimson, scarlet and yellow. Some younger bushes not far away had larger leaves resplendent in fiery carmine, almost diaphanous against the water, while the sun was shining. Elsewhere the leaves of R. C. atropurpurea showed blackish-crimson hues, especially in the earlier stages of coloration. The dying leaves of the deciduous Azaleas are well-known for their bronzy-crimson, red and yellow hues, but they are not all alike, for some of them are almost black at the ends of the branches, and crimson below. The Japanese Cherries vary with bronze and yellow.

The seat of coloration is reversed in Euonymus sanguineus, for the leaves are infolded at the sides, so that their green faces are entirely hidden, while the back of the leaf is dark purple. I was too late to see the fine colours of the other deciduous species of Euonymus. The purple-leaved Plum (Prunus cerasifera Pissardii) had faded to bronze and red; but P. c. P. nigra still retained its blackish-purple hue. The leaves of the Gean (Prunus Avium) were merely yellow, shaded with red. The finest tree in the grounds was Quercus coccinea splendens (also known as Knaphill var.). It is a tree of elegant pyramidal habit, and even at this period was thickly clothed with deeply divided, brilliant scarlet leaves, changing to red and fading to brown in shady places on the north side. Q. palustris was also handsomely coloured. The leaves of the Tulip Tree are attractive in their clear yellow, but most of them were down; and the same may be said of the pale brown leaves of Magnolia acuminata (Cucumber Tree). Crimson, orange and yellow are the features of Liquidambar styraciflua.

Berries were no small feature of the seven-acres field, particularly the Barberries now borne down with the weight of the fruits. The summer shoots are stronger and more erect, so the berries may be better displayed next year. In colour they varied from coral to deep red, purple blue and black. There are so many hybrids among them that it would puzzle the most expert Barberry botanist to unravel their genealogy. Berberis Soulieana is evergreen, but the dying leaves are scarlet and yellow. The bark of B. yunnanensis is red. The berries of B. Jamesianum are red and pruinose, and the stems, while still red, are red and pruinose in spring. Cotoneaster horizontalis, and C. salicifolia rugosa are red with berries. An uncommon shrub is Viburnum Opulus fructuluteo, the berries of which are clear yellow at first, but as they get old they assume deep amber and red tints.

Coloured bark is shown by several of the Willows and, perhaps, the strangest of all is the strongly pruinose or frosted bark of Salix pruinosa. This is conspicuous at all times of the year, but never looks more frosted than in the driest and warmest parts of summer, when the "frosting" hides the red bark beneath. A near relative of this is S. pulchra ruberrima, a rare tree in this country. It was hard cut back early in spring, made growths ten to fourteen feet long, and now shows its crimson-red bark, but will do so better when the leaves are down. Near-by was S. alba coccinea, treated in the same way, and its bark is similar in colour to the previous species. All of the varieties of Cornus alba have red bark when stooled, but the brightest of them is C. a. atrosanguinea. *F.*

TREES AND SHRUBS.

ABELIA GRANDIFLORA.

If this Abelia is hardly so striking a shrub as some others of its kind, it has two good qualities which commend it to most gardeners, viz., hardiness, and a propensity for flowering abundantly very late in the season. Last winter was the first occasion in many years' experience of A. grandiflora on which I have known it to suffer from frost, and then only the tender, unripened shoots were injured. As for flowering, it never fails to be covered with its white, rose-tinted blossoms from the latter end of summer until far into the autumn. Indeed, if sharp frosts do not intervene, it is often still flowering in December.

A. grandiflora is a hybrid between A. chinensis and A. uniflora. It makes a shapely bush four feet to six feet in height, the branches being elegantly arched. The foliage which is deciduous, is a particularly glossy and bright green and the ruddy sepals, which remain after the slightly fragrant flowers have fallen, impart to the shrub a touch of warm colouring, which is very charming in autumn. It is not particular with regard to soil, thriving in any light loam in a sunny aspect.

TWO GOOD DWARF HEATHS.

All points considered, there is not a couple of Heaths of their size to rival, much less eclipse, those excellent little plants—Erica carnea Vivellii and Erica cinerea coccinea. Moreover, the happy possessor of both will find that, provided the plants are doing well, one or other of them will be in flower for eight or nine months out of the twelve. That is, the former will begin to bloom in early January and continue to April, and the latter, breaking into colour in May, will carry-on to October, or even later.

E. c. Vivellii is, in one respect at any rate, the most important of all the carnea varieties, for it is singularly distinct and totally unlike any other. It was introduced to this country about four years ago, being sent out by Messrs. B. Ruys, Ltd., of Dedemsvaart, Holland. It is a very dwarf variety with a particularly deep green foliage which turns bronzy at the tips in winter. The flowers, which are yielded with the characteristic freedom of the type, are a rich crimson-carmine, very much darker in tone than those of any other of its species.

The other little Heath referred to, E. cinerea coccinea, is an old variety, but its great merits are not yet so fully appreciated as they deserve to be. This is the dwarfest of the E. cinerea or Bell-Heathers, a class seldom attaining more than six inches in height with a spread of a foot or more. In this miniature, again, the foliage is an unusually dark green, and the flowers are a full-toned crimson, approaching a blood-red. There is not so much as a hint of the ancestral blue-purple in the colour of these blossoms. As a matter of fact, they often show more than a trace of scarlet, especially just before fading, this suggesting the presence of yellow or orange, a hue seldom seen in the Ericas.

Both of the above Heaths are easily grown in any light loam with full sun. This should, for preference, be without lime, but they have been grown in calcareous soils with considerable success. They are extremely useful little plants for really dry banks or rock-garden ledges, where the soil is thin and poor. Once they are established, propagation becomes a simple matter, consisting merely of detaching such of their lower branches as have rooted into the ground. *A. T. J.*

DAPHNE DAUPHINII.

No other shrub grown here may be relied upon to flower with such unfailing punctuality as Daphne Dauphinii. Apparently indifferent as to what the weather has been, or is, it always breaks into blossom in November's first week and draws attention to the fact by filling the air about it with its delicious fragrance.

This little evergreen is believed to be a hybrid between D. odora and D. collina, and a specimen many years old has not yet much exceeded three feet in height and width. The narrowly-oval, glossy, leathery leaves are two inches to three inches long, and the tubular flowers, borne in terminal clusters, are a rich purple. Although these first appear in early November, they are maintained, more or less, until early spring. I have never known this shrub to suffer from frost here, but the specimen alluded to is growing in a meagre, gritty soil, well-drained. *J., N. Wales.*

HARDY FLOWER BORDER.

CATANANCHE COERULEA.

The old Blue Cupidone, which has been cultivated in our gardens since 1596, is not so often seen as it might be, for, sentiment apart, it is a very easily-grown plant, with a long flowering season and a quaint charm of its own.

Catananche coerulea, is a native of southern Europe, but is perfectly hardy in a free, dry soil, and the more meagre its diet the better it seems to thrive. To drought, even when growing in the hottest and stoniest of ground, it seems indifferent. Making a low, grassy tuft of very narrow, silky leaves, C. coerulea produces a sheaf of flower stems two feet high, each of which terminates in a silvery, chaffy calyx and a many-rayed blossom of a rich lavender-blue, darkening to almost indigo at the centre. A succession of these blooms is maintained practically all the summer, and they are not less delightful as cut flowers than they are in the border., There is a white variety, an attractive plant the flowers retaining the deep blue eye. *J.*

ORCHID NOTES AND GLEANINGS.

LAELIA PUMILA.

The attractive, dwarf-growing Laelia pumila and its varieties give a handsome display of flowers in the autumn on their partly developed growths. Where these Laelias have been grown under cool condition during the summer, the plants should benefit now by removal to a light position near the roof-glass of an intermediate house. After the flowers are removed the roots require moist conditions until the small bulbs are matured, after which less water should suffice, although the plants should on no account be subjected to long periods of drought.

Scale insects often attack these Orchids and should be removed by careful sponging so soon as detected, for they increase rapidly and quickly disfigure the plants. *W. G.*

ALPINE GARDEN.

DRYAS OCTOPETALA.

To see the Mountain Avens, Dryas octopetala, at its best, we must not be satisfied with a small plant, charming although it may be, but must view a large one, which has spread into a carpet a few feet across. Then no one may pass it without keen admiration of its lovely Oak-like foliage and its wealth of white flowers, not inaptly likened to those of the Dog Rose. A plant such as this, trailing over the brow of a rock garden or stone, is a sight which one may remember while life lasts, bringing with it much joy. The writer has seen many such plants.

D. octopetala is neither new nor rare, and it is but rarely that one meets with such fine plants in the ordinary rock garden, some people having the impression that it should be cut back annually. Sometimes this restraining means is taken to prevent the Dryas from smothering other plants, but it would be better far to remove the others than to inflict this draconian treatment upon the Mountain Avens. It has a decided preference for lime, and I have known plants which were disappointingly shy of flowering induced to give a rich profusion of blooms after an annual dressing of lime or old mortar, well worked into the plant in autumn. *S. Arnott.*

ARENARIA PURPURASCENS.

THIS species is distinct in a family which boasts such magnificent alpine subjects as A. montana and A. balearica, both indispensable for the draping and clothing of rocks in the alpine garden, or retaining walls.

For the moraine it is ideal, and under the conditions afforded by the moraine, where it may obtain a cool, deep run, it flourishes; or it may be planted on a warm ledge in loamy soil to which has been added an abundance of chips and small pieces of rock. Under such conditions it forms close masses of slender growths, clothed with small, oval, glossy-green leaves, the shoots spreading both above and beneath the soil and producing roots along their lengths. These carpets are practically covered during July with lovely little flowers, practically sessile, and of a delightful shade of pale rosy-lilac.

When happy, A. purpurascens spreads fairly rapidly, finally forming a rounded carpet one foot or eighteen inches across; it is not difficult to establish it if young specimens are planted, but it is practically hopeless to endeavour to lift and re-establish old plants. Seeds are generally produced freely and are useful for purposes of increase; rooted portions may be removed from the parent plant and potted into sixty-sized or smaller pots, to be planted out when established, while another method of propagating this subject is by rooting cuttings in a sand bed in a cold frame during the summer, potting them when rooted, and keeping them in these pots, either in a cold frame or a protected position, for the first winter, and planting them out in the spring.

ARABIS AUBRIETIOIDES.

It is many years since I commenced to grow this species from the Cilician Alps, and I have never yet found it to come quite up to expectations, and have come to the conclusion that it is a plant of poor constitution, often fading into oblivion during the winter after a half-hearted attempt to blossom in the previous early summer. True, its purplish flowers are singularly attractive, and when it condescends to grow it forms nice mats of greyish-green tufts of foliage, but the patches soon become bedraggled, and the result is far from satisfactory. Wetness seems to be the cause of its failure, together with slugs, which seem to be particularly fond of it, quickly playing havoc with it before their presence is detected, so that I have now adopted the method of always keeping a few plants growing in small pots from cuttings each year.

It would be of interest to hear of other alpine plant growers' experiences; personally, I have been continually disappointed in A. aubrietioides.

I have tried it in a variety of positions—hot, sunny crevices, ledges, cool rocks (where it was quickly found by slugs), and the moraine—the best results being obtained in the last-named, on the margin of it, where the plants had the protection and partial shade of the marginal rocks, but then, in my opinion, it is not worthy of the moraine, and its place has since been filled with more interesting subjects.

Incidentally, I have found a good substitute for this subject in Arabis Taplow Rose, a first-class rock garden plant of sound constitution and very floriferous. *M. W.*

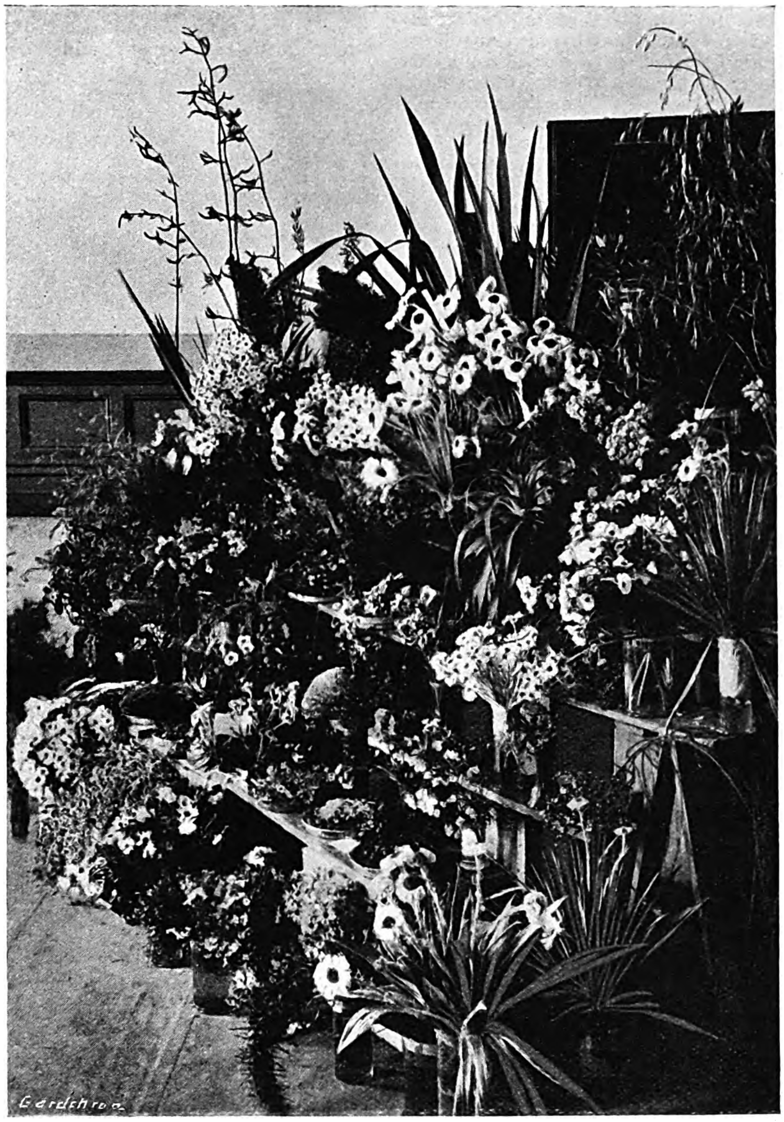

FIG. 182.—A NEW ZEALAND FLOWER SHOW.
This view illustrates Phormium Colensoi, Celmisias, Senecio scorzoneroides, Ourisias, Euphrasias, Craspedias, etc.
(see p. 388.)

PLANTS NEW OR NOTEWORTHY.

SCHIZOPHRAGMA INTEGRIFOLIA.

THIS is one of the many fine plants first discovered in China by the French missionary and collector, the Abbé David, and first introduced to cultivation by Mr. E. H. Wilson. David found it near Moupine, in western Hupeh, about 1869, and Wilson found it subsequently in the adjoining province of Szechuan.

It is a vigorous climber, growing fifteen feet or more high, and is closely related to the Hydrangeas, attaching itself to its support by aerial roots in the same way that H. petiolaris does. The leaves are deciduous, broadly ovate, taper-pointed, and either truncate or slightly heart-shaped at the base; they measure four to six inches in length, two to four inches in width. The inflorescence is produced in summer in the form of a flattish, terminal panicle up to nine or ten inches wide, the individual fertile flowers being small (scarcely a quarter-of-an-inch wide), creamy-white, their most conspicuous feature being the stamens. The great attraction of the panicle is a creamy-white, leaf-like development of a sepal of the sterile flowers which terminates each branch of the inflorescence and varies in size, but is, at its finest, three inches long and one-and-a-half inch wide, and of ovate to ovate-lanceolate outline. In the related genus, Hydrangea, three or four sepals of the barren flowers develop in this way (although they are never anything like so large) and this constitutes the most evident distinction between the two genera.

Another species of Schizophragma (S. hydrangeoides), native of Japan has been in cultivation longer, but it has scarcely the remarkable beauty of integrifolia.

The illustration (Fig. 184) is from a photograph of a plant grown by Mr. P. D. Williams, at Lanarth, in Cornwall. Although hardy enough to survive the winters in the open ground at Kew, I think this plant is happier in the warmer counties. I have seen it very good in Sussex gardens; in colder localities it should be given a place against a wall. *W. J. Bean.*

A NEW ZEALAND FLOWER SHOW.

During my visit to New Zealand, on the invitation of the Government, in January and February of this year, I was greatly honoured by the New Zealand Institute of Horticulture, which arranged a special Flower Show of New Zealand plants at the civic reception which was accorded to me at Wellington. I feel sure that the following list of some 450 plants, which were exhibited on that occasion, will be of interest to gardeners in Great Britain.

At the reception, the President of the Institute delivered a short speech of welcome, and the Mayor of Wellington accorded me a civic reception. Three Ministers of the Crown were present, Mr. O. J. Hawken, Mr. R. A. Wright and Mr. F. J. Rolleston. Mr. Hawken also made a speech to which I replied and recorded my most grateful thanks for the opportunity which had been afforded me of seeing the wonderful collection of plants which had been got together for my delectation.

Dr. L. Cockayne, F.R.S., who is Honorary Botanist to the Institute, then delivered a short lecture and showed a number of fine lantern slides illustrating the use of the New Zealand plants for garden purposes. He also showed slides of some of the plant communities, and of the country from where the alpine plants had been collected, and also examples of the remarkable series of hybrids which are so striking a feature of the New Zealand flora.

At the reception there were some five hundred to six hundred people present, all of whom showed the keenest interest in the remarkable display of plants which had been got together. The list of species, hybrids, etc., given below has been sent to me by Dr. Cockayne, and shows the activity which had been displayed by Officers of the Fields Division of the Department of Agriculture in collecting specimens from the high mountains of the South and North Islands. In all, some 250 different plants were collected by these officers and exhibited at Wellington (see Figs. 180, 182 and 183).

The remarkable feature about the New Zealand alpine plants is that the flowers in nearly all cases are pure white, and the scene on the summit of one of the New Zealand mountains which I had the good fortune to visit, on the west coast of the South Island, is of remarkable interest and in very striking contrast to anything that may be seen on the mountains of Switzerland.

In addition to the collection of native plants in flower, a fine series of some two hundred plants was exhibited by Messrs. T. Waugh and Son, of Wellington, which added very greatly to the interest of the show.

In addition to these two remarkable exhibits, there was also an interesting group of garden exotics shown by the Wellington Botanic Garden, of which Mr. J. G. Mackenzie, N.D.H., is the Curator, as well as several interesting exhibits by members of the Wellington Horticultural Society. A fine exhibit of Pansies was also displayed, as well as other plants of horticultural interest. *Arthur W. Hill, Kew.*

New Zealand Plants.

List of species, hybrids, etc., shown—mostly in flower—at the Reception in the Concert Chamber of the Town Hall, Wellington, New Zealand, given to Dr. A. W. Hill, C.M.G., F.R.S., Director of the Royal Botanic Gardens, Kew, by the New Zealand Institute of Horticulture, January 25, 1928.

(A.) Subalpine and alpine plants, mostly collected on Arthur's Pass and the neighbouring mountains (at an altitude of 3,000 to 6,000 feet) by several officers of the Fields Division of the New Zealand Department of Agriculture, under the leadership of Mr. A. H. Cockayne, Director of the Fields Division and of the Plant Research Station (Palmerston North). The collecting took place on Saturday, January 21; Sunday, January 22; Monday, January 23, and Tuesday, January 24. The plants and flowers were packed in about forty fruit-cases, railed to Lyttleton, and shipped to Wellington. For exhibition, the plants (mostly in flower) were placed in glass jars of various sizes, and the flowers (when in quantity) in large bowls. Each exhibit was labelled with its botanical name.

(B.) In addition to the Arthur's Pass collection, another expedition brought a number of plants from the Tararua mountains (North Island), these are marked †.

Species of special garden merit are marked with an asterisk *.

Filices.—Blechnum penna marina *

Lycopodiaceae.—Lycopodium fastigiatum.*

Podocarpaceae.—Podocarpus nivalis*; Dacrydium biforme, D. Bidwillii, D. laxifolium,* and Phyllocladus alpinus.

Gramineae — Microlaena (Ehrharta) Colensoi; Hierochloe Fraseri; Deyeuxia (Agrostis) pilosa; Danthonia Cunninghamii*, D. Raoulii var. rubra, Ckn., ined., D. R. var. flavescens, and × var. rubra; Poa caespitosa, P. Cockayniana, and P. novae-zealandiae; and Festuca novae-zealandiae (tussock).

Cyperaceae. — Carpha alpina; Oreobolus pectinatus, a very interesting cushion plant*; Uncinia fusco-vaginata, U. divaricata; and Carex Gaudichaudiana.

Centrolepidaceae.—Gaimardia setacea (brownish, mossy cushion); and G. ciliata (green, mossy cushion).

Juncaceae.—Luzula, species or varieties of the campestris group.

Liliaceae.—Enargea parviflora*, Astelia linearis (turf), A. Cockaynei*, A. Petriei*, Phormium Colensoi*, and Chrysobactron Hookeri*.

Iridaceae.—Libertia pulchella*.

Orchidaceae.—Prasophyllum Colensoi*, Lyperanthus antarcticus*, Caladenia bifolia*, and C. Lyallii†.

Fagaceae. — Nothofagus cliffortioides*, N. Menziesii*, and N. fusca*. Shown in foliage only; the hybrids among the Nothofagus are among the remarkable features of the New Zealand flora.

Loranthaceae.—Elytranthe flavida, E. tetrapetala. Parasitic on Nothofagus. These were not in bloom, but the orange and scarlet flowers are a fine sight on the trees on the mountain sides.

Polygonaceae.—Muehlenbeckia axillaris*. This plant forms a wiry mat; it was exhibited in fruit.

Portulacaceae.—Claytonia australasica*, a mat plant.

Caryophyllaceae. — Colobanthus crassifolius, forms a very small cushion; Hectorella caespitosa, grows in the form of a dense cushion; and Scleranthus biflorus, a lax, yellowish cushion.

Ranunculaceae.—Ranunculus Lyallii*. Flowers in quantity of this magnificent Buttercup, "the Mountain Lily," were shown, the peltate leaves in some cases being as large as a small cap; R. geraniifolius*, R. sericophyllus*, R. Sinclairii* and R. foliosus; Clematis australis*, and Caltha novae-zealandiae *

Winteraceae —Wintera colorata*, with handsome blotched leaves.

Cruciferae.—Cardamine*, one or more species were shown, some perhaps unnamed.

Droseraceae.—Drosera spathulata, D. stenopetala, and D. Arcturi.

Pittosporaceae.—Pittosporum divaricatum, one of the dense, divaricating life-forms, peculiar to New Zealand; and P. rigidum†.

Rosaceae.—Rubus schmidelioides var. coloratus, R. subpauperatus, R. Barkeri (R. australis var. glaber × parvus)†*, from the garden of L. Cockayne, one of the interesting hybrid Rubus found wild in the country; Geum parviflorum, G. uniflorum*, the foliage is of a bronzy colour and the flower large for the size of the plant; Acaena Sanguisorbae var. pilosa, A. inermis, A. microphylla*, and A. m. var. inermis†.

Leguminosae.—Carmichaelia uniflora*, C. grandiflora*, C. australis var. Egmontiana, from the garden of L. Cockayne; C. odorata†; and Notospartium torulosum*, from the garden of L. Cockayne.

Geraniaceae.—Geranium microphyllum, and G. sessiliflorum var. glabrum.

Oxalidaceae.—Oxalis lactea*.

Coriariaceae.—Coriaria sarmentosa, C. luridax × sarmentosa*, C. angustissima*, with feathery foliage; C. angustifolia × luridax*, C. angustifolia × sarmentosa; these all are handsome, with black, juicy fruits in profusion. Polymorphic hybrids abound, in which probably the three species are frequently concerned. They may be increased rapidly by vegetative propagation.

Rhamnaceae.— Discaria Toumatou.

Elaeocarpaceae.—Aristotelia fruticosa, A. fruticosa × serrata, and A. serrata.

Malvaceae.—Hoheria glabrata*.

Violaceae.—Viola filicaulis*, V. Cunninghamii*; and Hymenanthera alpina, a rigid, open, divaricating cushion shrub.

Thymelaeaceae.—Pimelea Gnidia*†, P. prostrata, P. pseudo-Lyallii; Diapetes Deffenbachii*, and D. villosa*.

Myrtaceae.—Leptospermum scoparium, a prostrate epharmone; Metrosideros lucida*, Myrtus pedunculata*†.

Onagraceae.—Epilobium pubens, E. tasmanicum, E. chloraefolium*, E. rubromarginatum*, E. melanocaulon*, E. microphyllum*, E. glabellum*, E. nummulariifolia var. brunnescens, and hybrids which are numerous between the various species in this genus.

Halorageae.—Gunnera albocarpa, and G. dentata. The fruits are red and form a spike like that of a flowering spike of the Grape Hyacinth.

Araliaceae.—Nothopanax simplex, N. Colensoi var. montanum; and Pseudopanax lineare.

Umbelliferae.—Aciphylla maxima*, A. conspicua*, A. crenulata*, A. similis*; Anisotome aromatica, A. Haastii, A. pilifera; and Angelica montana.

Cornaceae.—Griselinia littoralis.

Ericaceae.—Gaultheria antipoda var. erecta*†, G. depressa*, and G. rupestris*. This is a genus displaying a remarkable range of hybrids. All the New Zealand Ericaceae and Epacridaceae, excepting Dracophyllum, would be charming plants for a rock garden.

Epacridaceae. — Pentachondra pumila*; Cyathodes acerosa*, C. empetrifolia*, C. Colensoi*†, C. pumila; Leucopogon Fraseri. Archeria Traversii; Dracophyllum Traversii, D. longifolium, D. Lessonianum, and D. Kirkii*.

Myrsinaceae. — Suttonia divaricata, and S. nummularia*.

Gentianaceae.—Gentiana bellidifolia*, a very beautiful Gentian with large, pure-white flowers; and G. patula*.

Borraginaceae.—Myosotis explanata*, large, white flowers; M. Fosteri, M. Astoni*†, and M. macrantha*, with bronzy-coloured flowers.

Scrophulariaceae.—Mazus radicans*; Hebe (Veronica) salicifolia var. communis, H. vernicosa var. canterburiensis*, H. buxifolia, H. b. var. paucibrachiata, H. macrocalyx*, H. subalpina, H. macrantha*; the flowers of this high alpine species are pure white, and as large as those of a small Azalea; H. evenosa†, H. Astoni*†; Veronica Lyallii*, V. Bidwillii*, V. diffusa*†; Ourisia macrocarpa var. calycina*, O. macrophylla*†, O. lactea, ined.*, O. sessilifolia*. O. s. var. splendens*, ined., O. Cockayniana*, O. caespitosa*; Euphrasia tricolor†*, E. cuneata*†, E. Monroi*, E. revoluta, E. zealandica, E. Cockayniana and E. Cockayniana × E. zealandica.

Lentibulariaceae.—Utricularia monanthos*.

Plantaginaceae. — Plantago Brownii, and P. lanigera.

Rubiaceae.—Coprosma serrulata*, C. repens*; and Nertera depressa*.

Campanulaceae.—Pratia angulata*, P. macrodon*; Wahlenbergia albomarginata*; probably more than one species was included in the exhibit.

Stylidiaceae.—Phyllachne Colensoi*; Forstera tenella*, F. Bidwillii*, and F. sedifolia*.

Donatiaceae.—Donatia novae-zelandiae*.

Compositae.—Lagenophera petiolata; Pachystegia insignis* (this was a cultivated plant); Olearia Colensoi†, O. arborescens*, O. a. × ilicifolia*, O. a. × lacunosa*, O. ilicifolia*, O. ilicifolia × lacunosa*†, O. nummularifolia*, O. cymbifolia*, O. c. × nummularifolia*, O. avicenniaefolia*, O. a. × nummularifolia*; Celmisia Walkeri,* C. discolor*, C. Du Rietzii, ined.*, C. Haastii, C. hieracifolia*†, C. oblonga*†, C. petiolata × spectabilis*, C. spectabilis*, C. viscosa*, C. coriacea × Armstrongii*, C.

Armstrongii*, C. longifolia, C. sessiliflora*, C. s. × longifolia*, C. bellidioides*, C. glandulosa var. vera*; Haastia Sinclairii*; Gnaphalium Traversii, G. keriense*†; Raoulia subulata*, R. rubra†, R. grandiflora*, R. australis*, R. tenuicaulis*, R. Haastii*, a large, green cushion; Leucogenes Leontopodium*†, the New Zealand "Edelweiss"; L. grandiceps*; Helichrysum bellidioides*, H. alpinum, Ckn.* †, ined. in *Veg. of N.Z.*, ed. 2; H. Selago, the North Island relative of H. bellidioides, but a finer plant for the garden; Cassinia Vauvilliersii*, C. albida var. canescens*, a cultivated specimen; Craspedia major*, C. minor; Cotula pyrethrifolia*, C. squalida; Abrotanella linearis; Senecio bellidioides, S. b. var. angustatus, S. Lyallii, S. Lyallii × scorzoneroides*, S. scorzoneroides*; this, with its pure white flowers, is one of the most beautiful of the high alpine plants in New Zealand; S. Adamsii*†, S. elaeagnifolius*, S. Buchanani*†, S. Bidwillii*†, S. B. var. viridis*; and Taraxacum magellanicum.

An excellent and well-grown collection in pots was shown by Messrs. T. Waugh and Son, Wellington, consisting largely of young trees and shrubs, but as they were without flowers, the collection was less attractive than that consisting of high-mountain plants. But the two collections, taken together, made undoubtedly by far the most representative collection of the New Zealand flora ever exhibited. The following is a list of the species arranged under their Natural Families.

Araucariaceae.—Agathis australis.

Cupressaceae.—Libocedrus plumosa, and L. Bidwillii.

Podocarpaceae.—Podocarpus spicatus, P. dacrydioides, P. totara, P. nivalis, P. ferrugineus*; Phyllocladus alpinus, P. glaucus, P. trichomanoides; and Dacrydium cupressinum.

Palmae.—Rhopalostylis sapida.

Orchidaceae. — Dendrobium Cunninghamii; and Earina autumnale.

Liliaceae.—Cordyline australis, C. Banksii; Arthropodium cirrhatum*; Dianella intermedia*; Phormium tenax*, P. t. variegata, P. t. purple-leaved, P. Colensoi*, and P. C. variegated.

Piperaceae.—Macropiper excelsum.

Fagaceae.—Nothofagus Menziesii, N. fusca, N. truncata, N. cliffortioides, and N. Solandri.

Proteaceae.—Persoonia Toru†, a beautiful flowering tree; Knightia excelsa; Wintera axillaris, and W. colorata.

Monimiaceae.—Hedycarya arborea; and Laurelia novae-zealandiae.

Lauraceae.— Beilschmiedia Tawa, B. Tarairi; and Litsaea calicaris*, a fine foliage tree.

Saxifragaceae.—Quintinia serrata; and Carpodetus serratus.

Pittosporaceae.—Pittosporum tenuifolium (in several forms), P. t. variegated, P. crassifolium, P. Ralphii, P. eugenioides, P. e. variegated var., and P. Buchanani — so labelled, but no one in New Zealand knows this species.

Cunoniaceae.—Weinmannia racemosa, and W. sylvicola.

Leguminosae.—Carmichaelia australis, C. odorata*; Chordospartium Stevensonii*; and Notospartium Carmichaeliae*.

Rutaceae.—Melicope simplex, M. ternata M. t. × simplex; and Phebalium nudum.

Corynocarpaceae.—Corynocarpus laevigata.

Icacinaceae.—Pennantia corymbosa.

Sapindaceae.—Alectryon excelsum; and Dodonaea viscosa.

Rhamnaceae.—Pomaderris elliptica*, very good when in flower; and P. apetala.

Elaeocarpaceae.—Elaeocarpus dentatus, E. Hookerianus; and Aristotelia serrata.

Tiliaceae.—Entelea arborescens.

Malvaceae.—Plagianthus betulinus; Hoheria glabrata*, H. populnea*, H. sexstylosa*, and H. angustifolia*.

Violaceae.—Melicytus ramiflorus, M. lanceolatus; Hymenanthera chathamica, and H. dentata var. angustifolia.

Thymelaeaceae.—Pimelea longifolia*, and P. virgata.

Myrtaceae.—Leptospermum scoparium*, L. s. var. Chapmani*, L. s. Nichollii*, L. s. ericoides*; Metrosideros lucida, M. robusta, M. carminea (diffusa)*, beautiful when in flower; M. tomentosa; Myrtus bullata*, M. bullata × obcordata, several forms (a very remarkable series of hybrids may be gathered between these two species growing wild); M. obcordata, M. pedunculata; and Eugenia Maire.

Onagraceae.—Fuchsia excorticata, F. e. purple-leaved; F. excorticata × perscandens, and F. procumbens*.

Araliaceae.—Nothopanax arboreum, N. Colensoi, N. simplex, N. Edgerleyi; Meryta Sinclairii*, fine foliage of tropical appearance; Schefflera digitata; Pseudopanax crassifolium var. unifoliolatum, P. c. chathamicum, P. c. Lessonii, and P. c. discolor.

Passifloraceae. — Tetrapathaea tetrandra*, beautiful in flower and glossy leaf.

Cornaceae.—Griselinia lucida, G. littoralis, G. l. variegated; Corokia buddleoides, C. macrocarpa, and C. Cotoneaster.

Ericaceae.—Gaultheria oppositifolia*, beautiful with its racemes of white flowers; and G. rupestris.

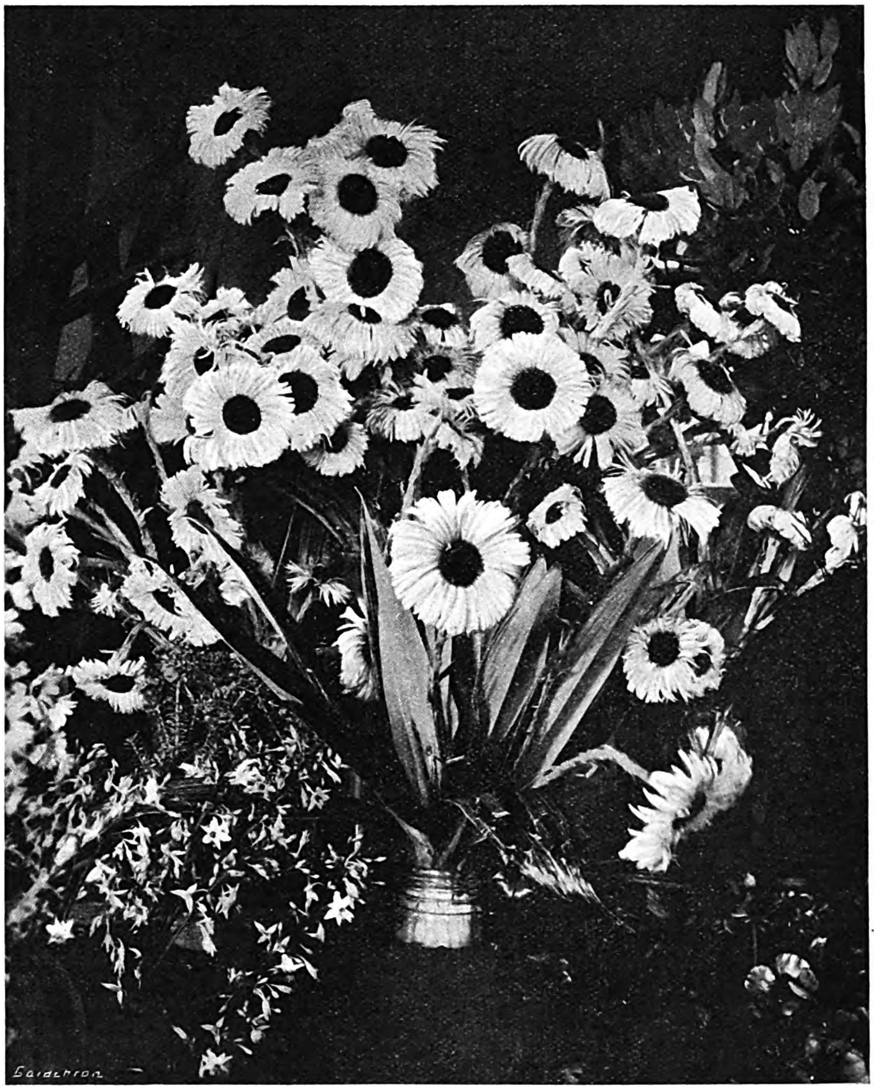

FIG. 183.—A NEW ZEALAND FLOWER SHOW: CELMISIA SPECTABILIS.

Epacridaceae.—Dracophyllum strictum*, D. longifolium; Cyathodes acerosa, and C. robusta.

Myrsinaceae. — Suttonia australis, and S. salicina.

Oleaceae.—Olea Cunninghamii, O. lanceolata, and O. montana.

Loganiaceae.—Geniostoma ligustrifolium.

Boraginaceae. — Myosotidium Hortensia (nobile)*.

Verbenaceae.—Vitex lucens.

Solanaceae.—Solanum aviculare.

Scrophulariaceae.—Hebe (Veronica) speciosa*, H. Dieffenbachii, H. Barkeri (this species has been rejected by Ckn. and Allan as there is no proof of its being found wild), H. Cookiana, H. salicifolia, one or more of its many forms; H. × (?) rotundata, only known as a garden plant; H. × Lewisii (= elliptica × salicifolia), H. chathamica*, H. parviflora, H. diosmaefolia*, H. elliptica*, H. Matthewsii*, this is only known as a garden plant; H. vernicosa*, H. buxifolia, H. anomala, H. decumbens; various hybrids with H. pinguifolia, H. montana, H. Traversii and H. leiophylla as parents; H. amplexicaulis, H. Buchanani, H. pimeleoides var. rupestris*, H. p. glaucocoerulea*, H. Hectori*, H. lycopodioides*, H. propinqua*, H. Armstrongii*, H. cupressoides*, H. Hulkeana*, H. H. var. Fairfieldii*; Veronica Lyallii*, V. diffusa*, V. cataractae*.

Myoporaceae.—Myoporum laetum.

Rubiaceae.—Coprosma grandifolia, C. lucida, C. retusa (Baueri), C. r. variegated form, C. robusta, C. rotundifolia, and C. parviflora.

Campanulaceae. — Colensoa physaloides*; and Pratia angulata*.

Compositae.—Olearia Traversii, O. furfuracea, O. arborescens*, O. a. × ilicifolia† (macrodonta in part), O. ilicifolia*, O. rani (Cunninghamii), O. oleifolia (= in part, O. avicenniaefolia × madeola), O. nummularifolia, O. cymbifolia, O. lineata*; Shawia paniculata (by maintaining this genus and excluding Olearia proper the latter is saved !); Helichrysum glomeratum; Cassinia fulvida, C. leptophylla, C. Vauvilliersii; Brachyglottis Rangiora*, B. repanda*; Senecio perdicioides*, S. Huntii*, S. Greyii*, S. compactus*, S. Monroi*, S. elaeagnifolius*, S. Buchanani*, S. × Crustii*, S. rotundifolius*, and S. Bidwillii.

Making a total of two hundred, counting several hybrid Hebes or Veronicas.

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PLANT HISTORY IN NOMENCLATURE.

The Rival Queens: The Rose.

(*Continued from p.* 370).

OUR shortest, simplest words and terms are often the most difficult to explain. They resemble coins which have been so long in circulation that date, legend, inscription and effigy have all been worn away, and yet they remain current because the metal is good and they are of great value. It is so with the word Rose. It is now reduced to a single syllable, although in its botanical form it is dissyllabic—Rosa. The etymology and history of the word have been discussed often, but we must go over the ground again, both in order to correct some errors which still exist, and also to show how completely the Rose has rooted itself in western floriculture, thought, history, religion and literature. Take out from these all allusions to the Queen of Flowers and you leave them insipid and impoverished.

More than half-a-century ago, the late Professor Max Müller consulted a great linguist respecting certain perplexing words. Lord Strangford replied (August 9, 1862): "The words you mention are all true Persian—*Ward* unquestionably so; but whether the old Persian presumed form *Ward* be the origin of the issue of the Greek *ῥόδον* (*rhodon*, 'Rose'), it is difficult to say, and perhaps is more for the botanist to settle than the philologist. *Gul* means flowers generally in modern Persian, *gul i surkh* being a Rose. *Sari*, another word for Rose, seems related to *surkh*, *Çukhra*, *thukra*."

In the foregoing words we have a summary of all that was known about the history of the word "Rose" at that time. Twenty years later (November, 4, 1882), a very instructive note on the subject appeared in *The Academy* (p. 331), with references which the student may find it profitable to consult, together with *The Gardeners' Chronicle* for July 1, 1876. I had occasion to go carefully into the subject when writing *Flowers and Flower Lore* (1884), and have ever since been constantly seeking to trace the stream to its fountain head. One question has always perplexed me. If the word *ward* is the original from which the Greek for Rose is derived, how is it that we have in Homer the "rosy-fingered dawn"? Had the Greeks and Persians been so long associated, or was their intercourse of such age-long intimacy, that there had been time for the original Persian *ward* to change into the Greek form *rhodon*? If the two words are originally the same—as undoubtedly they are—into what remote ages does the Rose carry us back! Since many words are the same in Arabic as in Persian, *ward* is frequently given as an Arabic name for the Rose. Here are the stages by which the original *ward* may have travelled until it arrived in England. In the Talmud the word *varad* occurs. It is not a Chaldee rendering of the Hebrew, as some writers state, but an interesting variation of the Arabic or Persian *ward*. The Greek language formerly had a letter which is spoken of by grammarians and philologists as the digamma, and may be represented by the letters f, v or w, according to the pronunciations current in different tongues. As there was no f, v or w in Greek, such foreign words as *ward* would have to be written with the digamma, and would have to receive a suitable termination. Since a Rose was regarded as a neuter thing, the word *ward* would become *wardon*, or *varadon*, *bordon*, *brodon* or *frodon*, or the like. We actually find *brodon* in one of the Greek dialects. When the digamma was lost the word would be aspirated, and so become *hrodon*, and when the aspirate disappeared, *rodon* would remain and give rise to *rosa* and *rose*. Such, in brief, and with as few technicalities as possible, is the history of the word.

It will now be seen why I stated that the west was the realm of the Rose. For some reason or other the Persian or Arabic name never travelled east. It struck root in Greece and the Mediterranean, it established itself in Rome, and thence spread into all those lands where the Roman languages were spoken. And not only is the word Rose found in Latin, as in Cicero, Virgil and Horace, and in the literatures of Spain and Portugal, Italy and France, but in the Teutonic languages as well, so that it is as familiar to Dane and Swede as it is to German and Saxon.

But how shall one condense all that the Rose means to these races, or deal with all the words to which it has given rise, and the historical, religious and literary associations with which it is linked? To take the word Rosary alone—its treatment in detail would fill a volume. Something has already been written on this subject,* and it must suffice to refer the interested reader to earlier issues of this journal. For the general folklore of the Rose, also, we must be content to refer to such writers as Folkard, de Gubernatis, Britten, Dyer, and the author's work on *Flowers and Flower Lore* already mentioned.

In the field of history we have our Wars of the Roses, and much other matter of interest. In other lands how much there is of historical and religious, of legendary and literary association—Pentecost, known as *Pascha rosata* or *Pâques de rose* from the ancient usage of the Popes of giving a golden Rose to the royal person who was regarded as most worthy on that occasion—or *Rusalija*, a term applied by the people of Servia and other neighbouring lands to the Spring Festival or the Feast of Roses, called *Rosalia* by the Romans. Then there is its use as a personal name, whether Christian or surname.

How much of interest, again, attaches to the attar of Roses, and the story of its first discovery, of Rose-water, and of the old conserve made of the fruits or hips, of which we may read in herbals and similar works. I can refer to only one other subject before passing away from the realm of our western Queen of Flowers to seek a fuller acquaintance with her rival.

Lord Strangford, in the passage quoted above, informs us that in modern Persian the term *gul* is applied to flowers in general, while a Rose is called *gul i surkh*. By the side of this remark I have made a note to the effect that in Ferrier's work on the Afghans (p. 233) is to be found the phrase *In Gulistan est* or "This is a garden of Roses." Gulistan is said to mean Rose-land, but perhaps it is the equivalent of the Chinese *Fa-kwok* (or *Hwa-kwoh* as the Mandarins used to say), meaning Flowery Kingdom. There is a Hindustani romance entitled *Gul o Sanaubar* (Rose et Cyprès), and the Rose is often celebrated in eastern poetry under this term. In Turkey the name for the Rose is *Ghul*.

In old books of heraldry we frequently meet with the word, spelt *gules*, and explained as meaning red. In heraldic engravings it is represented by perpendicular lines. The dictionaries used to tell us that it stood for "*Ghul*, which in the Persian language signifies a Rose, or rose-colour; the heraldic term having been, it was thought, imported from the east." If that were a true surmise it would be a pleasing one, for it would mean that Persia had made us a twofold contribution in connection with the Rose. I am afraid, however, that just as we have to give up the etymology of the Rose from the Latin *rota* (favoured by Dr. Prior) so we must give up that of *gules* from the Persian *gul*. Skeat tells us that the earlier form of the word *goules* corresponds with the French word for the throat and our own "gullet," answering to a Latin form *gula*; and that *gules* is probably from the colour of the open throat of the heraldic lion. Thus our studies result in a certain give and take. Some old theories have to be surrendered or modified, while new facts are constantly being brought to light. Here our brief study of the Rose and its influence on the vocabulary must come to a close, although many things might be added if we aimed at an exhaustive treatment of the theme. *Hilderic Friend.*

(*To be continued.*)

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* *The Gardeners' Chronicle*, May 12, 1928, p. 336, etc.

ST. KEVERNE.

THE more gardens one sees in this country, the more convinced does one become that there is to-day *no* English garden, in the sense that there is, for example, a Dutch garden, or an Italian garden, or even a Japanese garden. And the reason is this; the English always treat the formal in an abnormal way. For a garden is, in the nature of things, formal, just as a house is necessarily formal, and the awful tidiness of the English asserts itself to keep it trim. It is finite with quite definite, indeed provocative, boundaries; there are beds furnished with plants, paths for people, rules for rockwork, pools which neither dry up in time of drought, nor overflow in wet seasons, and streams which keep strictly to their courses. But although man makes the garden, nature makes the plants, and since a garden is only a garden by virtue of containing plants, the greater the variety of plants the less formal the garden. And so the English gardener, instead of rigidly cultivating a handful of native species, seeks them the world over, and plants alien trees, shrubs, bulbs, rock plants, everything indeed with colour, or form, or character, by the score and by the hundred. Thus, the Old English garden, or such of it as survived the Robinsonian revolution, has been decently interred beneath an ever-growing avalanche of "new and rare" plants. The Victorian gardener depended on geometrical figures and direct colour for his effects; his twentieth century successor shifts scenery and imports atmosphere, and his greatest delight is by means of undulating ground to unmask startling effects of colour or contrast to his dazed visitors.

And so to St. Keverne, through the magnificent pleached avenue which leads straight from the Cornish fells to the beautiful old house wrapped about with Roses and Wistaria, Clematis and Mimosa. In front of the house is a lawn, and a tumbling stream, and away to the right is the walled garden, in August hot with the lava reds and flame yellows of Kniphofias and Gladioli after these South Africans have passed through the hands of the improver.

No doubt the proper time to see St. Keverne as a spectacle is in the early spring, when the Rhododendrons and Daffodils are in bloom, or in early summer when the glow of hybrid Azaleas illuminates the whole garden. But the itinerant sightseer is compelled to write of a garden as it is momentarily presented to his gaze, during the course of its flight from the rising in spring to the setting in autumn; which is, perhaps, as well, lest he attempt too much. Nor may he hope to see every garden during its apogee.

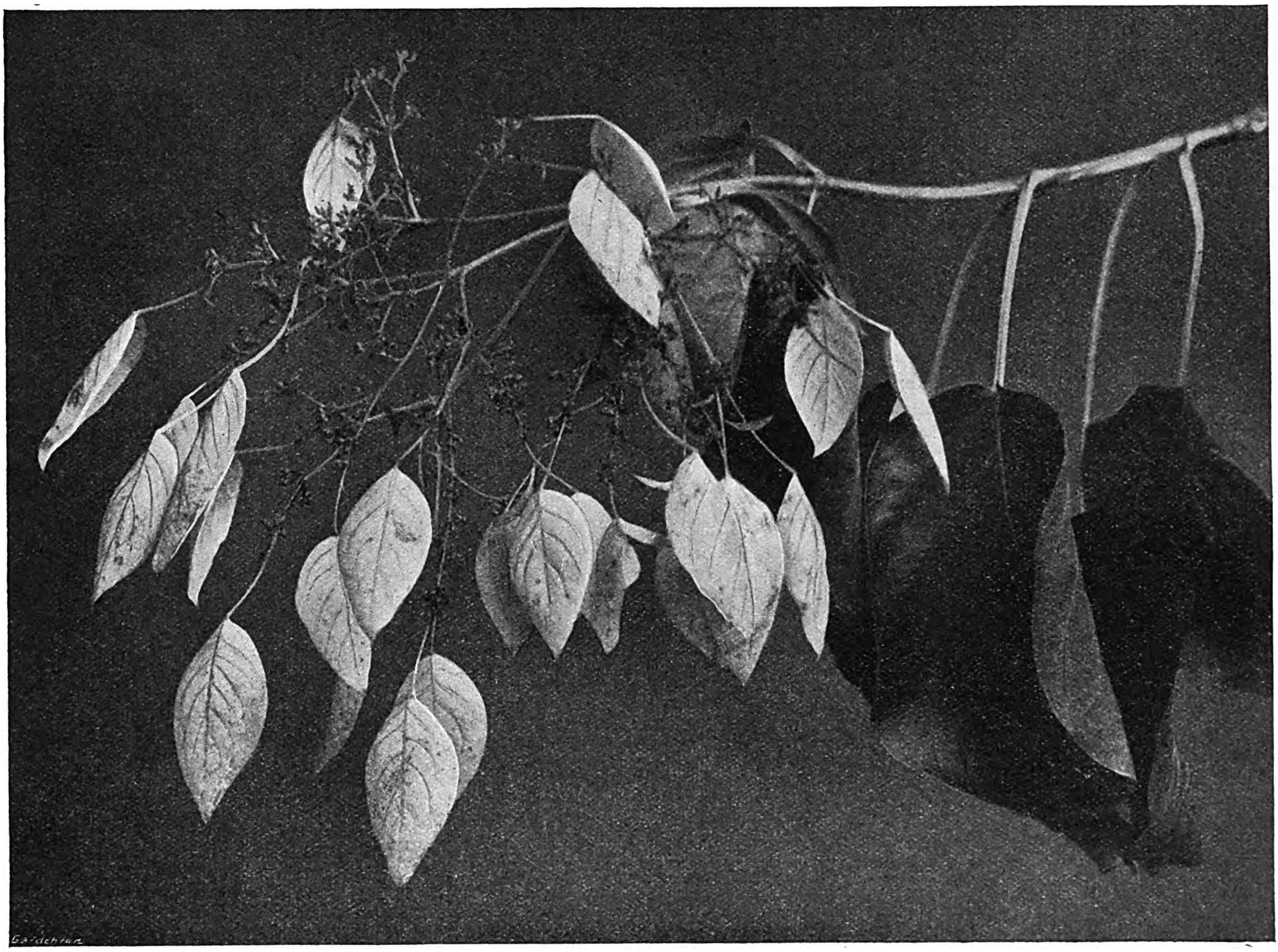


FIG. 184.—SCHIZOPHRAGMA INTEGRIFOLIA.
(see p. 392.)

Nevertheless, although August be not the season of maximum colour in Cornwall, there are quite enough plants in flower to brighten the modern garden, already so rich in form and foliage; and Cornish gardens, favoured above most, are at all times interesting. Let us therefore plunge straight into the garden proper, which contains many rare trees and shrubs. Among a great number and variety of Rhododendrons are the following: R. Maddeni, R. haematodes in bloom, R. neriiflorum in mass, R. arboreum of mature age and great girth; R. Ungernii and R. auriculatum, both in flower—the former has charming pink flowers, the latter is white; R. Davidsonianum, R. Beesianum, a large bush of R. adenopodum, R. Fargesii, the verdigris coloured R. aeruginosum, and R. camelliaeflorum, an uncommon and uncouth Sikkim species, here four feet high. Smaller species include R. Williamsianum, R. impeditum, R. hippophaeoides, R. cephalanthoides, R. racemosum, R. repens, the Japanese R. Schlippenbachii, and R. serpyllifolium; and there are several hybrids, such as Sir Charles Lemon, the Dutch Britannia, and St. Keverne, a fine variety raised locally; a bare list which does less than justice to the Rhododendrons.

A genus of north temperate trees famous for their splendid flowers—Magnolia—and a genus of south temperate trees noted for the beauty of their foliage—Nothofagus—are singularly well represented, each by the best species. Among the former, M. Campbellii and M. hypoleuca are trees thirty to forty feet high—the latter has a spread of fully thirty feet; M. Delavayi and M. Watsonii attain twenty-five feet (the former was in bloom), and M. Sargentiana attains twenty feet. Other species noted were M. macrophylla, M. tripetala, M. officinalis, M. glauca, M. Wilsonii (in fruit), M. Nicholsoniana, and M. grandiflora; nor do these exhaust the list.

Species of Nothofagus, some of which go largely to the making of the New Zealand forest, while others hail from the Chilian Andes, include N. Cunninghamii, with tiny, close-set leaves; N. fusca, which is one of the most handsome; N. cliffortioides, N. Dombeyi, fifteen feet high; N. Moorei, N. Menziesii, noted for its striped bark; N. obliqua, another outstanding species where all are handsome; and N. antarctica, which has attained the dimensions of a tree, small perhaps, when compared with specimens in the Antipodes, but probably as large as any in this country. The Hollies are a vast genus and contain a number of useful species, several of which, and those not the least out-of-the-way, are represented: Ilex corylina, for instance, and the Indian I. dipyrena; while I. insignis reaches thirty feet high.

Among evergreens the Pittosporums, too, rank high, as anyone who saw the fifty-foot silver-grey pillar of P. tenuifolium would admit; P. eugenioides with large, polished, green leaves, violet-ribbed, runs it close.

Of the white-flowered Styrax and Osmanthus, there are good specimens of S. Wilsonii, S. Fargesii, S. moupinense and S. Hemsleyana; and a big, solid-looking bush of O. Delavayi, sometimes reckoned the best shrub which ever came out of China, is, in full bloom, a miracle of beauty.

Summer-flowering trees and shrubs come mostly from the southern hemisphere, and are well represented here. Of Eucryphias alone five species are seen, for, besides the familiar E. pinnatifolia and E. cordata, now in bloom, there are smaller specimens of E. Moorei, E. Milliganii, with very small leaves, white beneath, and last, but first in charm, the dainty E. Billardieri, with small but exquisite, milk-white flowers jewelled with coral-pink anthers. It is twelve or fourteen feet high, a fairy tree.

Some of the Olearias flower late, and a fine bush of O. oleifolia was a sheet of bloom. O Forsteri, another uncommon species, makes a bushy tree twenty feet high; Gaya (Plagianthus) Lyallii, and Hoheria populnea are other southern trees flowering in August, while the handsome Eupatorium micranthum, beloved of butterflies, is an immense globe of blossom.

Among a great variety of shrubs and trees introduced early in the present century by Wilson, and now growing up, are the following: Photinia Davidsonii, thirty feet high; Sorbus Wilsonii, fifteen feet high; Ribes longiracemosa, a large-leafed shrub five feet high, with fruiting racemes which attain eighteen inches; Rhus verniciflua, thirty-five feet high; Decaisnea Fargesii, twenty feet high; Cornus Wilsonii; Ligustrum Prattii; Populus sutchuenense, and P. lasiocarpa, a tree of fifty feet springing from a clump of Bamboos, and a remarkable sight in fruit. A grove of cinnamon-barked Myrtus apiculata, spangled with white flowers, is one of the most charming groups in the garden; the leaning trunks are not high, but they support a crown of shingled foliage whose sombre green, relieved by the starlight of flowers, is in keen contrast to their own ruddy complexion.

If one tries to picture England only a hundred years ago, one must admit that in winter at any rate, it probably looked glum. Our native trees are practically all deciduous, and by Christmas there is not much colour left, except Holly and Mistleto. The coming of the alien evergreen has changed all that, and a warming glow has been added by berried shrubs. St. Keverne in winter must, indeed, merely exchange the airy colours of spring for the more opaque splendour of clustered fruits and glaucous foliage. In this effort, Cotoneaster and Berberis take high rank, and these include a fine bush of Berberis verruculosa, and a still larger mass of B. Knightii, both with polished leaves; Cotoneaster rotundifolia, with big bunches of red berries, C. rugosa var. Henryi and C. serotina. The Viburnums also supply winter colour and V. Harryanum, V. rhytidophyllum and V. cylindricum may be mentioned.

St. Keverne is rich in uncommon shrubs and trees. There are, for example, Itea ilicifolia and I. yunnanense, hung all over with catkins of white flowers; Deutzia taiwanensis, ten feet high; Lomatia ferruginea, a handsome foliage plant; Enkianthus quinqueflorus; Trocodendron aralioides, a queer exotic-looking shrub; Pterostyrax hispida, in fine fruit; and a large neat bush of Metrosideros lucida, a plant rarely seen in this country because it is hardy nowhere but in Cornwall.

Massive colour is supplied by Hydrangeas, of which there are many in considerable variety, some being a very fine blue; H. aspera is a fine species with big furry leaves and violet flowers. Nor are these the only bushes in bloom, more colour being supplied by Bursaria, Calistemon (scarlet), Aesculus Buckii, tree Fuchsias such as F. excorticata, Abelia floribunda and Veronicas. Of course, trees like Drimys Winteri here *are* trees, one specimen being fifty feet high; Gordonia anomala, an evergreen, attains twenty feet; Cornus capitata, supporting fountains of Lonicera Charlotii, thirty feet; Tilia Olivieri, twenty-five feet; Acer nikoense, which colours brilliantly, forty feet; Aralia Maximowiczii, thirty feet; Davidia involucrata, forty feet; and Podocarpus chilina, forty feet. Nor are any of these exactly everybody's plants.

There are beautiful specimens of Hoheria populnea, Cupressus cashmeriana, Leptospermum scoparium var. Nichollii, Pieris taiwanensis, Hamamelis mollis, and H. japonica var. Zuccariniana, Carpinus quercifolia, and Sorbus cuspidata, which has huge leaves, silvery beneath.

Among the largest trees are Cupressus macrocarpa, Quercus Ilex, Pines, Firs, and so on; there are also some magnificent clumps of Bamboo, such as Bambusa heterocycla (with bottle-green stems), and Phyllostachys pilea. An almost endless succession of striking or beautiful trees and shrubs, most of them rare, none of them common, greets the stranger, who, indeed, must be satisfied with little more than a bare list of names! The genial owner of St. Keverne, Mr. P. D. Williams, has achieved fame as a breeder of Daffodils, and is known also as the discoverer of the richly-coloured Heath now called St. Keverne, or Kevernensis; it is not so generally recognised, however, that he is the owner of one of the finest collections of trees and shrubs in Cornwall, that home of botanical marvels. Nor is it possible to mention more than a selection of those cultivated; and this brief sketch may fitly conclude with one more list, which includes good specimens of the following, drawn from all parts of the temperate world:—Stuartia sinense, Rhodoleia Championi, Fagus rotundifolia, Panax arborea, Lomatia obliqua, Carrieria calycina, Acer rufinerve, Athrotaxis selaginioides, Camellia reticulata, Laurus madarensis, Azalea arborescens, Juniperus squamata var. Fargesii, Cupressus Lawsoniana var. intertexta, Prunus pilosiuscula, Fothergilla major, Podocarpus nubigensis, Embothrium longifolium, Schizophragma integrifolia (Fig. 184 and p. 387), and Aesculus indica. Nor do these represent mere ghost plants, perpetuated for the sake of the august names. All are sturdy, all pull their weight. No plant is kept at St. Keverne unless it will grow, and be a credit to its caste. Perhaps that is the dominant note in this Cornish garden—sincerity. *F. K. W.*

NOTES FROM A WELSH GARDEN.

Kniphofia Nelsonii, one of the smallest and daintiest of its genus, is also one of the latest and most brilliant. Its flaming rockets are almost a pure scarlet, brightened and intensified by a glow of gold; and not only are they narrowed and tapered with a touch of delicate refinement, but borne on very slender stems which are in keeping with their comparatively lowly stature of under eighteen inches. The dark green and glossy, grass-like foliage is also extremely narrow and elegant. This delightful plant has been adorning a somewhat high and dry position on a rock garden ledge since September, and its flowers will doubtless continue until the first frosts come along. K. Nelsonii, although seldom seen and not often included in the lists, is certainly one of the most charming of its race. It appears to be perfectly hardy and free flowering, but needs a warmer soil and sunnier position than most of its kind. K. Macowanii must be given second place among the latest of a small collection of dwarfs grown here. It does not exceed two feet in height, and while the glowing orange-scarlet flower-heads rival those of the above in brilliance, they are very much larger, oval in shape, and borne on rigid, somewhat heavy and clumsy stalks.

Saxifraga Fortunei, a Chinese member of the Diptera group, has been displaying its frail showers of white for the past month in a partly-shaded corner. Being such a late-flowering subject, and not without some elegance of blossom and beauty of foliage, this Saxifrage is always welcome. But, hardy although it may be, it only requires a few degrees of frost to reduce flowers and leafage to a messy pulp. In the cool, rich soil occupied by this Saxifrage is Amsonia salicifolia, a North American herb which might be taken for a Willow Gentian before it opens its small blue stars, and here also is a plant which, near relative although it may be to a grievous pest, cannot be passed by without some meed of praise. I refer to the single-flowered orange-coloured form of Meconopsis cambrica; its glowing colour, always a delight, is never so lovely as when it harmonises with the tints of autumn. This Meconopsis, charming enough to overcome any prejudice, does naturalise and come true from seeds, but it has never in my experience been so rampant a coloniser as the common Welsh Poppy. It varies somewhat in its shade of colour, and old plants do not always flower so late in the season. Those which have been flowering throughout the autumn here are seedlings set out in the late spring.

Another good plant which suffers the brand of a bad name is Polygonum vaccinifolium, and it can be vigorous enough to be unruly at times. But in the right place, such as draping a bold rock or stump overhanging the water, this Knotweed is admirable. Exceedingly graceful in habit, its tangled mat of red stems and long spikes of rose-pink flowers are wonderfully bright and cheerful throughout the autumn and, to wind-up, its glossy little leaves pass away in a blaze of tawny orange and gold.

Coronilla glauca, which came through the trials of last winter with but little injury, is an uncertain shrub as to its flowering, but this season it is already covered with fragrant clusters of rich yellow flowers. Viburnum fragrans, another shrub which is indifferent as to whether it blooms in November or April, is also tipped with pinky-white, Lily-scented blossoms. Sweetly odorous also are the clustered trumpets of pale bluish-lavender which brighten the grey-green foliage of Leptodermis pilosa. This shrub is another with a reputation for tenderness which came through last winter unharmed, and if it is not a showy subject it is cheerful and fragrant, and therefore very welcome these November days. The flowers, which suggest those of a Daphne, are narrow and nearly one inch long. L. pilosa is a deciduous, sparse, slender-branched shrub which has not exceeded five feet here. If injured by frost—which it seldom is—it will break from the base in spring with the readiness of a hardy Fuchsia.

Cytisus capitatus (supinus) is a shrub which might well claim a wider popularity, for it is one of the latest of all the Brooms to flower, carrying-on until November. It does not usually grow much above three feet, and is a deciduous, leafy species, its branches, large trifoliolate leaves, calyces and pods all being covered with silky hair. The flowers, borne in clusters at the tips of the current year's growths, are nearly one inch long and a bright mustard-yellow.

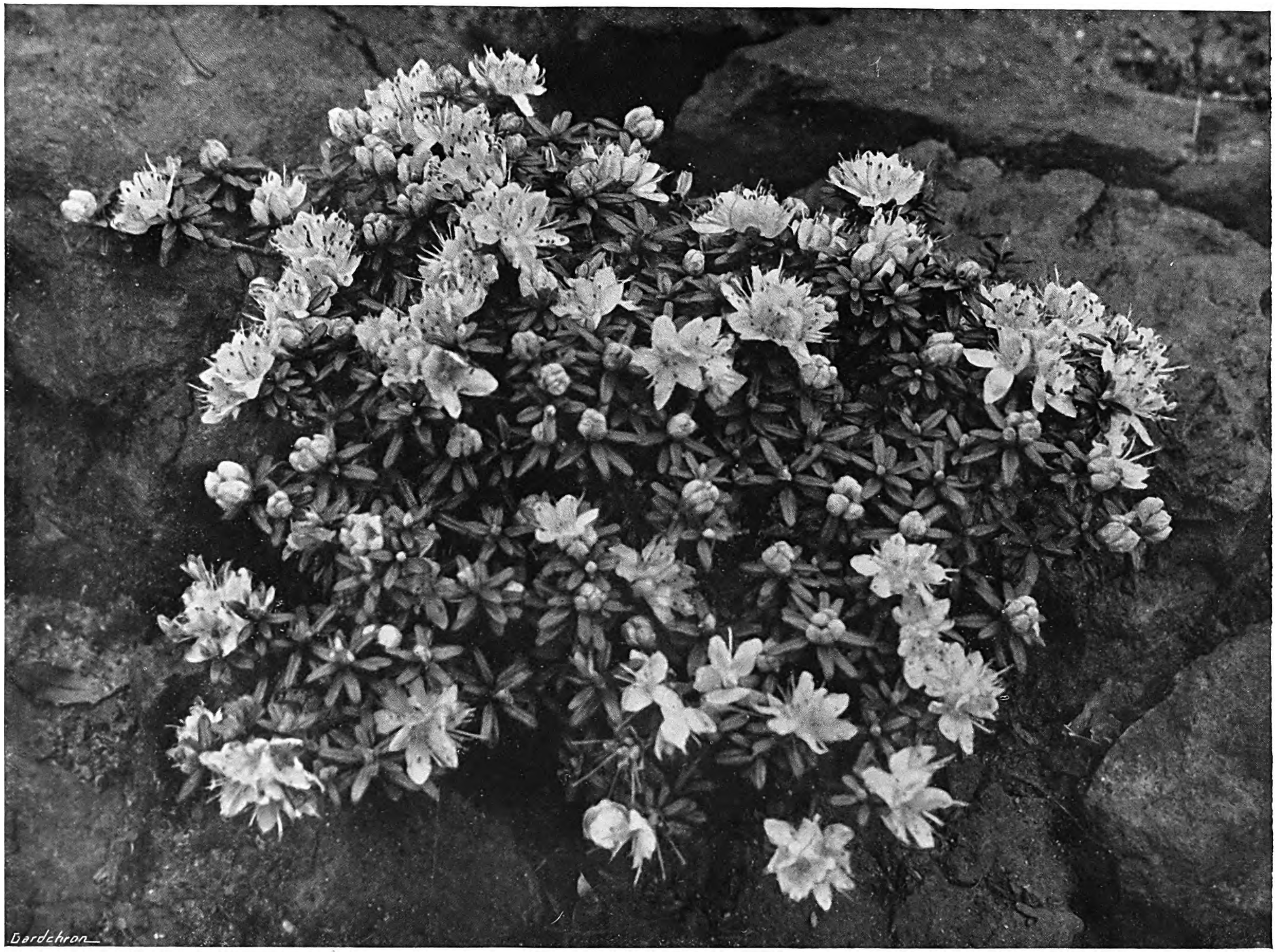
For some years Ceratostigma Griffithii has been a disappointment, since it did not produce its flower buds until the season was too far advanced for them to open. But, having had a sunny summer, this shrub has bloomed with as much freedom as the better-known sister species. A plant which was moved to a position against a warm wall has been especially prolific and is still, in November, carrying a good crop of its attractive flowers, which are rather a darker blue than those of C. Willmottianum. C. Griffithii has an additional claim to one's notice in possessing handsome foliage, its emerald-green, round leaves, sharply pointed at each end and waved, being veined and margined with the same vinous red which pervades the younger wood. The leaves develop bright autumnal tints and, like the stems, are covered with short grey hairs.

Two Chilian shrubs which are still gay with a second crop of flowers are Desfontainea spinosa and Mitraria coccinea. The latter, a lowly evergreen and lover of somewhat shady quarters, bears tubular scarlet flowers nearly two inches long which, in their own way, are not less gorgeous than the highly burnished, crimson-vermilion and yellow trumpets of the other.

Among the under plants of the woodland, Gaultheria tricophylla is also yielding a second crop of its rosy flowers and big china-blue berries. G. cuneata's lively green is still generously furnished with beautiful snow-white clusters and G. procumbens is delightful, as it always is at this season, for not only are its rose and white flowers exceedingly pretty and large for so small a shrub, but the dark green leaves are dappled with rich autumnal hues. Among hardy Cyclamens which share the part shade of the woodland with the above, is C. africanum (macrophyllum). The kidney-shaped, almost orbicular leaves of this species are unusually large, their upper surfaces marbled with two shades of green and their margins scalloped and waved. These usually succeed the flowers, but in the specimen alluded to both foliage and blossom are on show at the same time. A rather too shady position, no doubt, would account for this, but the result is none the less pleasing. Although the flowers of C. africanum are much like those of C. repandum, they are larger and fuller and even brighter in colour. They are borne on taller stalks and are deliciously fragrant.

If the hardy Fuchsias do not always blend quite happily with other plants, they are invaluable for autumn flowering in the rock garden or borders, and it takes more than the usual preliminary light frosts to destroy their bountiful blossoms or check their hearty vigour. Although F. Cottinghami, one of the daintiest of the dwarfs, suffered last winter, F. reflexa, which was unprotected, shot up from the base in spring as freely as usual. Of the many varieties of F. macrostemma, which include some neat and pretty, dwarf rock garden kinds, F. m. corallina and F. m. gracilis never fail to impress one by their slender elegance and refinement. Particularly attractive is a form, presumably of the last-mentioned, whose foliage is suffused by a soft purple tint which harmonises most happily with the colour of the slender flowers. Among other Fuchsias which endured over 20° of frost last winter, and which must be considered among the best of the stronger growers here, are F. Eppsii, F. Carmen, the old Madame Corneillson, another well-tried favourite of years ago, F. Rose of Castile, and F. sarniensis.

There is no flower of the autumn garden quite so impressive as the famous old Romneya Coulteri. Two clumps of this noble plant, each over six feet in height and nearly eight feet across, have been flowering since the earlier summer and are still covered with flowers in spite of wet and boisterous weather and



RHODODENDRON INTRICATUM.

chilly nights. The latest flowers may be reluctant to expand in the absence of sunny days, but if cut when the buds are opening and brought indoors, they should develop perfectly. They thus make an admirable table decoration, for apart from the beauty of the flowers and their Magnolia-like fragrance, the growths and foliage possess to the full that high ornamental quality in which the Poppy tribe excels. *A. T. Johnson, Ro Wen, Conway, N. Wales.*

A NEW DISEASE OF THE DAHLIA.

If one consults the relevant foreign plant disease literature* it will be found that the Dahlia is subject abroad to attack by a considerable number of fungi and by some bacteria. In our own phytopathological books and papers, however, this plant, as a host for fungus attack, is conspicuous by its absence, and complaints are rarely received. Sclerotinia Sclerotiorum, (Lib.) de Bary, has, however, been recorded as destroying Dahlia roots in storage in this country, just as it destroys Jerusalem Artichokes, Carrots, etc.; but even this disease is not very common.

Our growers of Dahlias, therefore, will regret to learn that their former freedom from fungous diseases is now threatened by the recent appearance in our midst of a new disease which promises, if allowed to run unchecked, to cause considerable trouble. It takes the form of a leaf-spot, which usually becomes pronounced on the older leaves (including the stalks) when the season of growth is fairly well advanced, and when the plants are beginning to flower.

The spots are evident on both sides of the leaves. They are rounded in outline, except where they abut against a substantial vein, and have a well-defined margin. They vary from about one-sixteenth to one-quarter-of-an-inch in diameter, and when numerous they coalesce, forming rather large, irregular blotches in which, however, the original individual spots may still be recognised. At first the spots are pale green or yellowish in colour; as they get older and enlarge, the centre of each spot becomes grey or brownish-grey, owing to the death of the tissue; and at this stage the spots show the central dead tissue surrounded by a sort of halo, well seen if the affected leaf be viewed by transmitted light. Finally, the spots turn wholly brown, or greyish-brown, and have a darker brown line running round the margin. In leaves that have yellowed, the spots are very conspicuous, the more so since they are sometimes surrounded by, or situated near, a certain amount of tissue that still retains its green colour. No mould growths or fungus fructifications are readily visible on either the upper or the lower surfaces of the spots; and the central dead tissue becomes quite brittle when dry and often falls out, partially or completely, thus giving the leaf a shot-hole appearance.

The various shades of greens and browns exhibited by leaves attacked in such a fashion are notoriously difficult to represent by photography, but the accompanying illustration (Fig. 185) is an attempt to show the state of affairs produced by this disease in a case of rather advanced and severe attack. It will be clear that not only is the appearance of the plants rendered very unsightly, but the loss of green food-manufacturing tissue is bound to act adversely on the vigour of the plants in the long run.

The fungus that causes the disease is one of the smuts, and has been named Entyloma Dahliae by Sydow. True, the symptoms produced are not at all like those one is accustomed to associate with smut attack, such as malformations and the production of masses of black, soot-like powder in some part of the host, *e.g.*, the smuts of Cereals, or those of the Onion, Gladiolus, Anemone and Violet. Nevertheless, in its mode of life and reproduction, Entyloma Dahliae closely resembles other smut fungi, and several members of the genus are responsible for the production of spots on the leaves of various plants, notably Lesser Celandine, Poppy, Golden Saxifrage, Forget-me-not, Scentless Mayweed and Marigold.

Microscopical examination of the affected tissues of the Dahlia leaf discloses the presence of numerous light brown, smooth, thick-walled, approximately spherical spores, that have been derived from a sparse, somewhat evanescent mycelium or spawn. These spores arise and remain between the cells and, on germination, each produces a tubular outgrowth which proceeds to the surface of the leaf. Having arrived there, the tip of the tube projects slightly through a stoma (or breathing-pore) and develops a crown, or rosette, of mycelial segments from which secondary spores, or sporidia, are produced in considerable numbers. These sporidia may conjugate, and secondary sporidia are produced from them. It is by the distribution of these sporidia and secondary sporidia—they are easily wafted away or splashed by rain to other parts of the same leaf, or to other leaves—that the disease is spread during the season. Damp weather and a shady position are favourable to the disease, which, under such conditions, may reach almost epidemic proportions. The spores lying within the tissue of the spots may germinate so soon as they are ripe, but many of them remain as resting spores after the leaf has died, and they germinate the following season. Dead, affected leaves should therefore be looked upon as the source from which the disease reappears each season. Cactus Dahlias are said to be more susceptible to attack than Pompons; and, while no varieties derived from Dahlia variabilis are known to be absolutely immune, yet those derived from D. Merckii have, apparently, remained free from the disease.

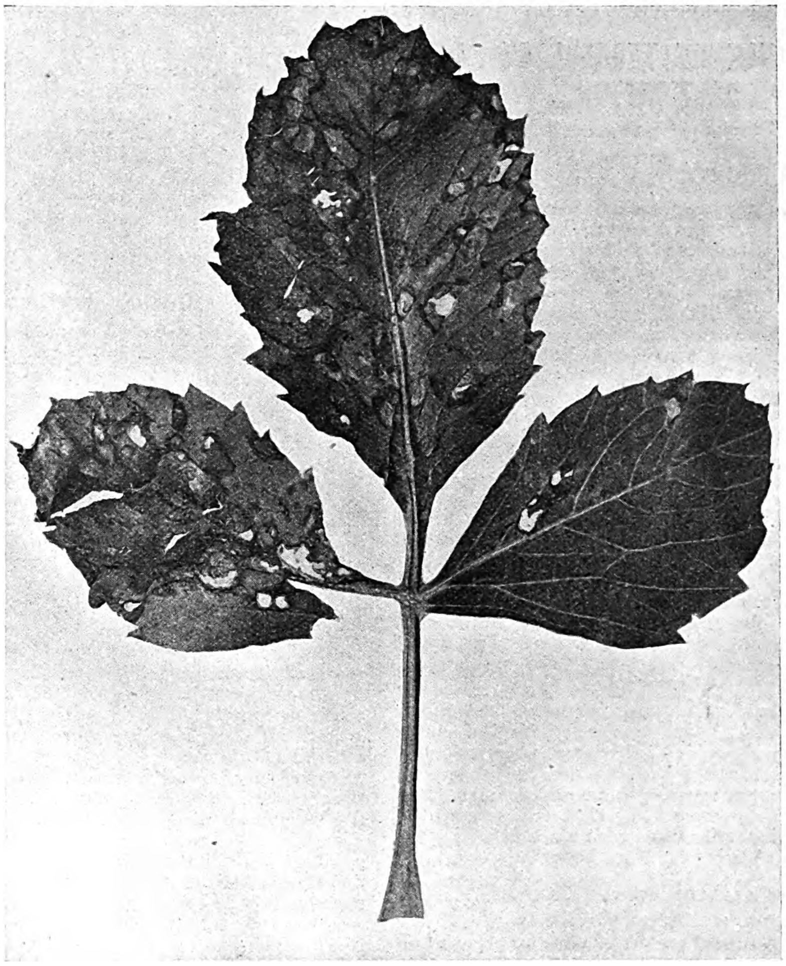


FIG. 185.—DAHLIA LEAF AFFECTED BY ENTYLOMA DAHLIAE.

Entyloma Dahliae was first found by Pole Evans, in Natal, in 1911, on D. variabilis, and it was described and named by H. and P. Sydow in 1912.* Its presence in Europe was first detected by Sternon, in Belgium, in 1918. It was noted in Holland in 1920, in France in 1922 or 1923, in Germany in 1924, and in Czechoslovakia in 1926. It appears to have been seen in England at least a year ago, for, according to information received, it was sent to Mr. J. Ramsbottom from Worplesdon in 1927; but up to now its presence does not appear to have been recorded by publication.

The first specimens of the disease that the present writer had the opportunity of inspecting were received at the Ministry of Agriculture's Plant Pathological Laboratory in August last from Mr. J. Rees, Adviser in Agricultural Botany, University College, Cardiff; and they were obtained from the Duffryn Gardens, St. Nicholas, Glamorganshire. It was stated that the disease had been present there for the past two or three years, and appeared to be causing considerable damage. A second case was reported in September last by Mr. W. Buddin, Adviser in Mycology at the University of Reading, who had diagnosed it on plants submitted to him by Mr. A. J. Cobb, University Lecturer in Horticulture, from Shinfield, near Reading. Doubtless it exists in other centres and, attention having once been aroused, the disease will probably be recognised in them and dealt with.

The object of the present note, indeed, is to direct attention to this new disease, so that it may be dealt with so promptly as possible, if and when it puts in an appearance. The situation at present cannot be described as alarming, but it would certainly appear that the disease is capable of causing much trouble, and if it can be "nipped in the bud," so much the better. The method of controlling it is the old-fashioned and often despised one of collecting and destroying (preferably by fire) all the spotted leaves, including any that may remain attached to the plants when lifted for winter storage, since they contain the resting spores of the

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*An excellent résumé by Dr. H. Pape will be found in *Sandhack, Dahlien und Gladiolen*, Berlin, 1927, pp. 150–166.

* *Annales Mycologici*, 10, 1912, p. 36.

fungus. Those who do not apply this simple rule of garden hygiene in their work must not be surprised if this disease, like others, gets out of hand with them.

No exact experimental attempts to combat the disease directly by spraying appear to have been made, but, in Germany, spraying with Bordeaux mixture, or with lime-sulphur solution, has been recommended. Such spraying should be carried out at intervals during spring and early summer, and preferably after removal and destruction of any spotted leaves that may be present. Liming and digging the soil deeply have also been recommended, while Dahlias should be planted so early as is feasible and safe in an open, airy situation, avoiding over-crowding, and in a position so far removed as possible from one in which the Entyloma disease may have appeared during the previous season. *Geo. H. Pethybridge, Plant Pathological Laboratory, Harpenden.*

THE USE OF TERATOLOGY* IN HORTICULTURE.

(*Concluded from page* 371.)

EXTRA WHORLS.

WE have next to mention those very striking cases in which extra whorls, to the number of one to three, are added to the corolla, thereby enhancing the colour-effect of the whole flower. This abnormality is sought after and cherished by gardeners. Well-known examples of it occur in the Canterbury Bell, the Peach-leaved Bellflower (Campanula persicifolia), and in a species of Thorn-Apple (Datura fastuosa). In the Bellflower may be seen as many as three or four corollas one within the other. The phenomenon is not due to transformation of the stamens into petals, but probably to multiplication of the latter in the radial direction.

METAMORPHOSIS.

Transformation of some or all of the floral parts into something quite different from their normal condition has played a very large and important rôle in the production of many of the sports or abnormalities which are sufficiently beautiful or striking to be universally cultivated and admired.

VIRESCENCE.

There are double forms of Adonis amurensis and Ranunculus asiaticus in which the entire centre of the flower is filled with small, green foliar organs due to the transformation of the carpels. They are quite attractive in appearance. But there are very few virescent flowers grown, the majority, including the green Rose (a variety of Rosa indica) being far from beautiful.

PETALODY OF THE CALYX.

The abnormal change which the calyx may undergo into a coloured whorl resembling in all respects, save that of position, the corolla, has provided us with some interesting and, in certain cases, beautiful garden treasures. This sport is exemplified by the hose-in-hose variety of the Primrose, and of the Monkey-flower (Mimulus luteus var.), the Peach-leaved Bellflower, and the "cup and saucer" form of the Canterbury Bell. The loveliness of the garden variety of Rhododendron indicum known as Azalea amoena is largely due to this abnormal feature, as a result of which the flower possesses a double brilliance as compared with the normal form.

It is to be noted that the extra corolla in these cases has a totally different origin from that of the extra corollas mentioned in a previous paragraph.

SEPALODY OF THE COROLLA.

The converse case in which the usually spurred petals of the Columbine become replaced by numbers of spurless, flat, sepal-like, coloured leaves is well-known and widely grown; it is called Aquilegia vulgaris stellata.

Another instance of the same phenomenon, rendering the flower in some respects more attractive than the normal form, is afforded by those varieties of Iris Kaempferi and I. Sieboldii, in which the inner perianth leaves, instead of being erect and of a different colour, are precisely similar to the beautiful "falls" in colour, shape and position.

OTHER CHANGES OF THE COROLLA.

In certain varieties of the Marguerite (Chrysanthemum frutescens) and Pyrethrum, the inconspicuous disk-florets of the head become enlarged and coloured white like the ray florets; it is this change also which gives rise to the so-called "double" Daisies which adorn the edges of our flower beds. In the Snowball Tree (Viburnum Opulus sterilis) and in certain garden varieties of Hydrangea, all the interior flowers of the corymb have become enlarged and white in colour like the peripheral ones, giving the striking, showy character to the inflorescences of these forms.

PELORY.

The flower which, in its normal form, is asymmetric and irregular, and more or less horizontal in position, becomes perfectly symmetric, regular and erect in position. The large terminal flower of the Foxglove mentioned previously cannot be regarded as a true instance of pelory, but of fasciation. Only one example of pelory comes to mind which is of value to horticulture, and that is Gloxinia, one of the most brilliant and favoured hot-house flowers which we possess. It is not everyone who realises that this gorgeous asset of our stoves is, after all, an abnormality, viz., a peloric form of Sinningia speciosa. This is one more instance of the sport being esteemed far more highly than the type form.

DOUBLE FLOWERS.

Doubling in flowers is the most widespread of all abnormalities, and perhaps the one most universally prized and cherished. Who, for instance, would be without the garden Rose, or exchange it for the single Dog Rose of the hedges? How fond we are of double flowers! It is the gardener's ambition to acquire or produce them whenever he can. There are two main reasons for this. Firstly, doubling means the formation of a (usually) much larger number of petals in the flower which, in its turn, means a greater display of colour and, in many cases, a richer scent; secondly, double flowers, as a rule, last longer than single ones, as in the case of the double Lilac and the Rose. How impoverished our gardens would be without the double-flowered varieties of so many of our common plants. And yet the double flower is one of the most unnatural and abnormal of productions and rarely found outside gardens. The doubling is mostly due to the transformation of stamens (some or all) and sometimes of the carpels as well, into petals. In the Rose, where petal formation is excessive, it also results from fission, both in a radial and lateral direction, of the petals. In some Ranunculaceae, such as Nigella, Aquilegia, Trollius, Caltha, and Anemone, doubling is due to the transformation of stamens and nectaries into petaloid sepals.

Disease causes doubling in some cases, as in the Soapwort, where the fungus Fusarium infesting the rhizome, and the smut-fungus the sub-aerial part of the plant, cause the double-flowered form to arise. Possibly, in more cases than we imagine, double flowers may have arisen from some hidden fungal stimulus.

Finally, one more abnormality may be brought forward which, most will admit, is of great utility to horticulture, and that is the seedless form of certain fruits. In the process of fruit-eating the pips and stones always get in our way, and if these may be eliminated or, at least, reduced, along with a corresponding increase in the amount of pulp, the value of the fruit as food is increased. Examples of fruit in which this has been achieved are afforded by the Banana and the Navel Orange.

In the foregoing article many instances of abnormalities useful to horticulture have been described. But the gardener cares nothing as to whether a plant is normal or abnormal, so long as he obtains something beautiful, big, or edible. And, after all, it comes to this, that both in botanical science and in horticulture (although for different reasons in each case) there is no essential distinction between the normal and the abnormal. *W. C. Worsdell.*

INSECTICIDES AND FUNGICIDES.

(*Continued from p.* 355.)

THE USE OF SPREADING AND STICKING AGENTS.

THE improvement of the spreading and adhesive power of the treating materials is one of the most important general problems in the domain of using insecticides and fungicides. In the case of true contact poisons, the mode of presentation of the poison to the pest is all important. It is of the utmost value for this purpose to obtain the maximum adherence of the material to the plant foliage or structure in order to prevent adventitious removal, or the washing off, or production of patches by rain. At the same time intimacy of contact must not be hindered. Spreading or covering power must be as great as possible compatible with the necessary concentration being obtained. The surface should be completely covered and the layer of protective agent reduced to the thinnest effective continuous film, thereby presenting it in its most effective form, and at the same time conserving material. These desirable effects are bound up with the surface tension and capillarity properties of the spray solutions and the mode of attacking the problem has been in general that of incorporating in the sprays different types of colloidal substances.

Soaps are well-known in this regard, but on the whole they leave much to be desired. They vary widely, both in their spreading and sticking qualities, and as a rule, they, like the vegetable extracts such as the saponins, give films which are actually too thin to give the best results. The ordinary soaps also suffer the disability of "cutting" or precipitating when diluted with anything but soft or softened water or if mixed with other sprays containing soluble salts of lime or magnesia. Better results are unquestionably obtained by the use of special fatty acids. Soaps built up from the fatty acids of Cocoanut oil, preferably the potash soaps, not only have better lathering and more suitable covering power, but have the advantage of being capable of dilution with hard water.

Because of the detractions to the use of soap, much work has been done with varying success on the incorporation of other colloids in the spraying medium. Among others which have been tried are the saponins, glue, gelatine and gluten (in the form of flour paste). Much better results have been obtained by the use of calcium caseinate. This material is a good spreader and at the same time is capable of producing films of effective thickness without seriously affecting the qualities of the wash in its pesticidal value. On the latter point there are differences of opinion, however, and more work is required to test the influence of different proportions of calcium caseinate on the effectiveness of various standard sprays, particularly in controlling insect pests.

As a possible substitute for calcium caseinate, and capable of incorporation by those who prefer to make up their own sprays, it has been suggested to use skim milk, or skim milk powders, mixed with hydrated lime. This does not give the same product as calcium caseinate, but one closely allied to it and having somewhat similar properties.

Another line for the investigation of the problem of adherence which has some promise is a study of the electrical charge exhibited by leaf surfaces and its relationship to the attraction or repellence of particles of spray or dust. Wet leaf surfaces carry a slight negative charge, and if advantage could be taken of this by having dust or spray particles of insecticide charged positively, there would doubtless be a strong tendency towards adherence, particularly in the early period of application. An American investigator has described the manufacture of arsenical insecticides in such a way that the particles are positively charged, but the effect, if produced, would appear likely to be disturbed by the very process of dissemination which in itself is liable to charge the particles electrically. The artificial charging of dust particles as they issue from the blower is not outside the realms of possibility, although it would be more difficult of accomplishment in the case of liquid sprays and in any case would be applicable only to large-scale operations. It is, however, worth considering, especially in recollection of the success obtained in charging fine sand issuing from a distributor during the attempts a few years back to discharge rain clouds passing over arid regions by neutralising their charge from aeroplanes.

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*Lit. the Science of Wonders; it is the study of the abnormal forms of life.

On the chemical side, progress in the development of special means for the control of plant diseases may best be followed by considering separately the materials used and their present methods of application. *S. J. M. Auld, D.Sc.*

(*To be continued.*)

HOME CORRESPONDENCE.

Rosa Moyesii crosses.—I was much interested in Mr. Courtney Page's note on this subject in your issue of October 20 (page 315), because a few years ago (1914), I crossed R. spinosissima altaica with R. Moyesii, using R. Moyesii as the pollen parent and R. spinosissima altaica as the seed parent, from which cross but two seedlings resulted. Probably more seeds would have germinated the following season, but owing to the war, I am afraid things did not receive the usual attention, and the pan was discarded. One of the two seedlings was also lost, but the remaining plant eventually flowered—I think it was in 1919—and whereas, as Mr. Page states, the experience of the hybridists at the Rose Conference held by the National Rose Society was that the distinctive characteristics of R. Moyesii were lost, it was the opposite in my case. The plant in question was almost identical with R. Moyesii, in fact, because of its similarity, we decided to destroy it. Perhaps, had we saved it, it might have proved of interest and value; it is, however, of little use crying over spilled milk.—*W. Wilmshurst, Temple Newsam Park, Leeds.*

Catching Moles.—No doubt there are successful mole-trappers who wear gloves, but there are more who do not, *M. I. W.* (p. 337) and myself being among them. Gloves in some cases would be much worse than soiled hands. But whether gloved or not, we all have had a wily mole burrow under the trap, and here a few hints may be useful. If, after rubbing the hands in the soil and setting the trap in the usual way, the mole burrows beneath, try setting two or three close together in the run; it may burrow under the first, but will probably be caught in one of the others. Another good plan to take the scent of hands or gloves away is to press a freshly-caught mole in the run before setting the trap. There is yet another good method. Open the run sufficiently to put the trap in, then fill it with soil and lightly press the run on each side for a few inches. To many this may sound impracticable, but I assure readers it is very successful, and I think we are ofttimes too particular in clearing the runs before setting the traps. *W. Smith.*

An Associate's Impressions at the Association of Parks and Botanic Gardens Superintendents' Meeting.—After attending the highly interesting lectures on Tuesday October 23, in the new hall of the Royal Horticultural Society, it was with a certain amount of trepidation on the Wednesday that I seated myself in the old hall among the members and delegates of the above Association. Here were gathered conveners, councillors and superintendents from many towns of Great Britain, and I, as a foreman in a parks department, and as an associate, attended. The spirit of friendliness and goodfellowship seemed to exist everywhere. I knew no one personally, except my own superintendent and convener, although many were known to me as prominent men in the profession. The address by the President, the papers by the Deputy Town Clerk of Blackpool, and by Mr. Parker, were, to one in my position, of new and highly instructive value. Except for experience gained in the varied work of a parks department, a foreman obtains very little insight into the internal workings of that department. One gentleman at the rear of the hall addressed the meeting in regard to the younger members of a parks department. He stated, if I remember correctly, that even if one did pass the R.H.S. examination for parks superintendents, there was still a need for further instruction to make an able superintendent. Again, if I am not at fault, he inferred that the Association should be the means of teaching and helping these members, who, as associates now, will in time, it is hoped, become superintendents, and as such be eligible as Fellows. For all associates, this gentleman struck the right note, and it is because of his remarks, that I take the liberty of writing these few notes. I would suggest to foremen in public parks, provided they fulfil the necessary conditions of entry, to join this Association, as I think it may be of great value to such in the future. It is to the future one looks, and it is, or should be, the aim in life to advance in one's profession. The greatest impression I received from this conference was the very cordial relationship that exists between superintendents and their respective conveners and councillors. No doubt the detailed and varied work, and most important, the doing of one's best for the people of the towns they represent and work for, accounts for this. In this respect it appeared to me that the ideal superintendent must be a man who has the welfare of the community, from the youngest to the oldest, constantly before him. If he has not, he cannot conscientiously help his committee when asked to advise them in any way connected with the interests of the community. I came away having learned much that was new, and much that will be of great help to me in the future. *Associate.*

Plants seen at Cliveden.—Looking around this noted garden quite recently, the following subjects were particularly good and worthy of note. Clematis armata, with its dark, leathery foliage and sweetly-scented flowers, was occupying a big space on a southern wall; I should think the plant was upwards of twenty feet high. Truly a splendid specimen of this good climber: easily the best of its name it has been my lot to see. Also, on the same wall, was to be seen perhaps the largest Abelia rupestris one can hope to see, excepting in gardens in the extreme south. The plant was eight feet high, half as wide, and smothered with its fragrant blossoms. A beautiful sight! Abelias half this size are a good average, and these are mostly found in pots or borders in the conservatory. Lonicera floribunda was also seen on the same wall in excellent condition. This is much valued at Cliveden, when in flower, for vase work, being so sweet-smelling. The plant was nine feet high and eight across. Another plant that revelled in this garden was the Californian Fuchsia, Zauschneria splendens, Mr. Camm mentioning that this plant was much freer and brighter than Zauschneria californica. *C. Turner.*

CHESHIRE FRUITS AT THE IMPERIAL FRUIT SHOW.

There was ample evidence at the Imperial Fruit Show, held in Manchester recently, that fruit-growing in Cheshire is becoming a big commercial undertaking. The pioneers in this work have undoubtedly been the head gardeners, such as Mr. Barnes, to the Duke of Westminster, who have proved that good fruits can be grown in Cheshire. The County Council too, under the Horticultural Superintendent, Mr. W. E. Shewell-Cooper, has, by its fruit demonstration plots, done a great deal to forward the successful fruit-grower.

At the fruit show this year, for the first time, there was a Cheshire section, and Apples and Pears in this group were well up to the standard of any other county. The prize-winning Apples in the dessert class were from the orchards of Mr. C. Goodwin (of Messrs. J. and H. Goodwin), of Goostiey—good examples of finely coloured Worcester Pearmain, while the Cox's Orange Pippins, too, from Mr. Kitchen, of Winsford, were even and well-coloured. In the culinary classes, in which over a hundred 40lb. boxes of Apples competed, the outstanding sets were of Lord Derby, from Messrs. H. G. Groove, of Guilden Sutton, and Bramley's Seedling, from Mr. Betts, of Willaston. Altogether the Cheshire section, for a first attempt, was a great success.

In the Empire Marketing Board's Hall, Cheshire had a big display of fruits under the auspices of the N.F.U.; one noticed Ribston Pippin, Cox's Orange Pippin, and Charles Ross, from Mr. A. B. Earle, of Paddington; Rival, Gascoyne's Scarlet, Allington Pippin and Cox's Orange Pippin, from the Cheshire School of Agriculture; Pitmaston Duchess Pears and Bismarck Apples, from Mr. Faulkner, of Tawin; and Marie Louise d'Uccle and Conference Pears, and Ellison's Orange and Cox's Orange Pippin Apples, from Mr. Groove. All Apples staged were in 20lb. trays, and the packing and staging were excellent.

The Cheshire School of Agriculture, Horticultural Department, had a large educational exhibit, which was the only stand of its kind at the show, and so the Horticultural Superintendents and his assistants were kept busy all the time. The features of the exhibit were, (1) a collection of Cheshire-grown Pears, from Major Dunn, Houghton Hall (gr. Mr. Shaw), and from Mr. Prestwick, Tinley Gaell (gr. Mr. Allen); some very fine specimens were on view, including Alexander Lucas, Madame Lye Baltet, Doyenné du Comice and Glou Morceau. (2) A model of a brick-built soil steriliser, costing £12, and yet sterilising three tons of soil at a time—plants growing in such soil and in unsterilised soil were on view. (3) The results of the tar distillate trials carried out on three farms in Cheshire; the twelve proprietary tar washes were on view in tubes, and the average weight of Apples from the trees concerned was demonstrated. There was a difference of eight to one on the sprayed and unsprayed plots. (4) The results of the "scab" trials—lime-sulphur in varying strengths were on view, and typical weights from sprayed and unsprayed plots also. Many leaflets on such subjects as Chrysanthemum trials (*The Gardeners' Chronicle*, 1927, Vol. LXXXI, p. 188), Manuring of Crops, Spraying, Bee-keeping, etc., written by members of the staff, were on view for distribution to persons interested. *Grower.*

VEGETABLE GARDEN.

NEW ZEALAND SPINACH.

In establishments where a constant supply of Spinach is required to be maintained, it is difficult to understand why the subject of this note is not more generally employed during the hottest months of the year—when bolting of the true Spinach makes this task a difficult one for the gardener,—if not in preference to, at least as a substitute, for true Spinach.

The New Zealand Spinach is reputed by some to be inferior in flavour to the common Spinach, but, on the other hand, it lacks the peculiar bitterness of Spinacia oleracea, and therefore is preferred by many who object to the "sooty" flavour of its rival. Be that as it may, there are certainly no unsurmountable difficulties encountered in its production, to deter anyone giving it a trial, and where time and labour are considerations, it has much to commend it, for it obviates the necessity of repeated and frequent sowings, so essential to the assurance of an unbroken supply of its congenor during the hot summer months.

New Zealand Spinach, or correctly, Tetragonia expansa, is an annual found wild in Australia and New Zealand, and is rather tender; therefore, to obtain an early supply, seedlings should be raised in heat. Seeds may be sown at the end of March or the beginning of April, either in pans or boxes, or singly in small pots, placing the receptacles in a house having an average temperature of 55°. If the use of pans or boxes is favoured, the resultant seedlings should be pricked off into small pots so soon as possible, to allow them to make sufficient growth and be well established in the pots in readiness—after being gradually hardened off—for transferring outside to the positions they are to occupy throughout the summer, towards the end of May, in accordance with climatic conditions. The seedlings raised directly in pots should not require any attention other than that of watering and hardening off.

The site selected should be one fully exposed to the sun, setting out the plants three feet apart each way, as this Spinach grows strongly. A bed made up in the same way as is usually accorded Vegetable Marrows, suits this esculent admirably, as it allows the growths to ramble without restraint, while subsequent treatment merely consists of copious supplies of water during periods of drought.

In from five to six weeks, the first crop of tender young shoots should be ready for use, and from then onwards, until frosts occur, an unbroken supply of young succulent shoots should be always available. Those who have not the necessary houses at their disposal, or do not care to incur the trouble of sowing under glass, may sow seeds of this Spinach in the open, on the site it is intended to occupy, early in May, thinning the plants to the required distance. *T. Wilson, Moreton Paddox.*

PUBLIC PARKS AND GARDENS.

The Aylesbury Town Council has received sanction from the Ministry of Health to borrow £1,605 for the purchase of the Vale Ground for a public recreation ground.

The Bebington and Bromborough Urban District Council proposes to lay out a portion of the recently purchased Brackenwood estate as a park.

The Ealing Town Council have received sanction to borrow £7,775 for the purchase of Coston's Farm, Greenford, as a sports ground and public park.

A site of twelve acres at the east end of the borough of Warrington is to be acquired for a public park. The purchase price of £2,000 has been collected by the efforts fo Alderman Arthur Bennett.

The Batley Town Council has received a gift of eight acres of land near Coalpit Lane, Carlinghow, for a recreation ground.

The Swansea Town Council has authorised the Parks Committee to lay-out the Graig and Pryderi grounds, at a cost of £4,744.

The Twickenham Town Council is to take over Twickenham Green in trust for use as a public recreation ground.

The Tynwald Court (Isle of Man) has granted a loan of £600, free of interest, to the Castletown Commissioners for carrying out improvements to Poulsom Park.

The Ministry of Health held an enquiry at the Council Chamber, Church Street, Epsom, into an application by the Urban District Council for sanction to borrow £7,200 for the laying-out, etc., of land required by the Council for the extension of the Court recreation ground.

The Middlesex County Council has received sanction to borrow £2,225 as a contribution towards the acquisition by the Ealing Borough Council of about twenty-nine-and-a-half acres of land known as Coston's Farm, Greenford, for an open space.

The Lincoln Ministry of Health held an inquiry at the Guildhall, into an application by the Town Council for sanction to borrow sums of £6,065 and £3,400 for the acquisition of lands at Boultham and Skellingthorpe for open spaces and recreation grounds.

The London County Council is recommended by the Parks and Open Spaces Committee to contribute £5,000 towards the purchase of Chiswick House and grounds for preservation as an open space.

SOCIETIES.

BRITISH MYCOLOGICAL.

The thirty-second annual meeting and autumn foray of the British Mycological Society was held at Littlehampton from October 2 to October 6. The annual meeting took place on the first evening. Miss E. M. Wakefield was elected President for 1929, Professor M. C. Potter as a second Vice-President with the retiring President, and Dr. B. Barnes and Mr. W. D. Buckley as new members of the Committee. Bristol was chosen for the next autumn foray.

The dry summer had made it certain that there would be no great abundance of fleshy fungi, but with so many active members there is not much missed, and the scarcity seemed to be more in the individual than in the species. Also, when the larger fungi are scarce, more members pay attention to micro-fungi and doubtless many interesting forms await identification. Rewell Wood was visited on Tuesday, and the following interesting species were found:—Boletus aurantiporus, Polyporus nummularis, P. picipes and P. varius, Hypochnella violacea, Clitocybe decastes, Crepidotus calolepis and Geaster fimbriatus. On Wednesday, Michel Grove was visited and Volvaria bombycina, Clitocybe conglobata, Pleurotus salicinus var. flocossus, and Caldesiella italica were interesting additional species. On Thursday the venue was Rewell Forest, before lunch, and Lentinus fimbriatus and Cortinarius Queletii were found; after lunch, Clitocybe cartilaginea and Pholiota radicosa were seen in Eartham Woods. On Friday, Arundel Park was inspected and Clitocybe conglobata, Omphalia gibba, Stropharia inuncta, Boletus Satanus, Clavaria pistillaris and Polyporus cuticularis were found.

On Tuesday evening, Professor Dame H. C. I. Gwynne-Vaughan gave her presidential address on "Problems of Development in the Fungi." The address, which was illustrated by a number of lantern slides, dealt with the similarities and differences in the nuclear structure of plants and animals and assuming the common origin of animals, fungi and green plants, considered the points of divergence of fungi. Special emphasis was paid to the phenomenon of heterothallism.

Dr. Alex. Smith and Mr. W. C. Moore, of the Ministry of Agriculture Pathological Laboratory, Harpenden, spoke on Wednesday evening about recent aspects of plant diseases. Dr. Smith mentioned the occurrence of Phytophthora Richardiae on Arum Lilies in this country, and described the symptoms of the root rot caused by this fungus. The appearance of the disease was contrasted with that caused by Bacillus aroideae and it was suggested that some confusion may have existed between these two diseases in this country. The progress of the attack of a Potato plant by Colletotrichum atramentarium was described in detail, and it was pointed out that, in an average year, recognition of all the symptoms of this disease was by no means easy on account of attack by blight. In the present year, however, owing to the absence of the latter disease, it was possible to recognise the symptoms described in other countries.

Entyloma Dahliae (see Fig. 185, p. 393) would appear to be a new disease for this country, but it has already been found in several European countries, so well as in South Africa. Its appearance on the Dahlia was described and compared with that of Entyloma Calendulae on the Marigold. Specimens of these last three diseases were exhibited.

Mr. W. C. Moore dealt in a general way with the diseases of flowering bulbs. Reference was made to the important work done in Holland on the diseases of Hyacinths and other bulbous plants, by Wakker in the eighties, and to the more recent establishment at Lisse of a laboratory for the investigation of bulb diseases under the direction of Dr. E. van Slogteren. The existing organisation among the Dutch bulb growers for the detection and eradication of diseased plants in the field, and in the storage houses, was briefly outlined, and the methods used were explained by illustrative examples, particular attention being paid to the yellow disease of Hyacinths, a comparatively new and serious disease caused by Bacterium Hyacinthi, Wakker.

On Thursday evening, Colonel C. Green showed a large number of very fine coloured lantern slides, and gave a popular talk on them. Late in the following afternoon, Mr. J. Ramsbottom spoke to the Littlehampton Archaeology and Natural History Circle on "Fairy Rings." In the evening, Mr. Carleton Rea gave a running commentary on the chief finds of the week.

The weather during the foray was excellent. It would have been depressing to have been compelled to do close and active hunting in rain which, mycologically speaking, would have been invaluable a week before.

EDINBURGH CHRYSANTHEMUM SHOW.

A four days' show of Chrysanthemums, fruits and vegetables, promoted by the British Towns Exhibition Association, by arrangement with and under the patronage of the Royal Caledonian Horticultural Society, was held last week in the Waverley Market, Edinburgh.

At the opening ceremony, on Wednesday, presided over by Mr. J. T. Jeffery, Director of the City Parks, Mrs. Wauchope, of Niddrie, Marischal, congratulated the promoters on the revival of the Chrysanthemum show, in Edinburgh, and explained that on the occasion of the last exhibition held in 1916, she had the pleasure of opening the show.

The schedule contained forty classes, of which sixteen were devoted to cut flowers, seven to fruits, and seventeen to vegetables. As a number of varieties of Chrysanthemums, notably those of the Japanese type, do not come into bloom until later in the season, a few of the classes were but poorly filled, but competition was keen in the Decorative section.

The first prize, which carries with it a Silver-gilt Medal, for six vases of Decorative Chrysanthemums, was won by Mr. Robert Grant, Boness, with well-grown examples of In Memoriam, Cranfordia, Blanche de Poitou, September Pink and Knaresborough Yellow; second, Mr. George Wilson, Gogarburn, Corstorphine. Mr. Grant was also successful in providing the best decorated basket of Chrysanthemums. Mr. David Airdrie, Glenconner, North Berwick, excelled in the class for four vases of Decorative blooms; while the leading honours in the Japanese classes went to Mr. William Paterson, Clifton Lodge, Trinity, who secured first place in the two classes for six blooms and for a single vase of decorative merit. His best blooms were of Marjory Woolman, Majestic, Mrs. Algernon Davis, Mrs. B. Carpenter, Red Majestic and Yellow Majestic. In both the six vase classes, Mr. James Young, Braeburn House, Curries, was second, and he found compensation in his success with a single vase of Decorative blooms, not disbudded.

One of the most successful competitors was Mr. Roderick Grant, gardener to Baroness Burton, Dochfour, Inverness, whose prize record consisted of first for his vases of disbudded blooms, Decorative, two vases, and one vase of Single blooms, disbudded; two second prizes, and three third prizes. The class for three vases of Japanese Chrysanthemums was outstanding, the prize-winners being: First, Mr. William Black, Roselea, Hawick; second, Mr. W. Paterson; third, Mr. James Young. The best bouquet was staged by Miss Dorothea Irwen, 43, Dudley Crescent, Edinburgh, who used the single variety, Mason's Bronze.

In the fruit section, Messrs. James Cochrane, Galashiels, and Mr. R. W. Dingwall, Gogar House, were first and second, respectively, in the classes for six baking and six dessert Apples; Mr. R. B. White excelled with four dishes of Apples; while Mr. Ronald Ogilvie had no opposition in the two Grape classes.

Vegetables were fairly well represented, but the quality was rather varied. Mr. P. Darling, Ayton, prevailed in the Onion and the Parsnip classes, while Mr. T. Braidwood was first for six Carrots, stump-rooted, and also for Savoys; Mr. James Cochrane scored successes with six long Carrots, four Beetroots, three Turnips, and in the three classes of Potatos, the varieties exhibited being Arran Comrade (round), The Bishop (kidney), and Catriona (coloured). The winner in the class for six dishes of Potatos was Mr. R. W. Dingwall.

A feature of the show was the fine exhibit of Japanese Chrysanthemums by the Public Parks Department. Over one hundred pots were effectively grouped on the floor in a harmonious colour arrangement; among the sorts displayed Majestic, Red Majestic and Yellow Majestic were prominent, other varieties of merit being White Queen, William Rigby, Lady Talbot, Francis Joliffe, John H. Shaw, Mrs. Algernon Davis and Mrs. B. Carpenter.

Trade exhibits consisted of a tastefully arranged group of alpine plants by Messrs. Laird and Dickson, and a collection of Chrysanthemums by Mr. Frank Simpson, Coltbridge Nursery, Murrayfield.

ROYAL HORTICULTURAL.

November 13.—The near approach of winter was made evident by a much smaller show than of late at this fortnightly meeting of the Royal Horticultural Society, and by the admission of paintings and drawings of plants and flowers. Even so, it was a small show, for which plenty of space was found in the old hall at Vincent Square. The Orchid Committee recommended one First Class Certificate and one Award of Merit to novelties. The chief general floral exhibits were Chrysanthemums, fibrous-rooted Begonias and ornamental shrubs. The Floral Committee recommended five Awards of Merit to novelties. There was a very good collection of seasonable vegetables, and a number of Apples for naming, but beyond this the Fruit and Vegetable Committee had little to do.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Mr. Gurney Wilson (Hon. Secretary), Colonel Stephenson Clarke, Mr. Fred J. Hanbury, Mr. Lionel de Rothschild, Mr. Wilson Potter, Sir J. Rutherford, Mr. Richard Thwaites, Mr. T. Armstrong, Mr. J. Cowan, Mr. A. McBean, Mr. R. Ashton, Mr. J. E. Shill, Mr. Charles H. Curtis, Mr. Fred Sander, Mr. A. Dye and Mr. S. Flory.

First Class Certificate.

Laelio-Cattleya Coeur de' Lion (L.-C. Mrs. Willoughby Pemberton × L.-C. Ivanhoe).—A glorious hybrid of large size and splendid form; the broad petals are bright mauve-purple and the sepals are rather lighter in colour. The fine ip is ruby-purple, with a paler edge and crimson shading below the orange-veined throat. Shown by Baron Bruno Schröder (gr. Mr. J. Shill), Dell Park, Egham.

Awards of Merit.

Laelio-Cattleya Valencia var. superba (L.-C. Soulange × C. Dinah).—In this form the purple colouring is very bright, and the gold veining in the throat very beautiful. Shown by R. Paterson, Esq. (gr. Mr. Merry), Stonehurst, Ardingley, Surrey.

Catasetum Naso var. Charlesworthii.—The Orchid exhibited at the previous meeting as Catasetum Charlesworthii has been identified as a form of C. Naso and has received the above name.

Groups.

Odontoglossums were prominent in Messrs. Charlesworth and Co.'s group, and they included O. Laurentia, O. Britannia, O. Horus, and O. crispum xanthotes, with Odontonia Olga, Miltonia pulchra, M. Lucia, Brasso-Laelio-Cattleya Aprica Lemoniana, and the handsome Laelio-Cattleya Renown.

S. G. Brown, Esq. (gr. Mr. F. W. Thurgood), Brownlands, Shepperton, displayed a very bright collection of Orchids wherein were Oncidium varicosum Rogersii, Epidendrum vitellinum majus, the old E. cochliatum, fine plants of Odontoglossum grande, and O. Wilckeanum, O. Uro-Skinneri, Vanda coerulea, Cattleya Ariel in fine form, Cypripedium Parishii, Platyclinis Cobbianum and Selenipedium macrochilum.

In Messrs. J. and A. McBean's small group were fine plants of Cattleya labiata—one with fifteen flowers—C. Amur, Laelio-Cattleya Linda, L.-C. Profusion and the quaint Adaglossum Juno.

A fine group was put up by Messrs. Cowans, and in it were displayed good specimens of Cattleya Hardyana, C. Snowdon, C. Portia, Brasso-Laelio-Cattleya Orion—very fine, and B.-L.-C. Hestia, Laelio-Cattleya Mrs. Medo, and a number of useful Cypripediums, notably C. Boltonii, C. Goliath, C. J. M. Black, C. Niobe-Leeanum and C. Dreadnought.

Messrs. Stuart Low and Co. exhibited a bright group that included finely-coloured examples of Vanda coerulea, Laelio-Cattleya Crowborough, L.-C. Linda, L.-C. Luminosa alba, Cattleya Fabia, Cypripedium Muriel Hollington, C. Farrieanum, C. Dowleri, the dainty Vanda Amesiana, Oncidium tigrinum, the small-flowered O. abortivum, and the pretty Barkeria spectabilis.

In addition to the handsome Laelio-Cattleya Coeur de Lion, Baron Schröder exhibited Potinara Dorothy, an apricot-coloured hybrid derived from Sophro-Laelio-Cattleya Horohito × Brasso-Laelio-Cattleya maculata. Mrs. Carl Holmes sent Cypripedium Bettie Holmes of deep colour, and also C. Mina Maria (C. Becktonii × C. Christopher var. Grand Duke Nicholas). Mr. J. Evans, of Colwyn Bay, brought up Cypripedium Challenge, C. Sybil var. Imperator, and other Cypripediums.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. J. F. McLeod, Mr. William Cuthbertson, Mr. William Howe, Mr. J. M. Bridgeford, Mr. D. Ingamells, Mr. M. C. Allwood, Mr. A. E. Vasey, Mr. J. B. Riding, Mr. W. B. Gingell, Mr. D. B. Crane, Mrs. Helen Lindsay Smith, Mrs. Ethel M. Wightman, Mr. Charles E. Pearson, Mr. Courtney Page and Mr. W. D. Cartwright, Secretary.

Section B.—Mr. Gerald W. E. Loder (in the chair), Mr. W. J. Bean, Mr. G. Reuthe, Mr. George Harrow, Mr. F. G. Preston, Mr. Eric M. Marsden-Jones, Mr. Reginald Cory, Lady Beatrix Stanley, Mr. W. B. Cranfield, Mr. Amos Perry, Mr. A. Bedford, Mr. Mark Fenwick, Mr. E. H. Wilding, Sir William Lawrence, Bart., Mr. Charles T. Musgrave, Mr. T. Hay, Mr. James Hudson, Mr. L. R. Russell, Mr. R. C. Notcutt and Mr. N. K. Gould, Secretary.

Awards of Merit.

Chrysanthemum Shoreham Spray.—A fine pure white spray variety. Shown by P. E. Hulse.

Chrysanthemum Phineas. —A rosy-crimson Decorative variety. Shown by Mr. H. Shoesmith, Jun.

Cotoneaster Harroviana.—In general appearance this ornamental berried shrub has resemblances to the well-known C. salicifolia var. floccosa and C. s. var. rugosa. The former is illustrated in *The Gardeners' Chronicle* of March 11, 1922, while the latter was, with a spray of C. bacillaris, the subject of a coloured plate given with the issue of December 27, 1914. The chief points of difference lie in the fruits being produced more freely, but with a greenish hue overlying the red, than those of the variety floccosa. It is a graceful and desirable variety. Shown by Gerald W. E. Loder, Esq., Wakehurst Place, Ardingley, Sussex.

Stransvaesia Davidiana.—This very showy, robust, berried shrub was introduced from western Szechuan in 1903, and already the specimen at Exbury is fifteen feet in height. The ovate-lanceolate leaves are slightly coriaceous, shining green above, paler below, and the petioles and midribs usually carry the bright red colour of the round fruits, which are borne in plentiful clusters. Shown by Lionel de Rothschild, Esq. (gr. Mr. A. Bedford), Exbury, Southampton.

Thunbergia chrysops.—The "Golden-eyed" Thunbergia is a native of Sierra Leone, and an annual species of quite moderate growth. The leaves are cordate, and the flowers are very attractive. The corolla tube, which is about two inches in length, is a bright golden-yellow, the limb is a rich purple passing to blue around the tube. Shown by Sir William Lawrence, Bart., Burford, Dorking.

Cultural Commendation.

A Card of Cultural Commendation was awarded to Mr. William Cato for two excellent plants of Begonia Elatior.

Groups.

An attractive collection of greenhouse Begonias of the type usually grown for market sale was arranged by Mr. N. C. Crone just inside the entrance. The chief varieties were Begonia Gloire de Lorraine, the bronzy-foliaged B. Mrs. Petersen, the white B. Schree, and the pale pink B. Rothschild's variety. On the tabling, Mr. William Cato set out a smaller collection of exceedingly well-grown plants of Begonia Elatior in quite small pots. Their usual collections of first-rate Carnations were contributed by Messrs. C. Engelmann, Ltd., Messrs. Stuart Low and Co., and Messrs. Allwood Bros.

A very attractive group of decorative Chrysanthemums was arranged with autumn foliage by Mr. A. G. Vinten. The chief Japanese varieties were Captain Fox, crimson: Enton Beauty, deep crimson, and Golden Butterfly; while the Singles included Susan, rose, and Mrs. W. A. Catlow, yellow. In their exhibit of good Chrysanthemums, Messrs. Keith Luxford and Co. set up stands of such exhibition Japanese varieties as Andania, chestnut, J. Symonds, yellow, and Geraldine, shell-pink. They also showed good vases of Singles and Pompons. On the table for small exhibits, Lady Juliet Duff (gr. Mr. H. Weaver), Coombe Court, Kingston Hill, Surrey, placed three excellent show blooms of the white Japanese variety Louisa Pockett, and the yellow Incurved Sulphur Queen respectively.

Brilliant examples of autumn colouring were provided by the exhibit of Mr. R. C. Notcutt, where were grouped branches of Pyrus discolor, Rhus Cotinus purpureus, Quercus coccinea, Berberis polyantha, B. brevipaniculata and other desirable hardy subjects. Messrs. W. Wood and Son, Ltd., had large stands of Cotoneaster frigida var. Vicari, Berberis Staphiana, B. Thunbergii, Pernettyas and shapely Conifers.

In a corner group by the Tea Annexe, Messrs. L. R. Russell, Ltd., showed masses of Skimmia japonica, golden Euonymus, Pernettyas and Conifers. Mr. John Klinkert had a selection of shapely topiary examples. Small Conifers of the type suitable for planting in the rock garden and miniature gardens were shown by Mr. Stephen Sims. The Misses Hopkins had a small rock garden exhibit. Very good Sweet Violets were staged by Mr. B. Pinney, Mr. G. Zambra and Mr. J. J. Kettle, who also had fruiting sprays late Raspberries.

The most interesting of the many exhibits of paintings was the large collection of Mr. Frank Galsworthy. There were many varieties of garden Irises, Tulips and Narcissi, and also equally admirable studies of more uncommon subjects, including Eucalyptus ficifolia, Solandra guttata, Bilbergia nutans and Meconopsis Baileyi.

Fruit and Vegetable Committee.

Present: Mr. C. G. A. Nix (in the chair), Mr. Joseph Cheal, Sir W. J. Lobjoit, Mr. W. H. Divers, Mr. A. C. Smith, Mr. P. A. Tucker, Mr. George Woodward, Mr. H. Markham, Mr. A. Bullock, Mr. T. Pateman, Mr. H. Prince, Mr. G. F. Tinley and Mr. E. A. Bunyard.

Except that there were many Apples submitted for identification, this Committee had little work to do, as only one group was forthcoming.

Group.

Vegetables in capital condition were arranged in a bold, attractive group by Messrs. Barr and Sons. This firm showed excellent Leeks, Celery, Savoys, Winter Cabbages, Lettuces, Cauliflowers, Potatos in variety, winter Radishes, Beets, splendid Carrots and Parsnips, herbs of many kinds, Tomatos, Capsicums, Chilies and Aubergines, the whole producing a bright and educational exhibit.

SOCIÉTÉ NATIONALE D'HORTICULTURE DE FRANCE.

The general autumn horticultural exhibition of the French National Horticultural Society took place from October 26 to November 4, at Cours-la-Reine, as usual, and was as successful as ever. If the flowering plants, and in particular the Chrysanthemums, were nothing out of the way, and the fruits shown were rather ordinary, the general effect was good, and the exhibits pleasingly arranged, so that in spite of unfavourable weather the exhibition was visited by a large number of people.

The chief Grand Prix d'Honneur (presented by the President of the Republic) was awarded to MM. Vilmorin-Andrieux et Cie for their exhibit as a whole. As usual, the group of this firm occupied all the central portion of the tent, and was quite unrivalled. The Chrysanthemums comprised a considerable number of plants in hidden pots or in ornamental holders, of various heights, and trained in different ways, such as cones, pyramids, etc., the colours being harmoniously grouped. In the centre was a hollow square, and at the sides light collonades, painted white; at one side of the main group was a large collection of mixed vegetables, surrounded by Chrysanthemums, and at another, Dahlias shown as cut flowers. Among the numerous varieties shown, the following may be named:—Dufour, white; Rufisque, pink, dwarf; Gerbe d'Or, yellow (in border); Valentinois, brownish-yellow; Eclatant, red; Jeannette, single pink (pyramid); and Rosine, pink.

Among other exhibitors of Chrysanthemums was M. Lochot, of Pierrefitte, who had a very beautiful group, including Chrysanthémiste Lochot, pink; Madame J. Raimbault, a yellow sport from Ami Paul Labbé; Lemaire Frères, pink with silver reverse; Yvette, a small plant with single pink flowers; R. C. Pulling, yellow; and Savoyard, white. M. Morin, a grower of La Rochelle, sent a fine series of plants in pots, including La Tosca, pink, and Souvenir de Philippe de Vilmorin, brownish-red with silvery reverse. M. Olivet, of Châtillon-sous-Bagneaux, had an interesting exhibit in which were noted Norman Davis, brown and gold; Jeanne Olivet, white; In Memoriam, brownish-red, gold centre; Uxbridge Bronze and Uxbridge Pink. M. Féron, of Garches, showed among other good things, Président Millerand, old gold; Ernest Vidé, yellow; Deuil de Paul Labbé, and Edith Cavell. M. Vialette, St. Germain en Laye, included in his collection Madame Charles Souchet, pink; Ami Paul Labbé; Alix Harvey, yellow, and Berta, brown.

The well-known firm of Férard, of Paris, filled the whole of one end of the tent with a large group of Chrysanthemums, single varieties; those shown included Charles Digoy, brown; Dijonnais, pinkish-brown; Madame Pépin, pink; Blue Bird (strangely named, as the flowers are pink!), and Orléanais, yellow. In the foreground were rock plants of all descriptions and a paved path planted in the interstices of the stones with dwarf plants.

M. Leloup-Grimoux, Le Mans, showed a meritorious group of cut flowers, and M. Laine, head gardener at Igny, showed also a good collection including Président Millerand and Captain Fox.

The Paris Municipal Horticultural College at St. Mandé sent a well assorted exhibit, including the Chrysanthemums René Albert, Nantais and Jaunette.

On account of the mildness of the weather, Dahlias were shown in such numbers as to compete seriously with the Chrysanthemums, which they bade fair to eclipse with their brilliant colours. The firm of Cayeux et Le Clerc, of Paris, sent a very fine group of various kinds as cut flowers, including Jersey Beauty, Loie Fuller, Gold Rose, Sisikiyou, Marc Aureau and Roman Eagle. This firm also showed various unnamed seedling plants, and the varieties to which a Certificate of Merit was awarded, which are enumerated below.

Among the Dahlias shown by MM. Vilmorin-Andrieux et Cie—cut flowers, arranged in pretty white baskets—were Flamboyant, Macao, Cocorico, Bordeaux, Roger de Vilmorin, Emma Groot, Polar Bear, Halo, Jongleur and Stello.

In the small salon reserved for Orchids there were some very fine things. M. Maron, of Brunoy, secured the Mattan prize (offered for the finest flower) for his Brasso-Cattleya Andromaque × A. Maron (a large flower with pinkish sepals and petals and yellow and pink lip). He also showed Cattleya Penelope (C. Fabia alba × C. aurea), an enormous flower with white divisions and an elongated yellow and pink labellum; Brasso-Cattleya Douaumont, and some very fine seedlings of Vanda coerulea. M. Marcoz, of Brunoy, sent Cattleya amabilis alba; Laelio-Cattleya luminosa × aurea, and a fine specimen of Selenipedium Haynaldianum, with a stem carrying three flowers.

M. Le Blevennec, of Bois-Colombes, showed Cattleya amabilis alba var. Marie Bert, white with magenta labellum margined with white; Laelio-Cattleya Madame Ginette, and Cattleya Fabia superba. M. Guttin, of Argenteuil, had a group containing Cattleya René Letten, pure white, and Brasso-Cattleya Ilene (Madame Charles Maron × aurea); M. Perrin, of Clamart, showed Laelio-Cattleya Carmencita, C. Folco, and a fine specimen of Cypripedium insigne Sanderae; while MM. Vacherot et Lecoufle, of Boissy-St.-Léger, had Laelio-Cattleya Barrès, and excellent specimens of Odontiodas.

Among plants other than Chrysanthemums, we may mention the collections of Roses, dwarf Rose trees in pots, and standard Roses, from M. Defresne of Vitry, and of M. Lévêque, of Ivry. In spite of the lateness of the season, there were still excellent flowers of Toison d'Or, Ophelia, Souvenir d'Alex Bernaix and La Maréchale Pétain. There were also fine Carnations shown by M. Lévêque, of Vitry, and a pretty collection of Cyclamens from M. Kempnich, of Woippy (Moselle), with a border of Helxine Soleirolii. Two fine exhibits of tuberous Begonias of brilliant and varied colouring were supplied by MM. Vallerand frères, of Taverny, and M. Billard, of Vésinet.

M. Thiébaut, of Paris, showed an interesting collection of young Cactuses and other Succulent plants, including the famous "Peyotl" of Mexico (Echinocactus Williamsii), and M. Weiss, of St. Cloud, a pleasing exhibit of old, dwarfed, weeping Conifers, in pretty Japanese pots. We may also mention an attractive and varied exhibit from the Syndicat des Horticulteurs de la Région Parisienne, and some fine sprays of forced (or retarded) Lilac, from M. Souchet, of Ivry.

In the florists' section, there was a magnificent piece of decoration by M. Charlot, a florist of Paris, to which was awarded, without a dissentient voice, the second Grand Prix d'Honneur. It was an ambitious piece of work, representing a "hostelry"; in the background was a staircase in wrought iron, and in the foreground small tables variously ornamented with Orchids (Cattleyas and Vandas), fruits, Pernetiana Roses, Chrysanthemums and autumn foliage; the lighting was supplied by a large electric chandelier twined with Nasturtiums and Asparagus foliage.

Fruits were well shown by the usual exhibitors, the displays including those of MM. Numblot-Bruneau, of Bourg-la-Reine; Moser et fils, of Versailles, and Croux, of Chatenay. They comprised many rare varieties, as well as the more usual commercial kinds. These last were more specially represented in the exhibits of the Versailles Horticultural College, the College of Horticulture at Igny, and of the students attending the Arboricultural Course at the Luxembourg Gardens conducted by Professor M. Cuny. Other excellent exhibits of commercial fruits included those of M. Bourassin, of Bagnolet, and M. Lambert, of Soissons. In these collections there were fine specimens (considering the climatic conditions during the year) of Pears Beurré de Naghin, Triomphe de Jodoigne, Belle Angevine, Doyenné du Comice, Doyenné d'Hiver, Passe Crassane, and Duchesse Bererd; and Apples Api Rose, Grand Alexandre, Kandil Sinap, Reinette Grise de Saintonge, Belle de Pontoise, Jeanne Hardy, Calville Blanc and Reinette du Canada.

Grapes were splendidly shown in two displays, one by M. Parent, of Rueil, who had enormous bunches of Forster's White, Alicante, and Gradiska; the other by the firm of Salomon, of Thoméry, who are proud of the fact that they are still cultivating Chasselas Doré, which has been grown by the family on the same spot since 1618. Besides a magnificent exhibit of this fine Chasselas Doré, there were some excellent bunches of recent varieties, such as Maréchal Gallieni and Président Viger, white. By way of decoration, the display was ornamented with the very red foliage of a local vine, and the pretty little blue fruits of Vitis brevipedunculata.

As regards vegetables, there was a very complete collection from the firm of MM. Vilmorin-Andrieux et Cie, comprising among other things some magnificent Cauliflowers (improved d'Orgeval), various Gourds and decorative Savoys. There were also exhibits from the Horticultural Colleges of St. Mandé and Igny (among the vegetables shown by the latter was Batata Rose de Malaga weighing over three kilogrammes); and from M. G. Truffaut, of Versailles, who had a meritorious exhibit of Carrots. M. Picard, of Courville, showed ornamental Colocynths of every imaginable shape and colour.

As usual, outside the large tent was a fine exhibition of fruit trees trained in various ways—"palmettes," vases, cylinders, etc.—from the firms of Nomblot-Bruneau, Bourg-la-Reine; Croux, of Chatenay; Moser, of Versailles; Allavoine, of Jouy en Josas, etc. Ornamental trees and shrubs were well shown by MM. Thuilleaux et Lécolier, of La Celle St. Cloud, and Martin, of Louveciennes; and by M. Lièvre, of Vitry, a pretty miniature garden.

There were a considerable number of exhibitors of sundries of various kinds, also a little salon of flower and garden pictures comprising some very fine things.

Numerous Certificates of Merit were awarded to new Chrysanthemums. In the first place, the Floral Committee awarded the First Class Certificate to four varieties which have maintained their exceptional quality under French cultural conditions since their appearance, as follows:—*Mrs. R. C. Pulling* (Wells, 1913); *Ami Paul Labbé* (Martin, 1918); *Edith Cavell* (Wells, 1915); and a market variety, *Blanche Poitevine* (Bruant, 1919).

For novelties of the present year, M. Morin, nurseryman, at La Rochelle, obtained no fewer than fourteen Certificates of Merit, of which five were for plants in pots, including *Grandpère Wilfrid*, yellowish-brown; *Madame Bruno*, red; *President Maurice Lhuile*, yellow; *Légionnaire Faideau*, brown and gold; and *Hermine*, pure white with a greenish centre.

To the firm of Vilmorin were awarded twelve Certificates; among the certified varieties were *Albigroid*, pink; *Strasbourgeois*, brownish-red; *Chartrain*, pink, shaggy bloom; *Parisien*, brownish-yellow; and Versailles, pure white. M. Leloup-Grimoux, of Le Mans, gained six Certificates, for (among others) *Souvenir de Pierre Regnier*, a variety with narrow red petals, gold on the reverse, and *Ministre Quenille*, old golden-brown. Madame Martin et fils, of Champigny, won Certificates for *Madame Lhuile*, a fine pale pink variety; *Madame Paul Féron*, brownish-red; and *Souvenir de George Pichon*, pale yellow and brown. M. Lochot, of Pierrefitte, gained an award for *Professeur Lafosse*, old rose with gold reverse.

A number of Certificates of Merit were also awarded to Dahlias shown by MM. Cayeux et Le Clerc, of Paris, including *Autumn Gem*, a fine yellow; *Bourgogne*, wine-red; *Eleonor Vandewer*, pink; *Marcherschon*, a very pretty pink and yellow; and *The Bandit*, yellow streaked with brown; also to two varieties raised by M. Nagels of Antwerp, and shown by M. Reboux, of Cormeilles en Parisis, namely, *Madame Emile Draps* (Decorative), and *Signor* (Cactus).

A Certificate of Merit was awarded to M. Hébert, of Cobourg, for a pretty little Pelargonium with a pink flower, *Gloire de Louviers*.

A. M.

READING AND DISTRICT GARDENERS'.

An exceptionally large number of members, under the chairmanship of the President, Mr. Frank E. Moring, was present at the fortnightly meeting held in the Abbey Hall, on November 5. The feature of the meeting was the competitions for floral decorative work, and these created a great amount of interest, for the work of arranging the flowers in vases had to be done before the audience.

In Class 1, for a bowl of Chrysanthemums arranged for effect, there were eight entries, and the first prize was awarded to Mr. E. Blackwell, The Gardens, Foxhill, Reading, for quite a bold display; second, Mr. C. T. Clacy, The Gardens, Sidmouth Grange, Earley.

For the next class, for a bowl of flowers and foliage, there were five entries, the first prize going to Mr. H. Wynne, The Gardens, Woodcote House, whose bowl was chiefly composed of Roses; second, Mr. J. Wynne, The Gardens, Hammonds, Checkendon.

A First Class Certificate was awarded to Mr. W. Broomfield, The Gardens, Clyffe House, Mapledurham, for splendid plants of Cypripedium insigne var. Sanderae, C. Charlesworthii, and Odontioda Bradshawii. A similar award was given to Mr. F. Turner, Southview, Calcot, for exceptionally well-grown specimens of Chrysanthemums Blanche Poitevene. Mr. C. J. Howlett exhibited for large vases of Chrysanthemums; while Mr. A. H. Wooldridge Glen Brae, Basingstoke Road, Reading, showed two dishes of dessert Apples.

There was only time for one paper, out of the four arranged for the evening, and this was read by Mr. W. Broomfield, his subject being "Cool House Orchids." He briefly outlined the history of Orchid culture in this country, and stated that during the past twenty years great advance had been made in the knowledge and understanding of the requirements of Orchids, particularly of the cool-house section. With a little study of their requirements, they may be grown with less trouble than Carnations, Geraniums, etc. Full details were given of the most suitable type of house, together with instructions for shading, ventilation, watering, temperature, resting, compost, potting and repotting. Mr. Broomfield also described the Orchids most suitable for a cool house.

KINGSTON AND SURBITON CHRYSANTHEMUM.

The twenty-first exhibition of this Society was held at Surbiton Assembly Rooms on November 7, and was far better than its predecessors, the general quality of the flowers having improved very much, and the entries doubled during the past five years.

The premier bloom was a very large one of Louisa Pockett, grown by Lady Juliet Duff (gr. Mr. Weaver), Coombe Court, for which the N.C.S. Certificate and a special prize of £1 was awarded. Lady Duff also won the Tradesmen's Challenge Cup for eighteen Japanese blooms, distinct; first prize for three white Japanese blooms; first for a collection of vegetables; first for four dishes of Apples; and first for four dishes of Pears.

The President's Challenge Cup was awarded to Mr. Surey, of Kingston, in the Amateurs' Class, for twelve Japanese, distinct; he showed a very fine set. The Hodgson Challenge Cup was won by H. Becker, Esq. (gr. Mr. Manwaring), Surbiton, for twelve Japanese blooms, distinct.

The Hanks Challenge Cup went to E. L. Ralli, Esq. (gr. Mr. Pike), Leatherhead, for a group of very fine Chrysanthemum plants in bloom. The Bond Challenge Cup was won by G. C. Hodgson, Esq. (gr. Mr. Balfield), Surbiton, with a fine group of miscellaneous plants.

There was a very strong competition in most classes, especially for three white Japanese blooms —eight exhibits; and three yellow Japanese blooms—nine exhibits. Some very good decorative classes were well filled by ladies, Mrs. A. Smith, of Teddington, securing first prize for a table with a new dark red variety. Miss C. Weaver won the first prize for a vase, and was also first for a basket of Chrysanthemums.

There was a strong competition in the fruit classes, some very highly-coloured fruits being staged, especially McIntosh Red, from Mr. Allen, New Malden.

Vegetables were a fine feature from gardeners, cottagers and allotment holders.

The President, F. G. Wigley, Esq., and Mrs. Wigley, came during the evening and presented the cups and special prizes to the exhibitors.

Obituary.

Charles Scoular France.—Amid every manifestation of respect and esteem, the remains of Mr. Charles Scoular France were laid to rest in Allenvale Cemetery, Aberdeen, on Wednesday, the 7th inst. Born at Balbirnie, Fifeshire, eighty-five years ago, Mr. France was one of the best-known men in forestry circles in Scotland. The love of the forest was in his veins, and he was the son of a forester. When fifteen years of age he was apprenticed as a forester on the estate of Casillis and Culzean, belonging to the Marquis of Ailsa, with whom his father was forester for thirty years. Here, under his father's tuition, he received a capital grounding in the various departments pertaining to the craft. At the comparatively early age of twenty-two he was appointed forester on the Wicklow and Wexford estates, Ireland, belonging to Viscount Powerscourt, where he remained for six years. During that period, Mr. France carried through one of the largest afforestation schemes undertaken in Ireland for many years. With the warm approval of Lord Powerscourt, no fewer than 1,200 acres of the bare Wicklow mountains were planted. The crop of trees upon that hitherto unproductive part has been almost entirely realised after paying the principal and interest on the outlay and maintenance at a price equal to from 10s. to 15s. per acre per annum since the timber was planted over fifty years ago. From Ireland, Mr. France transferred his services to the estate of Penicuik, Midlothian, where he remained for twelve years. Thence, practically up to the day of his death, he became a consulting forester, and his wise and sagacious advice was much sought after and appreciated on scores of Scottish estates. The Royal Scottish Arboricultural Society had no warmer friend than Charles S. France, and practically all his leisure was devoted to the furtherance and advancement of its work. He became a member in 1866, and was one of the founders of the Aberdeen branch of the Society, and contributed the first paper at the opening meeting. What he considered the crowning honour of his career was when he was appointed president of the branch in succession to Sir John Gladstone, Bart. True, he only retained the position for a short period, resigning in favour of Mr. John Michie, M.V.O., late factor to the King on the Balmoral estates, but his ambition had been attained—he had "passed the chair" For many years he was a member of the Council of the Society, and contributed to the *Transactions* many valuable papers, for one of which he was awarded the Society's medal. On his eightieth birthday, when on an excursion with his fellow arboriculturists in the north of Scotland, Mr. France was presented with valuable gifts, and warm tribute was paid to the fact that he had been the life and soul of the Society. To young men who sought his advice, Mr. France first gave them what he termed his motto through life, viz., "Always try to realise that you are an ignorant blockhead: when you do that you are on the high road to learning." Among the pall-bearers at the funeral was Mr. John Michie, M.V.O., President of the Aberdeen Branch of the R.S.A.S.

George Paterson.—Forestry circles will learn with sincere regret of the death of Mr. George Paterson—the "Father" of the home timber trade in Scotland—which took place in Glasgow on Saturday, the 10th inst. The firm of which deceased was head was founded in 1824 at Cleghorn, Lanarkshire, by his father and uncle, and developed until it became the largest firm of home timber merchants in Scotland. Some twenty years ago it was formed into a private limited company, and its centenary was celebrated in 1924. The firm has mills at St. Rollox, Glasgow; Craiginches, Aberdeen; Banchory, Kincardineshire; Monymusk, Aberdeenshire; Invergordon, Cromarty; and forest mills all over Scotland, there being scarcely a wooded estate north of the Border where the firm has not carried on operations. Mr. Paterson's judgment as a valuer of timber, growing or felled, was considered one of the most reliable in Scotland, and time and again he was called upon to settle disputes between buyer and seller He was a man of great business ability and integrity, and continued his activities, although seventy-nine years of age, right up to the last. He leaves a widow and two sons and one daughter. The eldest son, Captain George Paterson, is a director of the firm, and will now take up the threads of the business laid down by his esteemed father.

John Warrior.—We regret to announce the death of Mr. John Warrior, at Keighley, on October 31, at the age of seventy-seven. He was one of the old school of gardeners, and came of a gardening family, his father being a nurseryman and seedsman at West Tanfield. In his younger days, he was foreman at Ribstone Park Gardens, and there pruned the original Ribstone Pippin tree. For a quarter-of-a-century he was gardener at Aldburgh Hall, Yorkshire, to the late Henry Crossley, Esq., J. T. D'arcy Hutton, and T. B. Greenwood, Esq., in whose service he remained until the time of his retirement in 1920. He will be remembered as a frequent judge at flower shows in the West Riding of Yorkshire, and by his reports to *The Gardeners' Chronicle* on the condition of fruit crops, wherein he always emphasised the fact that his fruit trees were trained on freestone walls which were considered less favourable than brick. He retained a keen interest on all matters pertaining to his profession until the time of his death.

ANSWERS TO CORRESPONDENTS.

Aphis on-Brussels Sprouts.—*E. B.* Other than the soaking of the sprouts in strong salt water prior to cooking, we know of no other method by which they may be freed of the aphis. Once the aphides have got into the hearts of the sprouts they are practically impossible to dislodge, and are very liable to render the Sprouts unsuitable for human consumption.

Names of Plants.—*R. T.* 1, Nerine Bowdenii; 2, Berberis polyantha; 3, Taxodium distichum; 4, Schizostylis coccinea var. Mrs. Hegarty; 5, Cotoneaster frigida; 6, Cotoneaster frigida; 7, Ceratostigma Willmottianum; 8, Escallonia Philippiana; 9, Escallonia langleyensis; 10, Araujia sericifera (Physianthus albens).

Names of Fruits.—*T. H. B.* Pear Triomphe de Vienne; Apple Franklin's Golden Pippin.

Stocks for Fruit Trees.—*G. S.* Paradise stocks are always grafted very close to the ground because, when the trees are moved to their permanent quarters, they should be planted with the union between scion and stock just below the soil. If this is not done the trees are often unsatisfactory. Standard Apples are grafted on the so-called Crab or free stock, and need not be planted as described. It is not, therefore, so important to graft very close to the ground in this case. However, the junction is always made within a few inches of the ground. This is probably desirable, because it is not unlikely that, the greater the length of stock in the stems of the trees, the more pronounced the variation in vigour, which is an objectionable feature of trees on seedling stocks. It is stated that, in America, where seedling stocks are the rule, uniform trees are obtained because it is the custom to graft on to the actual root of the stock, so that the stem of the tree is composed entirely of the scion variety. We know of only one exception to the rule of working close to the ground. Some growers like to bud Cherries on wild Gean, five feet or six feet up, so that the stem of the tree is provided entirely by the stock.

Tulips Over-dried.—*G. K. T.* Judging by the condition of the Tulip bulbs you sent us, they were subjected to too much heat during the drying process.

Communications Received.—W. H. L. — P. E. C. — M. W.—O. M.—F. J.—J. H.—A. B.—F. D.—N. E. C. —F. S.—M. A. A.—A. B.—F. A.

MARKETS.

COVENT GARDEN, Tuesday, November 13th, 1928.

Plants in Pots, etc. : Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz.	10 0–12 0
—elegans	10 0–12 0
Aralia Sieboldi	8 0—9 0
Araucarias, per doz.	30 0–40 0
Asparagus plumosus	12 0–18 0
—Sprengeri	12 0–18 0
Aspidistras, green	16 0–60 0
Aspleniums, doz.	12 0–18 0
—32's	24 0–30 0
—nidus	12 0–15 0
Cacti, per tray, 12's, 15's	5 0—7 0
Chrysanthemums per doz.	15 0–24 0
—white, per doz.	15 0–24 0
—yellow, per doz.	18 0–24 0
—pink, per doz.	21 0–24 0
—bronze, per doz.	12 0–18 0
Crotons, per doz.	30 0–45 0
Cyclamen, per doz.	24 0–36 0

	s. d. s. d.
Cyrtomiums	10 0–12 0
Erica gracilis, per doz.	24 0–30 0
— — 60's, per doz.	12 0–15 0
— — 72's, per doz.	6 0—8 0
—nivalis, per doz.	24 0–36 0
— — 60's, per doz.	12 0–15 0
— — 72's, per doz.	6 0—8 0
Nephrolepis in variety	12 0–18 0
—32's	24 0–36 0
Palms, Kentia,	30 0–48 0
—60's	15 0–18 0
Pteris in variety	10 0–15 0
—large, 60's	5 0—6 0
—small	4 0—5 0
—72's, per tray of 15	2 6—3 0
Solanums, per doz.	12 0–15 0
— 60's, per doz.	9 0–12 0

Cut Flowers, etc. : Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	9 0–10 0
—cuneatum, per doz. bun.	8 0—9 0
Anemone, St. Brigid, per doz.	4 0—6 0
Arums (Richardias), per doz. blooms	5 0—8 0
Asparagus, plumosus, per bun., long trails	2 6—3 0
—med. sprays	2 0—2 6
short ,,	— 1 0
—Sprengeri, bun. long sprays	2 0—2 6
med. ,,	1 0—1 6
short ,,	0 6—1 9
Autumn foliage, various, per doz. bun.	6 0–12 0
Camellias, white, per doz. blooms	2 6—3 0
Carnations, per doz. blooms	2 6—4 6
Chrysanthemums—	
—white, per doz. blooms	2 6—5 0
—yellow, per doz. blooms	2 6—6 0
—bronze, per doz. bunches	10 0–12 0
—bronze, per doz. blooms	2 6—4 6
—pink, per doz. bunches	12 0–15 0
—pink, per doz. blooms	3 0—6 0
—single varieties, disbudded, per doz.	3 0—4 0
—single varieties, spray, per doz. bun.	12 0–18 0
Cornflowers, blue, per doz. bun.	2 6—3 0
Croton leaves, per doz.	1 9—2 6
Fern, French, per doz. bun.	10 0–12 0
Forget-me-nots, per doz. bun.	10 0–12 0
Gardenias, per doz. blooms	4 0—9 0
Heather, white, per doz. bun.	9 0–12 0

	s. d. s. d.
Lily-of-the-Valley, per doz. bun.	18 0–30 0
Lilium longiflorum, long, per bun.	3 0—3 6
— — short, per doz. blooms	3 0—3 6
—speciosum rubrum, long, per doz.	3 6—4 0
— — — short, per doz.	2 0—2 6
Marigolds, per doz. bun.	4 0—6 0
Myrtle, green, per doz. bun.	1 6—2 6
Nerines, scarlet, per doz. spikes	8 0—9 0
Orchids, per doz.	
—Cattleyas	24 0–36 0
—Cypripediums	8 0–15 0
Roses, per doz. blooms—	
—Mme. Butterfly	2 6—4 6
—Columbia	2 6—3 6
—Golden Ophelia	2 6—3 6
—Richmond	3 0—4 6
—Roselandia	2 6—4 6
—HoosierBeauty	5 0—6 0
—Molly Crawford	2 6—4 0
Smilax, per doz. trails	4 6—5 0
Stocks, white, per doz. bun.	6 0–10 0
Violets, Prince of Wales, per doz. bun.	2 6—4 0
French Flowers—	
—Acacia (Mimosa), per doz. bun.	12 0–15 0
—Chilies, loose, per pad	4 0—5 0
—Eucalyptus foliage, per pad	5 0—6 0
—Roses, Sarano, per pkt. 24's	2 0—2 6
—Ruscus foliage, per pad	4 0—5 0
—Solanum berries, loose, per pad	6 0—8 0
—Violets, Parma, large, per bun.	— 5 0

REMARKS.—The glut of Chrysanthemums continues, although good spray varieties and white blooms realised better prices towards the week-end, but there are still too many inferior lines which are difficult to clear at any price. Single varieties are much improved in quality ; the disbudded blooms are the finest received so far this season and consist of the following :—Absolute, Exmouth Pink, Florrie King, Phyllis Cooper, Mason's Bronze, Mensing, Norman (yellow) and Mary Morris. Carnations remain at last week's quotation, but Roses have been a trifle shorter and prices firmer ; the colder weather checked the supply. Lilium longiflorum, Richardias (Arums) were sufficient to meet the increased demand for Armistice Day, and prices remained normal. Other subjects are similar to last week's quotations ; business in general continues quiet.

In the French department fresh lines are now coming to hand, such as Carnations, Safrano Roses, and a regular supply of Parma Violets ; a few pads of single Violets were received last week in fair condition.

Trade has been a trifle more brisk in flowering plants the latest arrivals being Erica hyemalis, Begonia Gloire de Lorraine, Primulas and better Cyclamens in forty-eights. Ferns of various sizes are the best lines in foliage plants ; Palms are fairly good, while Aspidistras and Asparagus Sprengeri and A. plumosus are a slow trade. Roses, fruit trees and hardy shrubs are in good demand at the present time.

Fruit : Average Wholesale Prices.

	s. d. s. d.
Apples, English—	
—Cox's Orange Pippin ½-bushel	6 0–15 0
—Bramley's Seedling	6 0–10 0
—Newtown Wonder	6 0—9 0
—Lane's Prince Albert	6 0—9 0
—Blenheim Pippin, ½-bushel	3 6—5 0
—King of the Pippins, ½-bushel	3 0—5 0
Apples, Californian—	
Newtown, per case	9 0—9 6
—American Jonathan	8 0—9 6
—Oregon, per case	10 0–14 0
Apples, Nova Scotian—	
—Cox's Orange Pippin, ½-barrel	20 0–27 6
—Ribston Pippin, per barrel	18 0–22 6
—Blenheim Pippin, per barrel	18 0–24 0
—King's, per barrel	18 0–24 0
Bananas, per bun.	1-0 25 0
Grapes, English—	
—Muscat of Alexandria, per lb.	3 0—7 0
—Alicante	1 0—2 6
—Canon Hall Muscat, per lb.	3 0—7 0
—Gros Colmar	1 9—2 6

	s. d. s. d.
Grapes, Almeria, per barrel	10 0–18 0
Grape Fruits—	
—Honduras	— 27 6
—Jamaica	— 27 6
—Florida	— 30 0
Lemons, per case—	
—Messina	11 0–22 6
—Malaga	14 0–16 0
Nuts—	
—Chestnuts, Italian, bag	25 0–35 0
— —French ,,	— 15 0
—Walnuts, ,,	12 0–14 0
Oranges—	
—Cape Valencia	— 20 0
—Jaffa	14 0–15 0
—Australian	12 0–14 0
Peaches, hot-house, per doz.	6 0–30 0
Pears, Californian—	
—Winter Nelis	17 0–18 0
—Beurre d'Anjou, ½-case	12 0–12 6
—Doyenné du Comice, ½-case	15 0–17 0
Pears, English—	
—Doyenné du Comice, ½-bushel case	7 0–10 0
—trays	3 0—6 0
Pineapples, case	21 0–35 0

Vegetables : Average Wholesale Prices.

	s. d. s. d.
Beans—	
—Worthing, per lb.	1 0—1 6
—Guernsey, per lb.	1 0—1 9
Beet, per bag	5 0—6 0
Brussel's Sprouts, ½-bag	2 0—5 0
Cabbage, per doz.	1 6—3 0
Celery, washed, per doz.	18 0–24 0
Cucumbers, doz.	6 0—8 0
Lettuce, Cabbage, English, doz.	0 6—1 0
—French, per crate	4 0—6 0
Mint, per doz. bun.	4 0—8 0
Mushrooms—	
—cups... per lb.	2 0—3 0
—broilers ,,	1 0—1 0
—"field," ,,	0 6—1 0

	s. d. s. d.
Peas, French, per boat	4 0—6 0
—Hothouse, per lb.	4 0—5 0
Potatos—	
—English, cwt.	3 0—7 0
—New, hot-house, per lb.	1 0—1 6
Savoys, per doz.	2 6—3 0
Tomatos, English, New crop—	
—pink	5 0—7 0
—pink and white	5 0—7 0
—white	4 0—5 0
—blue	4 0—5 0
Old crop—	
—pink	3 0—4 0
—pink and white	3 0—4 0
—white	3 0—4 0
—blue	2 0—2 6
—Guernsey	2 0—4 0
—Jersey	2 0—4 0
—Canary Island, per bundle	16 0–18 0

REMARKS.—Business in most sections of the market is dull and probably about as usual for the time of year, but uninteresting all the same. There is a moderate demand ruling for hothouse Grapes, of which fairly good supplies are available. The Apple market is feeling the effect of the large stocks on hand and the inquiry is slack, even for best English dessert and cooking varieties, large Bramley's Seedling excluded. The recent improvement in the demand for Pears is maintained, and clean English Doyenné du Comice are selling better than of late.

New crop English Tomatos are an improved business and prices are now comparatively firm. Tomatos from the Canary Islands are selling well. Cucumbers go out quite freely, but supplies are on the light side. Mushrooms show some variation in supply, with some movement in price levels. Hothouse Beans from Guernsey and the Worthing district are selling freely in spite of the competition of Beans from traders in the south of France. A few hothouse Potatos and Peas are available and are selling fairly well, but there is little or no demand for new Potatos from the Azores. The open weather is encouraging supplies of green vegetables, for which however, there is only a moderate trade. Salads, if good, are wanted, but those from France are most popular. The Potato market is stable, with very little movement from last week's conditions.

GLASGOW.

The Chrysanthemum season is now at its height, and supplies of sprays and disbudded blooms continue plentiful, while prices are moderately low. In the following list of quotations, the first figures in each case apply to bunches of 6's, and the latter prices to 12's :—Ada Brooker, 2s. and 3s. ; Pink Chieftain, 1s. 9d. and 2s. 6d. ; Phyllis Cooper, 1s. 4d. and 2s. 3d. ; Mrs. Roots, 1s. 6d. and 2s. 6d.; Cranfordia, 1s. 3d. and 2s. ; Golden Marvel and Jean Pattison, 1s. and 2s. ; and Wonder, 1s. and 1s. 9d. La Pactole and lemon and white Thorpe made 1s. 6d. to 1s. 9d. for 6's, and yellow, bronze and pink sprays, 7d. to 8d. per bunch. Carnations sold at 2s. 6d. per dozen for specials, and 3s. 6d for extra special blooms ; pink Roses made 2s. to 4s. ; red and white Roses, 1s. 6d. ; Lily-of-the-Valley, 1s. 3d. per bunch ; Richardias, 3s. 6d. ; Smilax, 1s. ; and Asparagus sprays, 8d. per medium bunch.

In the fruit market, imports of American Apples were again heavy, but the quality left much to be desired. McIntosh Red and Jonathan, C. grade, were worth 6s. 6d. to 7s. per case ; fancy, 7s. to 8s. ; Delicious, 9s. to 10s.; York Imperial and Ben Davis, 14s. to 18s. per barrel. English cooking Apples sold at 10s. per keg. Anderson's Winter Nelis Pears, 23s. 6d. per case ; Block, 16s. ; South African Oranges, 25s. ; Jamaica Oranges, 19s. to 20s. ; black Grapes, 3s. to 3s. 6d. per lb.; Muscats, 4s. 6d. to 5s. 6d. ; Tomatos, 8d. ; and Scotch Burnet Plums, 3s. per sieve.

Vegetables moved irregularly. Cucumbers sold at 10s. per dozen ; Cauliflowers, 5s. ; Lettuce, 2s. per box of eighteen ; and Mushrooms, 2s. 6d. per lb.

THE WEATHER IN OCTOBER.

South-easterly, southerly and south-westerly winds greatly predominated during October ; the two latter to an unusual extent. As a consequence, the weather was generally mild, but very wet. All other principal meteorological elements, however, were nearly normal, with the single exception of atmospheric pressure—which, after the 17th, was continuously low. The mean temperature was 50°, or 1° above the average. Rain fell on twenty-two days, or four more than usual ; and the total was 5·57 inches, which implies an excess of 1·86 inch. Sunshine was normal, at 97 hours. There were no gales, and thunder was not heard. Ground frost and fog occurred on four nights; and slight frost in the shade, once. Hail fell on the 20th. *Joseph Baxendell, The Fernley Observatory, Southport.*

CATALOGUES RECEIVED.

W. C. JOHNSTON, Dumfries, Scotland.—Scotch seed Potatos.

W. E. TH. INGWERSEN, LTD., Sharpthorne, East Grinstead, Sussex.—Hardy and alpine plants.

HERD BROS., Market Square, Penrith.—Forest, fruit and ornamental trees, shrubs, Roses, etc.

THE ALL BRITISH HARD TENNIS COURTS CO , 11a, The Crescent, St. Annes-on-Sea.—Hard tennis courts.

BENJAMIN REID AND CO., 72, Guild Street, Aberdeen.—Forest trees, shrubs, Roses, etc.

Foreign.

M. LEENDERS & CO., Steyl, Tegelen, Holland.—Roses.

M. HERB, Via Trivio, 24-36, Naples, Italy.—Vegetable and flower seeds.

H. CORREVON, Floraire Nurseries, Chene-Bourg, near Geneva.— Seeds, wholesale.

M. CAPECCHI AND FIGLI, Piazza del Carmine, Via Degli Armeni, 3-5, Pistoia.—Fruit trees and seeds.

GARDENING APPOINTMENTS.

Mr. C. E. Lafferty, for the past seven years gardener to A. J. WOODROFFE, Esq., Rhode Hill, Uplyme, Devon, as gardener to F. E. HARDING, Esq., Old Springs, Market Drayton, Salop.

Cutting down the advertising appropriation when business is bad is like cutting down the cow-feed when the milk runs short.

THE
Gardeners' Chronicle
No. 2187.—SATURDAY, NOVEMBER 24, 1928

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 41·2°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, November 21, 10 a.m. Bar. 30·1. Temp. 56°. Weather, Wet.

Walnuts.

AMONG all those many things which, in the opinion of the aged, are not what they used to be, the Walnut certainly deserves a place. Where are the pickles of earlier time, and where are the readily-yielding shells disclosing not dried up, but moist and delectable, Walnuts? Why they should have become rare—if, indeed, they have—is something of a mystery. For Juglans regia, native of Europe, with a wide range across Asia so far as Afghanistan, is, when established, a vigorous and hardy tree. Perhaps it is the impatience of modern gardeners which accounts for smaller numbers having been planted since earlier and more placid days. For, in truth, as generally grown, the Walnut is a tree of leisurely habit, so far as fruiting is concerned. Anything, therefore, that is calculated to make the Walnut abuse this habit and fall into line with this hustling age must be welcome news to gardeners. Such news, it would seem, may be read between the lines in an interesting article* recording the work done on Walnut propagation at the East Malling Research Station. As is well-known, the Walnut is usually propagated from seeds—a tedious and uncertain process—for not only does the Walnut often fail to come true from seeds, but it needs must be transplanted every second year if risk of loss when planted out in its permanent quarters is to be minimised. It is as well also when seedlings are transplanted to shorten the tap roots. Evidently, therefore, if the Walnut is to regain its popularity something must be done to make it more amenable to cultivation. Of course, there are ways and means of grafting or budding the plant, but even so, the seedling stocks have to be raised, and the losses incurred when budding or grafting is done in the open, are considerable; but it often happens that the union between stock and scion, happily begun, is arrested before completion. Experiments at East Malling show, however, that grafting under glass is a relatively sure process leading to about seventy-five per cent. of successes. Several methods have been employed at the Station, notably hardwood grafting and herbaceous or greenwood grafting. With the former, one-year old seedling stocks are lifted from the open ground and potted into four-and-a-half inch pots. While still dormant, the seedlings are brought into a greenhouse in early February and then grafted after a fortnight or so; a double-tongued whip-graft is made and the whole of the scion and the exposed part of the stock is coated with melted paraffin wax. The grafted plants may be left on the staging of the greenhouse, or else plunged in a closed frame with bottom heat—when union between scion and stock takes place more quickly. Green or herbaceous grafting, which has much to recommend it, is done in July and August. The piece of scion used may be quite small — one-quarter-of-an-inch in thickness. Although when grafted in this way the scion makes little growth in the current year, it makes up for lost time by vigorous growth in the following season. The method admits of sampling the produce within one season, for if a scion carrying a flower bud be used, the flower on opening may be pollenated by hand and a fruit obtained in the year of grafting. The method followed with this process is to place the stocks to be grafted in four-and-a-half-inch pots in January, leaving the upper part of the root system above the soil. The shoots to be used as scions should be taken when the wood is half-ripe, that is, after the pith has ceased to be watery and is becoming latticed, and the wood itself is just getting hard. An end shoot, or a piece with one or two eyes, with leaves attached, is chosen, but it is as well to cut half the leafage away. Grafting is done so low down as possible, just above the origin of the main root. When grafted, the plants are placed in a closed, moderately moist and unheated frame, when the union is effected in from ten to fourteen days. There remains the root stock question. If that can be propagated vegetatively, yet more time—most precious often to those who make least use of it—would be saved. Unfortunately, the Walnut is not easy of vegetative propagation, nor does it normally send up suckers; nevertheless, soft or green-wood cuttings often root if the plants from which they are to be taken are brought into a temperature of 60° to 65°F., in February. So soon as the new green shoots are well advanced cuttings of three to four inches in length are taken, cut a quarter-of-an-inch below a node and inserted singly in small pots filled with a compost consisting of three-quarters chopped fresh Sphagnum-moss and one-quarter clean sand, pressed tightly, with the cutting placed at the edge of the pot. Leaves attached to the cutting, if very large, should be reduced in size. Then the pots are plunged in Cocoanut fibre refuse in a closed frame, with bottom-heat of 70° to 75°F., the top heat being 65° to 70°F. If kept moderately moist and shaded during bright sunshine, roots begin to appear after six weeks. Some varieties root quicker than others—one of the quickest being a seedling "Royal" hybrid (J. nigra × J. californica). It would be interesting to know whether the garden variety of J. regia known as praeparturiens, a dwarf, bushy, precocious plant known in orchards as Prolific (see W. J. Bean's *Trees and Shrubs Hardy in the British Isles*, Vol. I, p. 667) might not be made use of in this worthy and opportune work of speeding up the fruitfulness of Walnuts.

Horticultural Club.—The annual meeting of the Club will be held at St. Ermin's Hotel, Caxton Street, Westminster, S.W.1, on Tuesday, November 27, at 6 p.m. A dinner is arranged for 7 p.m. the same evening, and following the dinner, Mr. E. A. Bunyard, F.L.S., will deliver an address on "Wanderings in French Vineyards," illustrated by lantern slides. Members are notified that the Club's library of gardening books, etc., which has been considerably augmented, is again available for their use, and gardening papers will be found on the table. Those staying for the dinners will find materials for a game of bridge in the writing desk drawer. The Committee hopes that members will endeavour to increase the membership by bringing the Club to the notice of their gardening friends and persuading them to join, or by sending nominations to the Hon. Secretary, Mr. Geo. F. Tinley, 855, London Road, Westcliff-on-Sea.

Scottish Potato Crops.—The Board of Agriculture reports that in most districts three-fourths or more of the Potato crop had been lifted by the end of October, while the proportion elsewhere was generally about a half. As a consequence of the wet weather during the second half of the month, some of the crop was secured under unfavourable conditions, but taken as a whole, the reports on the quality of the crop are very satisfactory. In most areas the yield has proved to be quite as heavy as was expected, many of the tubers being of an unusually large size.

Agricultural Education with a Cinema.—What is probably a first attempt of its kind in this country has just been started by the Agricultural Department of the Leicestershire County Council. A van, which was equipped for the purpose of instructing blacksmiths in the processes of their craft, has now been adapted for the conveyance of a portable cinema projector. The equipment has been supplied free by the Empire Marketing Board, who also supply suitable films. The films embrace agriculture, horticulture, poultry-keeping, dairy work and bee-keeping, while during Rat Week an excellent film showing the methods of dealing with the pest was also exhibited. The films are shown on three or four nights each week at the different centres, and good attendances are maintained. The van will enable the staff of the County Council to demonstrate its varied activities in centres which are not easily accessible, and makes it possible for village people to see moving pictures of the cultural operations in the varied branches of agriculture.

Moving Large Trees.—Germany has many large tree nurseries, and useful hints may often be gleaned from experienced German nurserymen on arboricultural subjects. In *Die Gartenwelt* for November 9, we read the following directions for moving large trees, a difficult, and frequently unsuccessful operation:—The packing of fairly large trees for transport must be done with the greatest care. In the case of the smaller trees, it is sufficient to wrap in sacking and sew securely; but if the ball of soil and roots is very large and the journey a difficult one, the following procedure is advantageous. Having previously secured the tree in case of an unexpected fall, dig carefully around the roots to a distance a little below the ball, making the hole large enough to facilitate handling. If the ball is perfectly round a wide strip of sacking of strong quality should be passed around it, with ample stuff above and below, and sewn with a needle and pack-thread wherever it is possible to reach. On the side on which the tree is to lie, make the sacking firm, and then pass under the ball (so as to facilitate the subsequent lifting) some large-meshed wire netting, such as is used for enclosures, afterwards wrapping it firmly round, and securing it as tightly as possible with cord or wire; the remainder of the netting is then forced under the ball and drawn tighter and tighter, so as to enclose the ball more and more completely. Finally, the wire is drawn also over the top of the ball, and strongly fastened, care being taken that the sacking beneath, and the wire over it, are perfect and entirely cover the ball, and are securely sewn or wired as the case may be. The tree may now be carefully lifted, a little soil being gradually thrown into the hole as the tree is raised until it stands on level ground, when it may be transported without fear of loss. The writer goes on to remark that the essential point, in his opinion, is the packing of the roots when they are still in their original position, instead of lifting the tree on to the packing material, which is frequently done, with disastrous effects.

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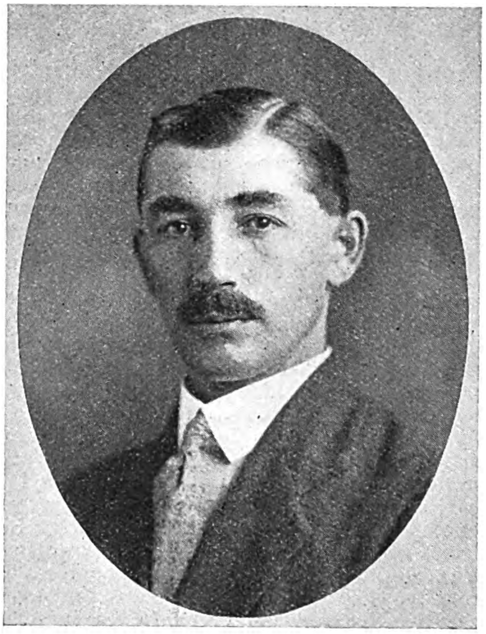
* *The Vegetative Propagation of Walnuts*, by A. W. Witt. *Annual Report*, 11. Supplement, East Malling Research Station, October, 1928. 6s. post free.

Conference on British Husbandry.—A Conference on recent changes in systems of husbandry in Great Britain will be held at the Rothamsted Experimental Station, on Tuesday, November 27, 1928, at 11.30 a.m. The speakers and subjects will include, among others: Mr. C. S. Orwin, M.A., Agricultural Economics Research Institute, Oxford, "The Relative Advantages of Intensification and Extensification of Farming." Mr. Harold W. Drewitt, Colworth, Chichester, "Recent Breaks from the Old Rotations in the Chichester District." Col. G. H. Long, Bury St. Edmunds, "The Entry of Sugar Beet into the Economy of the Farm." Mr. H. V. Taylor, Ministry of Agriculture and Fisheries, "Fruit and Vegetables as Adjuncts to the Farm." The laying-down of land to grass, and cognate subjects, will be dealt with separately at a further Conference in the New Year.

Scottish National Sweet Pea, Rose and Carnation Society.—The Committee of this Society has arranged to hold next year's show in the Kelvin Hall, Glasgow, on August 4 and 5. New varieties of Sweet Peas received for trial number ninety-eight, and the inspection has been fixed for July 6. In the new classification list of varieties suitable for exhibition in Scotland, twelve are added and ten deleted. The new introductions are as follows:—Blue Bell, Brilliant Rose and Corona, in place of Renown, in the carmine class; Glorious and Charm are substituted for Coralline and Lucifer in the cerise group; Jessie takes the place of Cecily and Sunshine as pale cream-pink; and The Prince supersedes Red Gauntlet. Leslie Rundell (cream), with Splendour (maroon) and Crusader (orange-pink), disappear from the list, while Colorado displaces Guinea Gold in the orange trio, and Purple Mammoth is preferred to Purple Perfection; Idyl is added to the salmon-pink class, Flamingo to the scarlet-cerise, and Vestis to the white group. The collection consists of sixty-four varieties distributed over twenty-eight colour classes.

Plant Communities of Yunnan.—At a recent meeting of the Botanical Society of Edinburgh, Mr. George Forrest delivered a lecture on the "Plant Communities of Yunnan." Describing the geographical and topographical features, he said the extremely mountainous nature of the country and the existence of tremendous gorges formed by the rivers Salween, Mekong and Yangtse, had a profound effect on the distribution of the vegetation. The bottom of the valleys lay at about 6,000 feet, while the higher mountain peaks reached 20,000 feet. Along these valley slopes there existed one of the richest floras in the world, constituting a great national reserve of plants of immense value for horticulture and forestry purposes. Most of the mountain ranges were clothed with dense Coniferous forest comprising valuable timber trees, such as Abies, Picea, Tsuga and Larch. In these forests occurred also a number of rare species known only from the east, including Taiwania crytomerioides and Juniperus squamata, a tree with fragrant timber which rivals in beauty of form and foliage the Redwoods of Western America. The assemblage of herbaceous alpine plants excelled anything known in Europe, being remarkable for its wealth of species and unusual colours. Alpine moorland consisted of continuous masses of dwarf Rhododendrons growing in conjunction with scattered Pine and Larch, recalling the Heather moors of this country. At higher altitudes were found most of the finer species of Primula recently introduced to cultivation, such as P. calliantha and P. Agleniana. Here also were found species of Omphalogramma, allies of the Primulas, and Nomocharis, a genus of plants related to the Lilies. Their introduction as garden plants had created intense interest in the realm of horticulture, and many of them could be seen growing at the Botanic Garden, Edinburgh.

Mr. George Horscroft.—The newly-appointed Superintendent of the Belfast Parks received his early training at the East Anglian Institute of Agriculture (Horticultural Department), Chelmsford, and at the conclusion of his stay there, went to Foxley Hall Gardens, Hereford, to gain experience with Roses and in flower gardening. Later, he was employed at Newstead Abbey Gardens, Notts. Then came the war. He served overseas, and at the conclusion of hostilities was appointed chief instructor to the Italian Expeditionary Force's School of Horticulture. After demobilisation, he went to Moulton Paddocks, Newmarket, and shortly afterwards became second in command at Castle Hall Gardens, Milford Haven. In 1921, he obtained an appointment under the Glasgow Corporation's Parks Committee, as general foreman at Bellahouston Park and the Departmental Nursery, where his activities and responsibilities were greatly increased. In due course, he was promoted to the Curatorship of Elder Park, a position he held for two years until further promoted to the position of Curator at Glasgow Green Park, the oldest and one of the largest open spaces in Glasgow. This post he held for four-and-a-half years, and only relinquished it on his appointment two or three weeks ago to the important position he now holds as Superintendent of the Parks and Open Spaces of Belfast.



MR. GEORGE HORSCROFT.

The Biology of Winter.—The winter session of the Banffshire Field Club was opened with a delightful and informative lecture by the Rev. Dr. Bruce, Banff, on "The Biology of Winter." Dr. Bruce commenced by impressing upon his hearers the fine field there was for winter work in observing the departure and return of birds, the hibernation of frogs, moths, ants, beetles, and especially worms, on which very curious information was given. Aristophanes in his Greek play, had a frog chorus which imitated the croak of the frog in Greece, but the Scottish species had a much more gutteral note. Another interesting study was the butterfly, through the cocoon, pupa and caterpillar stages. The ant heaps were also worth attention, as were the nests of the bee in dykes, where queens hibernated. Our rivers, too, were most interesting for the naturalist in winter-time, and especially so around Banff. All salmon-spawning takes place on the gravel beds. A small hole is made by the head of the female fish into which the spawn sinks and generates. At this period of the year they could find the eggs sticking to the pebbles. A salmon of 20lb. weight could produce from 20,000 to 25,000 ova, and a still larger fish could produce 40,000. Of course, the toll of the trout, the seagull and the oyster catcher had to be reckoned with, and probably not one per cent. reached the sea as kelts and came back as grilse. It was heartful, declared Dr. Bruce, to study nature's prodigal multiplicity and her wonderful adaptation for preserving life. All life moved rhythmically, and winter is part of the great seasonal drama. He reminded his hearers that within the winter lay the coming spring, for whose arrival field clubs must prepare themselves.

The Long Ashton Tar Distillate Spray.—Confirmation of the superiority of the Long Ashton tar distillate spray, an account of which was given in the issue of *The Gardeners' Chronicle* for October 20, p. 301, over the standard commercial sprays at present in use, is given in the November issue of the *Journal* of the Ministry of Agriculture, where an account is published (p. 731) of the field experiments with the Long Ashton spray, carried out by Mr. L. N. Staniland, Advisory Entomologist, and Mr. C. L. Walton, Research Entomologist, of the Agricultural and Horticultural Research Station, Long Ashton, Bristol. Trials were conducted at three centres in Gloucestershire and two washes—the Long Ashton tar distillate spray and a well-known proprietary brand, as a standard—were tested, the special object of these trials being to discover the effectiveness of these washes in the control of capsid bug eggs; winter moth and Apple sucker eggs were also present on the trees treated. The strengths used in the case of both washes were ten per cent. and six per cent. Apple sucker (Psylla) was controlled completely in all instances. In the case of caterpillars, commercial control was obtained with both washes used at ten per cent. strength, particularly so with the Long Ashton spray; at six per cent. strength also the Long Ashton wash was slightly superior. The ten per cent. Long Ashton spray gave a commercial control of the capsid bug, whereas with the standard spray, at the same strength, although it gave a considerable reduction, the control was not up to commercial standard. At six per cent. strength, the Long Ashton spray was also superior, but at this strength neither spray gave satisfactory control. Following suggestions made by certain growers in Worcestershire to the effect that Broad Beans sown under Plum trees sprayed with tar distillate washes were affected adversely, an experiment was conducted to obtain information upon this highly important point. Two small plots were chosen and one was sprayed, on April 26, 1927, with an eight per cent. tar distillate wash; the other was left untreated as a control plot. Seeds of Broad Beans (Redcliffe Giant) were sown at intervals in each plot, and observations were made regularly. On the sprayed soil, plants from the first six sowings were affected by the tar distillate to the extent that they showed severe twisting and crinkling of the foliage; the sixth sowing was made twelve days after the soil had been sprayed. Germination of the seeds was not affected by the presence of tar distillate, it being the same in both plots. Subsequently, by the time the crop was nearly ready for picking, plants from the first three sowings were decidedly lacking in vigour, those of the first sowing being only about half the height of the plants from the fourth sowing. This difference is well illustrated by the admirable photographs which accompany the account of the experiments. Aphis attacked the plants, and the attack became very serious on the weak plants from the first three sowings. From this experiment it would appear that the roots of Broad Beans sown within five days of spraying were seriously affected, later sowings only being affected in the foliage, which subsequently gave place to normal growth. It would therefore seem advisable for growers to allow at least a week to elapse before sowing Broad Bean seeds under trees sprayed with tar distillate wash; it is stated that the type of damage described is most likely to occur where trees are sprayed exceptionally early or late. In the case of undercropping fruit trees with Cabbages, plants growing under experimentally sprayed trees were found to become remarkably chlorotic, some being yellowish-white, but they later, by early May, recovered their normal colouring.

Legacies to Gardeners.—The late Mrs. Marian Eliza Harriett Sneath, of Gloucester Lodge, Golders Green Road, N.W., who died on April 1, left a life annuity of £52 to her gardener, Mr. Richard May.—The late Mr. William Sheepshanks, of Arthington Hall, Leeds, who died on July 21, left £50 to his gardener, Mr. Oliver Wilson.

The Late Mr. John Cypher, V.M.H.—Two letters have reached us, from widely distinct localities, suggesting that some kind of memorial should be raised to perpetuate the memory of the late Mr. John Cypher, of Cheltenham. Both correspondents point out that Mr. Cypher was not only a skilful grower and an exceptionally clever and successful exhibitor—particularly of artistic groups of flowering and foliage plants—but he was also one of the kindest of men and helpful alike to amateurs, professional gardeners and the horticultural trade. A suggestion put forward is that those who appreciated Mr. Cypher, those who received advice and assistance from him, those who admired his work, and those societies at whose exhibitions he was a regular attendant during a long period of years, should subscribe liberally towards a memorial fund that would provide an annuity in perpetuity for at least one disabled gardener, through the medium of the Gardeners' Royal Benevolent Institution. We understand that the relatives of the deceased gentleman favour the suggestion, but before taking any action, we would like the views of our readers.

Fasciation in Ash.—We have received from Messrs. John Jefferies and Son, Cirencester, an unusually interesting example of fasciation in an Ash branch. The specimen is twenty-two-and-a-half inches long. The lower seven inches—of the previous year's growth—shows very little fasciation and serves as a handle to the upper, flattened, fifteen inches, which is two-and-a-half inches wide and dotted all over with buds. At the apex, this flattened portion divides and twists somewhat, and the edges of these parts are studded thickly with buds, giving it a kind of Cockscomb appearance. One of the slender shoots constituting the fasciated portion has determined to part company with its degenerate fellows, and about half-way along it emerges and proceeds to its full length of nearly twenty inches in orthodox fashion. The whole specimen is very woody and tough.

The Nomenclature of Garden Plants.—Among the important matters coming up for discussion at the International Horticultural Conference in London in 1930, is that of the Nomenclature of Garden Plants. While the naming of wild plants is governed by generally accepted rules, no rules governing the naming of plants of garden origin have been generally accepted, and consequently considerable confusion still exists. It is hoped at this Conference to bring together the ideas and the practices which have been followed in different countries hitherto, and to find some common means of ensuring correct nomenclature and the elimination of synonyms. All concerned with garden plants, amateurs, nurserymen, seedsmen, authors, compilers of catalogues, and so on, are intimately concerned in this matter, and are cordially invited to attend a meeting for its consideration, which will be held in the Lecture Room of the R.H.S. Hall, Vincent Square, Westminster, S.W.1, at 3 p.m., on Tuesday, November 27, 1928. The present condition of affairs will be discussed and proposals for its amendment invited.

Appointments for the Ensuing Week.—Monday, November 26: Birmingham and Midland Gardeners' Association's lecture; East Anglian Institute of Agriculture lecture. Tuesday, November 27: Royal West Renfrewshire Horticultural Society Council meets; Royal Horticultural Society Committees meet. Thursday, November 29: Paisley Florists' Society meets; Bideford Horticultural Society meets. Saturday, December 1: Blackburn Horticultural Society's meeting and lecture; Leeds Paxton Society's Single Chrysanthemum Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Leaves from my Chinese Notebook, No. II.*—The wealthy amongst the Chinese generally select very beautiful spots on the hill-sides for their tombs. Near Tse-kee, a walled town of considerable size, some fifteen miles to the northward of Ningpo, there are some pretty spots of this description. These tombs, apparently, are very ancient, for the trees which had been planted when they were first formed are now fully grown, and the tombs themselves in many instances, are overgrown with weeds and going fast to decay. Happening one day in June last to be wandering on one of these hill-sides, a tree in the distance caught my eye, which appeared very curious and striking. It was one of those Junipers (J. spaerica) which grow to a considerable size in the north of China, and which the Chinese are fond of planting round their graves. But although a Juniper at the top and bottom, an evergreen tree with large glossy leaves (Photinia serrulata), formed the centre. On reaching the spot where it grew, the appearance presented was, if possible, more curious and interesting. The Photinia came out from the trunk of the Juniper about twelve feet from the ground, and appeared as if it had been grafted upon it; indeed, some Chinese in a neighbouring village, to whom the tree was well-known, did not hesitate to express their belief that such had been the case, but I need scarcely say this was out of the question. Upon a close examination of the point of apparent union, I found that although the part between stock and graft, if I may use the expression, was completely filled up, yet there was no union such as we see in grafted trees. There could then be only one way of accounting for the appearance which these two trees presented and which is pretty well shown in a drawing which I send, taken by a Chinese artist. The Photinia was, no doubt, rooted in the ground, and had twelve feet of its stem cased in the trunk of the Juniper. The apparent union of the trees was so complete, that nothing could be seen of this arrangement; but upon tapping the lower part of the trunk it sounded hollow, and was no doubt decayed in the centre, although healthy enough outside. *R. F. Gard. Chron., November* 19, 1853.

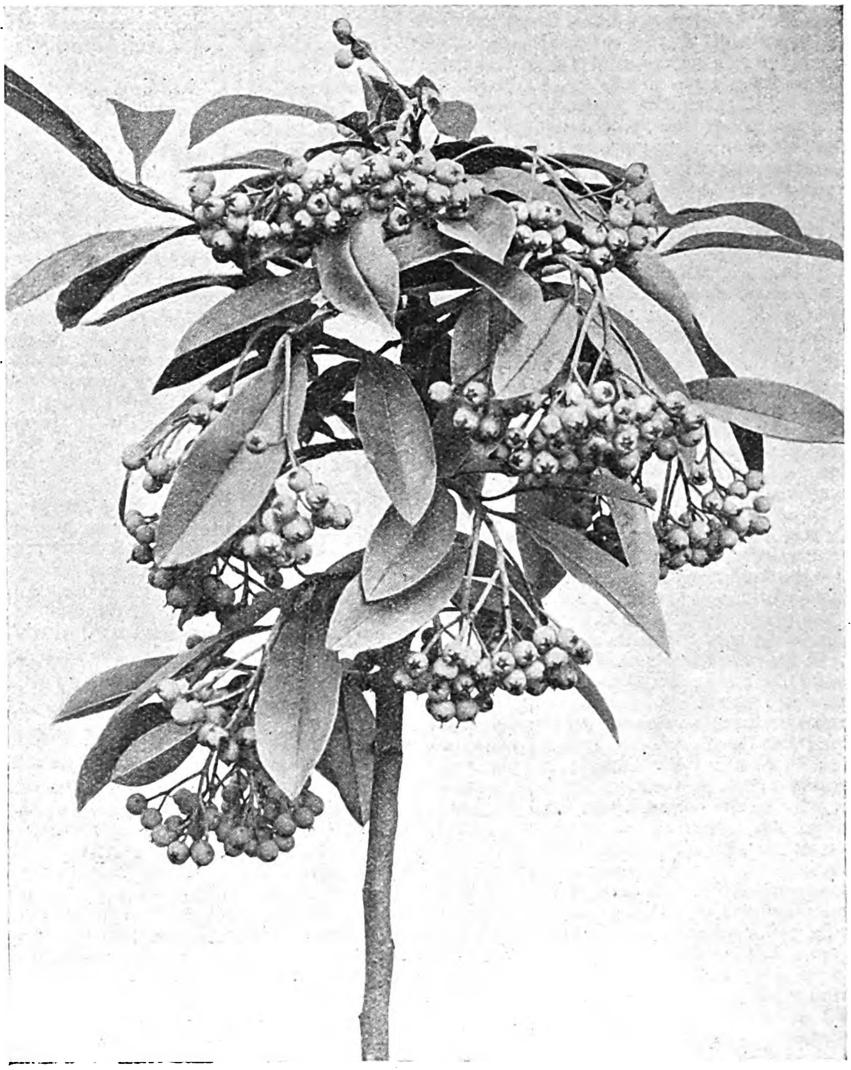


FIG. 186.—STRANVAESIA DAVIDIANA.

R.H.S. Award of Merit, November 13. Berries red. Shown by Lionel de Rothschild, Esq. (gr. Mr. A. Bedford), Exbury, Southampton. (see p. 397)

Publications Received.—*Quality in Potatos*, by W. M. Findlay; reprinted from *The Scottish Journal of Agriculture*, Vol. XI, No. 3, July, 1928, by permission of the Controller of H.M. Stationery Office.—*Iodine for Livestock*, by Frank Ewart Corrie; De Gruchy and Co, Ltd., 45, Mitchell Street, E.C.1.—*The Scientific Principles of Plant Protection*, by Hubert Martin; Edward Arnold and Co., 41 and 43, Maddox Street, W.1.; 21/- net.

The Week's Work.

THE ORCHID HOUSES.

By W. GILDEN, Orchid Grower to Dr. F. CRAVEN MOORE, Manchester.

Laelia anceps.—The genial sunshine experienced during the late summer and autumn months has been beneficial to these winter-flowering Orchids. The flower spikes are well advanced on the coloured forms, also on the supposed hybrid, L. Gouldiana. The white varieties of L. anceps are usually a few weeks later in developing their blooms. As the plants have now completed their growth, the flowers will open and keep well in the drier atmosphere required, but the rooting material should be kept sufficiently moist to allow the flowers to develop. The gummy substance which frequently collects around the bracts should be removed with a wet sponge, otherwise it may prevent the blooms from expanding properly. To prevent the long spikes coming into contact with the roof-glass, and the consequent damage to the blooms, it is advisable to remove the plants to a light position on the stage until the flowering period is over. Plenty of fresh air is necessary on all favourable occasions, and after the flowers are removed very little water will be needed to keep the bulbs plump until the plants become active again in the spring.

Masdevallia tovarensis.—This charming, free-flowering Orchid gives a good display of chaste flowers during the darkest months of the year. The buds are now developing and the blooms will open better, and much unsightly spotting of the foliage may be prevented, if the plants are removed to a warmer house. Vigorous plants on which the last year's scapes have been left to produce another crop of flowers, should be carefully examined for thrips, which are often found just where the buds are forming. If signs of the pests are detected, the plants and scapes should be sprayed with a weak nicotine solution, if the weather is suitable, otherwise they should be fumigated, but in either case the operation should be carried out before the blooms open, or the flowers will be spoiled. Any scapes that have produced flowers a second time should be removed. Ample supplies of moisture at the roots are needed until the flowers are over, when a less quantity should be given and the plants returned to cooler quarters. Among those Masdevallias, such as M. Veitchii, M. Pourbaixii, M. Chamberlainiana and others, which flowered in the late spring, some plants have made vigorous growth this season, and are now producing another crop of flowers. These will make a bright display for some time if care is taken not to allow any moisture to reach the flowers; the roots should be kept moist, but avoid saturation at this season. Most of the Masdevallias should succeed at this season in a light position in the cool house, but the Chimerae section will thrive better if grown in the intermediate house for the winter months.

THE KITCHEN GARDEN.

By ALLAN FALCONER, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Spring Cabbages.—A small amount of soil should be drawn up around the stems of Cabbages for spring use, as a protection against severe frost. Plants that were pricked out late in the season into skeleton frames should be kept as hardy as possible, and only need some slight protection during severe frost; these plants often prove most useful in the spring to fill blanks, and also as a succession to the early plants. Although the Cabbage does not occupy a very high position for quality and flavour in our list of vegetables, it is a very valuable crop.

Draining.—Drainage is one of the most important details in the production of first-rate kitchen garden produce. Where doubt exists as to the proper drainage of any piece of land it is advisable at this time of the year to either open out existing drains and find any faults, or lay down a new system. Like most garden operations, no hard and fast rule can be given, as land differs so much in each locality, but experience and observation have taught me that some system of drainage is a necessity, especially on heavy land, but practical experience is necessary to decide the method. In heavy, tenacious soil, overlying clay, care is necessary not to drain too deeply, or to allow too great a distance between each drain; fill in with open material as near the surface as convenient. Under proper cultivation, the land soon shows how the drains are working by the appearance of the crops it carries. The first consideration of anyone contemplating the conversion of fresh land into a garden must be drainage; and any gardener will be well advised not to attempt cultivation until this important operation is completed to his satisfaction, as when crops are on the land it becomes difficult to carry out this operation satisfactorily.

Trenching.—Like draining, trenching is also one of the important essentials where first-class crops are to be produced, and, again, no hard and fast rule can be applied; it is all a question of circumstance, as soils differ greatly, and practical experience of different kinds leads me to believe that the man in charge should soon get to know how best to work his own particular soil. I have, however, proved for myself that land which was supposed to be in such a bad state that it would not produce anything, has been brought to a high state of fertility by systematic deep cultivation and draining. By doing a certain amount of trenching each year, either by hand or with implements, or the two combined (as with the Simar Roto-tiller) all the land may eventually be brought into a desirable condition to suit crops; clay may be brought to the top, provided suitable materials may be added after the weather has pulverised it. While some land may be trenched in the autumn with advantage, there are some soils which are better left until the spring, but it sometimes happens that owing to pressure of work in spring, the work is best done in the winter or not at all. Provided a suitable time is chosen—for instance, during frosty weather—I strongly advise the deep cultivation of all classes of land by trenching.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to Sir CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Cleansing the Fruit Houses.—The cleansing of fruit houses will be the chief item of work in this department during the next few weeks, and it should be proceeded with at the earliest opportunity, that is, so soon as the crops have been gathered and the foliage on Peach trees has fallen. Where insects have been somewhat troublesome, this work cannot be too carefully carried out. Perhaps two of the worst enemies the fruit-grower has to contend with in the cultivation of indoor fruits are mealy bug and red spider, and if either of these is present, means should be taken to destroy it. The former may be destroyed in vineries by cyaniding the house, using two ounces of sodium cyanide to each thousand square feet; in bad cases the cyaniding should be done on two occasions, once before pruning, and again after the loose bark has been removed, So soon as the bark has been peeled off the vines should be washed thoroughly with Gishurst compound or a nicotine preparation, and the washing repeated at intervals in bad cases of mealy bug attack. One of the best means of destroying this pest is to have all woodwork and iron fittings painted and the walls lime-washed, adding one pint of paraffin to every pailful of wash; this wash should be rather thin, so that it will penetrate more readily into crevices. This work completed, remove all loose soil from the surface of the border, carefully preserving all fibrous roots, but at the same time, see that the surface material is entirely removed.

Pot Cherries.—If early Cherries are required, the house in which the trees are to be grown should be cleansed and put in order, in readiness for starting the trees into growth early in the New Year. Very little pruning will be necessary, provided the shoots were stopped during their growing season. Cherries resent the use of the knife, therefore by pinching the young growths during the summer months autumn pruning is reduced to a minimum. For this early crop, trees grown in pots are more easily managed than those planted out. The Cherry is particularly impatient of fire-heat, but at the same time sufficient artificial warmth must be used to prevent a stagnant atmosphere. Should the weather be open and mild when the house is closed, fire-heat will not be required for the first ten days or so, but if it is frosty, merely use sufficient fire heat to maintain a temperature of 40°. Spray the trees with tepid water only when the weather is sufficiently favourable to allow them to dry again by nightfall.

PLANTS UNDER GLASS.

By J. COUTTS, Assistant Curator, Royal Gardens, Kew.

Chrysanthemums.—As they pass out of flower, the number of plants required for stock purposes should be selected, and be given a light position in cold frames or in a fruit house where they will receive plenty of light and air and provide a supply of strong, sturdy cuttings. Attacks of green fly and mildew must be guarded against. Propagation of exhibition varieties should commence, the varieties that require a long season of growth being taken in hand first; in fact, cuttings should always be secured when they are in the best condition, rather than wait until they are long and drawn. If too early they may always be re-rooted; indeed, this is the best way to deal with certain varieties that give rather hard cuttings, as the re-rooted tops make freer-growing plants. Some varieties do not give cuttings freely, and these should be shaken out, potted in fresh rich compost, and placed in a warm house.

Clivias.—Plants that have been kept fairly dry in a cool house will, if given more water at the roots and a higher temperature, quickly give a supply of flowers, and by this means may be had in flower over a long period. Grown in small pots they are very useful for general decorative work, while large specimens make good permanent furnishing for the conservatory. They also do very well when planted out in beds or borders in a cool house. Clivias are easily increased by means of division or by seeds from good varieties; if well grown, seedlings should flower in about four years.

Philesia buxifolia.—This monotypic genus is allied to Lapageria, but differs in habit, being a much-branched, greenhouse shrub, which in sheltered positions in Ireland and the south-western counties of England and the west of Scotland, succeeds out-of-doors. When happy, it spreads considerable distances by means of suckers; like the Lapageria, it thrives in a compost of lumpy loam, peat and sand. Grown in pots as a greenhouse plant, it will in time form handsome specimens, which are very showy when their small, red, Lapageria-like flowers expand. The writer has seen specimens three to four feet in height and as much in diameter, but it is doubtful whether there are any such specimens in gardens at the present day.

HARDY FRUIT GARDEN.

By T. E. TOMALIN, Gardener to the EARL OF BESSBOROUGH, Stansted Park, Emsworth, Sussex.

Aspect.—Although south and west walls afford the best aspects for Pears and, indeed, are essential to success with some of the more delicate varieties, many of the hardier sorts, such as Williams's Bon Chrêtien, Clapp's Favourite and Conference, for instance, may be grown quite well on walls facing east and north, in which positions also they serve to prolong the season of each variety by arriving later at maturity. The following comprise a selection of the best varieties for dessert and for exhibition, and should supply a succession of fruits over a prolonged period:—Early: Clapp's Favourite, Williams's Bon Chrêtien, Souvenir du Congrès, Marguerite Marillat, Dr. Jules Guyot and Triomphe de Vienne. Midseason: Beurré Superfin, Emile d'Heyst, Comte de Lamy, Conference, Marie Louise, Pitmaston Duchess, Fondante de Thirriot and Doyenné du Comice. Late: Josephine de Malines, Knight's Monarch, Easter Beurré, Santa Claus and Olivier de Serres. For baking or stewing, Catillac, Uvedale's St. Germain and Vicar of Winkfield can be recommended.

Planting Distances.—Bush and pyramid trees of Apple, Pear, Plum and Cherry may be planted at ten feet to twelve feet apart, and horizontally trained espaliers at fifteen feet. Fan-shaped wall trees of Peach, Plum, Apricot, etc., will also require a distance of fifteen feet, although they may be planted much closer when young, while the necessary spacing out afterwards will benefit them by checking exuberant growth. Single cordons of Apple, Pear and Plum require a distance apart of two feet, but this type of tree may also be usefully employed by planting one between each two fan-trained wall trees, where they serve to define the space for each tree, and utilise an otherwise bare area of wall. Bush Currants and Gooseberries should be planted five feet apart each way, and where Raspberries are planted in rows, these should be five to six feet apart, the young canes being spaced one foot apart in the rows. Loganberries on fences should soon furnish their supports if planted eight feet apart, while young Fig trees on walls may be planted ten feet apart, and will probably require an extension of space in a very few years.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to the Duke of Devonshire, Chatsworth, Bakewell, Derbyshire.

Planting Bamboos.—Preparations for removing and transplanting Bamboos should be pushed forward, in order to get them safely in position while the mild weather lasts. Bamboos are usually supplied in pots, as in this form they are more convenient to handle and do not suffer any check during removal; but where developed specimens are required for immediate effect great care is necessary in order to remove a good ball of earth with the roots and to keep the roots moist. In either case the sites should be prepared beforehand, so that no delay occurs when the plants are to hand. Almost any ordinary good soil will suit Bamboos, but if the staple is of a heavy, clayey nature, this must be thoroughly well broken up and plenty of leaf-soil, turfy loam, old potting soil, or spent Mushroom-bed manure added. In any case, the ground should be dug deeply, and it certainly pays to plant in loose, rich soil, such as described, in order to give them a good start. If the weather is dry at planting time, a good watering should be given forthwith, and the plants mulched with some loose leaf-soil. In many gardens Bamboos might be introduced with advantage, for they give a peculiarly tropical effect. Many have not planted Bamboos, under the mistaken idea that they will only thrive in exceptionally mild climates. It is not cold, but windy and exposed situations that Bamboos object to, especially when newly-planted. Another common error is, that as Bamboos are recommended for planting by water, they like swampy ground, but this is quite wrong, except in really warm districts. Plenty of water is a necessity in summer, but a badly-drained, marshy position, if cold in winter, should be avoided when starting a collection. The two important points to remember when selecting a site for Bamboos is that shelter from the north and east winds is the first consideration, and that some loose, rich soil is necessary to insure a good root-action the first season. If these two points are borne in mind there need be no fear of failure with regard to most of the Bamboos. The majority of those offered by the trade are fairly hardy, and in my calendar notes for May 19, a fairly comprehensive list of varieties of proved hardiness was given. Four very fine varieties of Arundinaria, viz., A. Falconeri, A. insignis, A. falcata and A. nobilis, should not be planted outside except in very favoured localities, but they are exceptionally beautiful when planted in a large conservatory or winter-garden, if their few special requirements are studied.

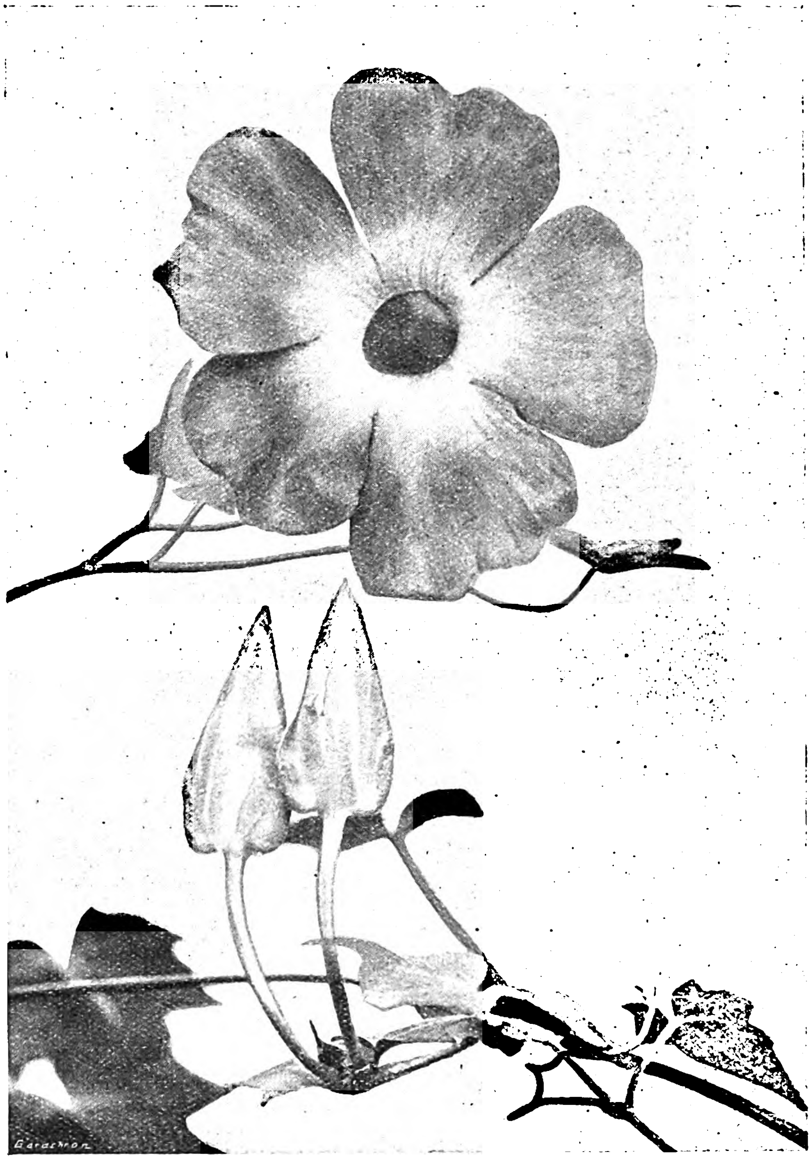


FIG. 187.—THUNBERGIA CHRYSOPS.

R.H.S. Award of Merit, November 13. Flowers purple, blue and gold. Shown by Sir William Lawrence, Bart., Burford, Dorking. (see p. 397).

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener at Jordanhill Training Centre, Glasgow.

Artichokes.—There are three distinct kinds of Artichokes—the Globe Artichoke (Cynara Scolymus), the Chinese Artichoke (Stachys tuberosa), and the Jerusalem Artichoke (Helianthus tuberosus), and while the last is a very hardy plant, native of North America, the first is not, and coming from the southern coast of the Mediterranean should be protected from the rigours of our winters by placing a mulch of strawy manure around the plants. On light soils this is not so necessary, but on cold, heavy soils it will be found of great assistance in preserving the crowns. The tuberous roots of the Jerusalem Artichoke are esteemed as a winter vegetable, and to ensure having them in the best condition they should only be dug from the ground as required. The stems should now be cut down to within two feet of the ground, and if these are placed lengthways between the rows they will help to keep out frost, and so enable the tubers to be lifted during frosty weather. The Chinese Artichoke is not so frequently grown, but its curious, jointed tubers are sometimes in request for serving with certain dishes, and where these are grown, they may now be lifted and stored in boxes of sand, and kept in a damp shed or cellar where they will not be likely to shrivel.

Asparagus.—Asparagus beds should now be cleared of weeds and top-growths, and if perennial weeds, such as Couch-grass, Tussilago, or Gout-weed are present, these should be removed by forking the weedy parts over carefully so as not to disturb the Asparagus crowns. When all is clean, an application of basic slag should be applied at the rate of four ounces to the square yard, followed by a dressing of two ounces of kainit. Later, the beds should be mulched with partly decayed farmyard manure, unless in coastal districts where it may be possible to arrange for a heavy dressing of sea-weed. Under such conditions, the dressing of kainit may be omitted, as the sea-weed contains a large proportion of potassic salts. Where new or additional beds are to be formed, these may now be prepared by ensuring thorough drainage and deeply trenching and enriching the sites, leaving the soil exposed to frost, and allowing it to settle before planting time, which may commence in March or April.

TREES AND SHRUBS.

BUDDLEIAS.

The members of this genus form an extremely decorative and useful group of shrubs, particularly during late summer and early autumn; their nomenclature is slightly confused, and it is hoped that the following notes may somewhat simplify this confusion.

Probably the most common species in gardens is that known as B. variabilis; this is now regarded as B. Davidii (Franchet, 1887), and is so figured in the *Bot. Mag.*, t. 7609. It has many varieties and colour forms, but the typical plant has rosy-purple flowers, and the anthers are borne about half-way down the tube, which is orange within. The flower spikes are produced in August on the current year's wood; consequently the pruning, to be carried out in March, should consist of cutting back the old flowered stems to within four inches of their base. Thinning of the young shoots should be practised in June, in order to obtain the finest spikes of bloom. Var. Veitchiana is mauve in colour, with a bright orange eye, and it is the earliest to flower; var. magnifica has violet-purple flowers with relaxed margins to the petals; var. superba bears rather dense, long spikes of a lavender-purple shade; var. Wilsonii has still longer but more open flower spikes, and long tapering leaves, the individual flowers being of a bright rosy-lilac shade; var. nanhoensis, which was introduced from Kansu by Farrer in 1914, is a dwarfer, short-spiked form, while it is extremely useful in gardens of limited space; and var. alba, a white form collected by E. H. Wilson in western China in 1910, is quite as hardy as the above. Wilson and Rehder, *Plantae Wilsonianae*, are the authorities for placing B. variabilis under B. Davidii.

A closely allied species is B. albiflora, which was so named under the mistaken impression that the flowers were white; it is sometimes erroneously known as B. Hemsleyana. The true B. albiflora differs from B. Davidii in having a round, instead of a square, stem, while the leaves are rugose. The flowers are somewhat smaller than those of B. Davidii; they are lilac in colour, and the anthers are borne just below the mouth of the corolla tube. It flowers in Surrey about mid-August.

B. globosa, a native of Chile, is a vigorous species, flowering in June, and bearing the small, orange blooms in globular clusters about one inch in diameter on the ends of the young shoots. A hybrid between this species and B. Davidii is known as B. Weyeriana. B. globosa is figured in the *Bot. Mag.*, t. 174.

B. alternifolia also flowers in early June, and is quite distinct from any other species. The growths are long and arching, the leaves short and narrow, and the deep mauve flowers are borne in small clusters along the branches, which may be completely hidden, and from which all short shoots should be picked off; the old shoots should be cut out after the flowering period. This species, which is depicted in the *Bot. Mag.*, t. 9085, was introduced by Farrer in 1914, but was previously known and described by Maximowicz in 1880.

To turn to some of the less hardy species, B. madagascariensis, *Bot. Mag.*, t. 2824, was introduced in 1827. The stems are covered with a loose white tomentum, continuing into the flower-spike, which is somewhat thin, and bears orange-yellow flowers in clusters of two or three; the anthers are to be found at the mouth of the tube. The leaves are dark green above, and whitish tomentose beneath. This species was shown by Sir William Lawrence at the R.H.S. Autumn Show, on September 27, who stated that it grew rapidly from cuttings of the previous year.

B. Colvillei, *Bot. Mag.*, t. 7449, a native of Sikkim, is the finest member of this genus, but unfortunately is only hardy in the favoured parts of Great Britain. The individual flowers are deep pink, over one inch in diameter, and are borne in drooping panicles of about one foot in length.

B. Fallowiana, introduced by Forrest, is often wrongly named B. Forrestii. The young growths are whitish-tomentose, the leaves being soft and consequently tender. The flowers are borne in terminal spikes, and are usually pale lavender in colour, with an orange interior to the tube; besides varying slightly in size of flower, there is also a white form. The flower-spikes appear in early September and continue until destroyed by frost.

B. Farreri, introduced from north-west China about 1918, is also a tender species, which requires a warm corner. The young shoots, and the undersides of the leaves, are covered with a white, woolly tomentum. The leaves are broad, truncate at the base, with a winged petiole, and usually six to eight inches in length, and the flowers, which are rose-lilac or mauve in colour, are very fragrant, although rather small. It is illustrated in *Bot. Mag.*, t. 9,027.

A species sometimes seen under glass is B. asiatica, which flowers in early February. The branches are covered with a white or buff tomentum, while the flowers are strongly scented, white, and borne in slender panicles; the petals are somewhat rounded in shape, the tube being hairy both inside and out. This species is a native of Indo-Malaya, and is figured in the *Bot. Mag.*, t. 6,323. *B. Mulligan.*

CALLUNA VULGARIS SERLEI ALBA.

This fine white Heather is commonly known simply as Calluna or Erica vulgaris Serlei, but it is doubtful if this is correct, as there is a crimson form of the same habit and flowering at the same time. The latter is sometimes known as C. v. Serlei grandiflora, which is a misnomer, as the flowers are not larger than those of the white form. It would be interesting to know if the white or the crimson one was the original Serlei. I have known the white one by the name of C. v. Serlei for many years; and some plants in a border here have been greatly admired. They were planted widely apart and, as a consequence, have assumed a most symmetrical form, and have flowered very profusely. It was amusing to hear the remarks made concerning them by people not well acquainted with plants, and more than one of these have thought that the plants were artificial and not real Heaths.

I consider this the finest of the white Heathers which have been in cultivation for a long time. The sprays of bloom are a good white and long enough to cut for decorative purposes. This Calluna will eventually grow to about two feet high, if allowed room to develop. It flowers later than C. v. Hammondii; and the purple form called C. v. Serlei grandiflora is just a trifle later with me. I have just heard of a new white variety of C. vulgaris which has been raised by a Scottish firm and is being distributed by them. It has very long spikes of good white flowers. I grow C. v. Serlei in loam, without peat. *S. Arnott.*

ROSE GARDEN.

WILD ROSES.

I was very interested in the article on "Wild Roses," signed *A. Osborn*, in your issue of November 3. I cannot claim a great deal of experience with these subjects as my collection was only planted last winter, but I have been interested in them for a considerable time. Mr. Osborn, although he refers to the beauty of the hips, omits all reference to what is to me one of the most fascinating aspects of these Roses. I refer to autumn colour in the foliage. There are some species which give such a display of colour in the autumn as entitles them to first rank among colouring shrubs.

Mr. Osborn classes R. nitida as suitable for a rockery. It may be—but try it in mass in the shrubbery! I have a shrubbery designed for autumn tints which is separated from my Rose garden by a steep bank (45°), which I have massed with R. nitida planted closely (one-and-a-half foot apart). In the spring the foliage is green, in June and July there are masses of the bright pink flowers. About midsummer the foliage passes to deep reddish-bronze. In late September and through October the bank is a blaze of colour. Quite apart from the beauty of the bright red hips set with black hairs, the foliage takes on a brilliant scarlet, touched here and there with golden-brown, and possesses a glaze that gives an appearance of solidity to the leaves. The reverse of the leaflets shows a delicate rosy-chestnut colouring. The leaves are fairly persistent—some of mine are still hanging (November 7), but on dropping do not leave the bank void of colour, for the young shoots, closely set with small spines, are bright red throughout the winter. Few other plants give so prolonged a display.

R. lucida also showed bright autumn tints, the colour of the foliage varying from golden-brown to scarlet, but lacking the polished surface of R. nitida, the leaves look more fragile. It is hard to say which of these two is the more pleasing, although for sheer brilliance the palm must go to R. nitida. R. lucida has deep red stems only sparsely set with long, needle-like spines. R. sericea also gives an abundance of autumn colour, although there is less uniformity of tint (at least, with me), some leaves colouring red and others turning brown. R. omeiensis, which in many respects is very similar to R. sericea, has shown some colour in the foliage, but very little. R. Hugonis colours bronze-red. R. rubrifolia has coloured foliage right through the season, and is a very striking object in a mixed shrubbery.

Of the hips, I have nothing to add to what Mr. Osborn has said, except that such species as R. Moyesii, R. setipoda, R. pisocarpa, R. rubrifolia, R. pomifera, R. nitida and some varieties of R. rugosa, give a brilliant effect. R. Giraldii, R. complicata, R. Nuttalliana and R. macrocarpa (?) have not yet fruited with me. Our own native R. arvensis has handsome hips and R. spinosissima, with its black berries, is worth growing.

My collection of shrubs with coloured foliage includes such things as Acer Ginnala, Pistacia chinensis, Rhus typhina, R. Cotinus, R. cotinoides, Stephanandra Tanakae, Photinia villosa, Cornus Mas and C. Kousa, Amelanchier canadensis, several of the Viburnums, Berberis in variety, Euonymus alatus, E. yedoensis and Liquidambar styraciflua, but of all these I have at present nothing to equal Rosa nitida for sheer brilliance.

Perhaps some others of your readers will give us their experience of Roses as autumn-tinting shrubs. *A. C. Downes, Kingswood, Surrey.*

HARDY FERNERY

POLYSTICHUM MUNITUM.

This is the noblest evergreen species in a small collection of hardy Ferns grown in my woodland garden. It is a North American plant with a family resemblance to our own Holly Fern (P. Lonchitis), but the finely-toothed pinnae are narrower and longer. The fronds, which are closely furnished with these latter from base to tip, here reach a height of just over four feet in a well-matured specimen, with a width of three to five inches. Bright green when young, these fronds soon assume a glossy, bronzy hue. They are extremely hard and leathery and afford a kindly protection for the younger ones as these emerge in spring.

When fully grown, P. munitum makes a very large and imposing clump, four feet in height and nearly six feet across. Unfortunately, it does not seem to be long-lived, for after reaching such dimensions, my specimens have suddenly expired, often in full summer. At that stage they are probably about ten years old. But P. munitum makes amends for this by producing self-sown offspring in all manner of unlikely places, perhaps a hundred yards from the parent plant.

This very magnificent Fern, a handsome object at all seasons, grows quite happily in a rather poor stony loam with what natural leaf-fall may chance to come to it.

TWO HARDY CREEPING FERNS.

For covering the ground beneath woodland trees or the banks of ponds and streams, I have found Dicksonia pilosiuscula and Lomaria alpina very attractive, useful and easily-grown hardy Ferns. The former is a native of North America, and spreads by means of slender root-stocks just below the surface. The elegant, pale green fronds are thin and soft in texture, from one foot to two feet in height, and up to six inches in width. Being herbaceous, these appear in the later spring, and in October they change to a bright yellow, which passes to a tawny brown. It is during autumn that the fronds emit their pleasant fragrance which suggests that of new-mown hay. Although this Dicksonia is a creeping species, its progress is slow. With me, at any rate, a clump has taken several years to cover a couple of square feet. The fronds are produced in a dense mass.

Lomaria alpina comes from New Zealand, but I have never known it to suffer from frost. It is a very dwarf species, the leathery, dark-green fronds, which overlap in a close mat, being not above six inches. These, it is well to note, are evergreen, and both in spring, when the new fronds are appearing, and again in autumn, their rich glossy verdure is effectively tinted with a bronzy-brown. L. alpina is rather a rampant grower in places which are congenial to it. Here it is much too aggressive for the rock garden, but admirable for such purposes as I have suggested, for creeping along the margin of woodland walks or for carpeting the ground between tall, strong-growing Ferns and other shade lovers. L. alpina will, however, do very well in full sunlight, always provided the soil is cool and moist. *A. T. J.*

INDOOR PLANTS.

JAVANICO-JASMINIFLORUM RHODODENDRON HYBRIDS.

These handsome, free-flowering plants are not equalled by any other tender shrubs grown for greenhouse or conservatory decoration. As they are of continuous growth, they have no definite flowering period and consequently it is possible to have them in flower at every season of the year, if a sufficient number of varieties is grown. During the two-and-a-half years that I served with Messrs. J. Veitch & Sons, at Chelsea, there was never a day, even in mid-winter, when there were not plants in flower in the Rhododendron house, and it is well-known to many who visited the Royal Horticultural Society's shows in those days, that Mr. J. Heal showed cut blooms of these plants every fortnight for over two years.

These evergreen Rhododendrons, which may be grown in five- or six-inch pots, produce large trusses of wax-like, tubular flowers, which range in colour from white to yellow, pink, scarlet and crimson, and as they last in bloom for several weeks, they are very valuable as cut flowers.

To grow them successfully, they should be accommodated in a house where the temperature does not fall below 50°, and it is essential that they should be watered with rain-water, as they detest lime in any form; also, it is important that the water should be kept in a tank in the greenhouse, so that it may remain at an even temperature. There is no better compost for them than sandy peat, which should be rammed firmly into the pots to induce firm, woody growth, which is essential for the production of the maximum amount of flowers. Instead of pruning back the shoots as they become leggy, it is advisable to bend them downwards in the shape of a bow, and secure them in that position, so that they are induced to break near the base, in the same manner as the Grape vine. As these plants are liable to become infested with thrips, it is essential that a moist atmosphere be maintained by constantly damping the stages and frequently syringing the foliage.

The usual method of propagating this section of Rhododendrons is by inserting cuttings of half-ripened shoots in finely-sifted sandy peat, and placing them in a bottom-heated, close propagator, where roots should be formed in a few weeks. A few of the best kinds are, The Queen, white; Hercules, yellow; Apollo, orange-scarlet; Brilliant, scarlet; and Triumphans, crimson-scarlet. *G. F. Gardiner.*

CYCLAMENS.

After having failed, or nearly so, for some years, with these important and exceedingly useful winter-flowering subjects, I have succeeded in bringing my current year's batch to such a state that I am pleased with the general appearance of the plants, and think that perhaps I may set out just where I have failed and where succeeded.

There are many points at which one may go astray, but I believe that the old dictum, "after flowering, put the old plants out under the shelter of a north wall," has given the grower a totally wrong conception of the requirements of the plant. I mean, one would gather from this advice that the Cyclamen will look after itself, bear with wind and rain, resist insects and fungi, and then, after being drenched and baked alternately, cheerfully respond to repotting and rehousing. It will do nothing of the kind. With careful treatment, involving shading, spraying, an occasional fumigation, and timely re-starting, old corms may be made to flower profusely (Fig. 188), but only when so treated.

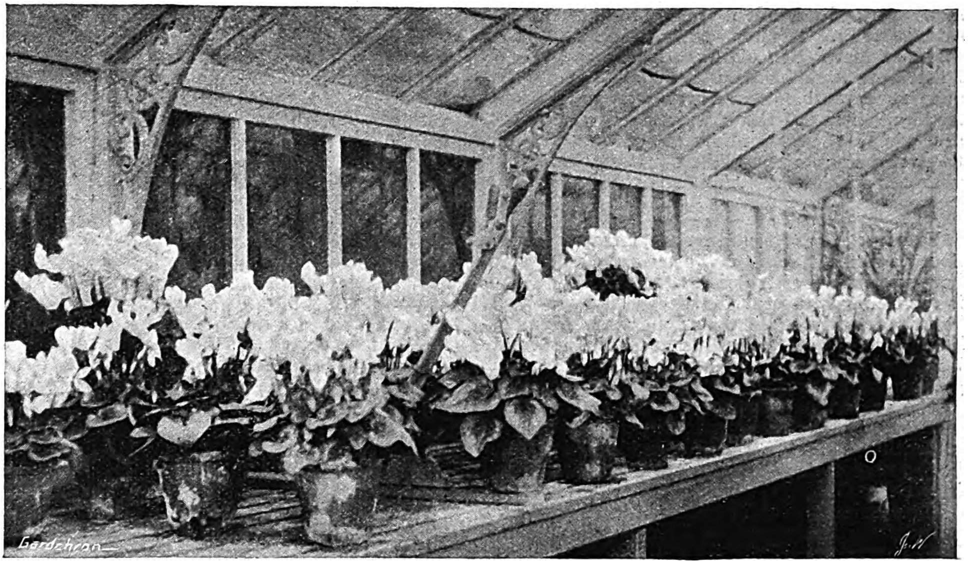


FIG. 188.—THREE-YEAR-OLD CYCLAMENS.

There is no difficulty in these days in obtaining good strains of Cyclamens. I prefer named varieties for general use; too many white-flowered plants are obtained from the mixed packet, and white is not appreciated; it is cold and does not lend itself to indoor decoration.

The soil should consist of tough, fibrous loam, two parts; one part of leaf-soil, sifted and in good condition; powdered crocks and lime-rubble. Mix these by thoroughly rubbing them through the hands. There is no need to drain the "thimble" pots if the seeds are to be sown singly, but if they are to be sown in pans or boxes, perfect drainage should be provided. Over the drainage there should be a layer of chopped turf. Make no mistake about it, the turf should rapidly and freely fall apart, or cling only to the roots when the seedlings are lifted. Place the seeds in holes made about half-an-inch deep, cover them, and, if the soil is damp, as it should be when the seeds are sown, no watering should be required for a week or two, although they should be watched every day, for this is one of the most critical periods. Over-watering is no more fatal than drought; both should be avoided. The time of sowing depends upon the season during which the plants are required in flower. They take just fifteen months to mature. The temperature at which the seeds germinate best is from 55° to 60°. Cover the pan or box with glass and keep it shaded. The first seedling should appear on or about the twenty-eighth day.

From the moment the plants appear, until the flowers are showing colour, they should be treated to abundant atmospheric moisture. Not that they require to be deluged from a watering can, but they should stand upon a bed of moisture-holding material—ashes or fine coke—and be constantly sprayed overhead with a very fine sprayer. Damp the staging, walls and paths, and provide a positively humid atmosphere. Weather conditions should be taken into consideration, of course, and the temperature should be as regular as possible; I would rather risk a low temperature than a high one obtained with fire-heat.

The young plants should be lifted very carefully from the seed-pan and transferred to small sixty-sized pots, which should be drained and filled with soil similar to that in which the seedlings germinated. Place the little corm just on the surface of the soil, or only half its depth in it. It is, in my experience, wrong to bury the corm at any period, and, later, it is imperative to keep it wholly above the soil surface. Use the soil while quite moist and keep the plants sprayed and shaded. Place the pots upon coke siftings or ashes, and so near the glass as practicable. I have grown them best upon a high shelf, two feet wide, at the back of a three-quarter span house, during the first four months of the year, and without shading. After this, high temperatures and direct sunshine should be guarded against; I lift them from the seed-pan in February.

The second potting takes place in April, the soil consisting of two parts chopped, fibrous loam, one part good, firm leaf-soil, and a liberal sprinkling of lime-rubble, brick-dust and sand, with a pinch of bone-dust. I have often failed at this period by adding some concentrated artificial manure, which is unwise. The best place for the growing plants during April and May is in a well-ventilated house, over which a blind is easily drawn. On no account should a current of air flow across the staging, for the plants highly resent draughts. Admit so much air as possible overhead, but to open the front and top ventilators with the stages between, No! it is fatal. Keep the atmosphere moist and the temperature at about 60°, and admit air both night and day. Fumigation is necessary from May until winter. It is a bad policy to wait for the appearance of that detestable rusty colour of the leaves, caused by thrips. Close the house and fumigate before an attack is visible; anticipate it—it pays!

At the end of June or early in July, if all has gone well, many of the plants should be ready to go into their flowering pots. It may not be wise, perhaps, to pot the whole batch in the same week; deal with the most forward of them first. Mix the soil a day or two before potting, using three parts of fibrous loam and two parts leaf-mould; with a sprinkling of crushed crocks and lime-rubble. Fertilisers may be used with safety at this stage. I crock the pots to the depth of an inch; put some chopped fibre from the loam on the crocks, and then sprinkle a little bone-meal upon this. Add a six-inch potful of Clay's fertiliser to each bushel of soil, and mix it in well. This latter item is important. If the manure is not thoroughly mixed with the compost, the results will show in the batch of plants later. Generally, we are told to use cow manure. I have done so to the best of my ability, but have to confess that the above fertiliser gives the better return. Pot the plants fairly firmly in pots of a suitable size; the chief points are to provide room, food, air and moisture.

After a few days, the plants may be placed in cold frames and kept fairly low down; they should be given abundance of air, and be heavily shaded from sunshine. The frames may be opened both morning and afternoon for half-an-hour each day, when the weather is favourable. During August and September, when possible, the frame lights should be removed at night; Cyclamens simply revel in night dews until the time of housing.

Given the treatment outlined above, Cyclamens should develop and produce flowers satisfactorily. I have several plants which measure more than eighteen inches across, and I attribute their healthy and promising appearance to careful culture, rather than to heavy feeding. Some of the old plants, newly potted, are yielding great numbers of flowers, but these are small compared with those from one-year-old specimens. *H. W., Redruth.*

EXACUM AFFINE.

Exacum affine (Gentianaceae) introduced from Socrata in 1882, is a free-flowering, warm greenhouse perennial with a compact habit that makes it particularly useful for decorative purposes. It is agreeably scented and has small, bluish-lilac flowers, with yellow stamens, and these are borne profusely on erect, axillary branches, with greyish-green leaves that tone well with the petals.

The specimens flowering in the conservatory of these gardens have maintained their present attractive display since the end of June, and have every appearance of continuing until well into December.

These plants, five in each six-inch pot, were raised from seeds sown in February and grown in the usual way.

The compost for the final potting consisted of loam, leaf-soil and sheep manure, with the addition of sand. Grown in an intermediate house until flower buds were visible, they were then placed in a cooler house, their condition being improved by the regular application of liquid manure. *Leonard G. Atkins, Botanic Garden, Cambridge.*

ORCHID NOTES AND GLEANINGS.

CYMBIDIUMS.

Well-established plants of these popular Orchids are now producing their succulent flower spikes; these take a long time to develop and are naturally a big drain on the plants. The latter should not be allowed to suffer from lack of water, an ample supply being given each time the soil becomes fairly dry. Long periods of drought at this stage will result in restricted root action, and consequently small and deformed flower scapes; on the contrary, constant saturation of the soil will quickly ruin the roots and compost. Where specimens that are pot-bound or are producing flower spikes have become rather pale in the foliage, through exposure to the sunlight, they will be benefited by occasional waterings with diluted, clear soot-water for a few weeks. It is not advisable to use liquid manure water from the farmyard as it may clog the compost. The plants should be examined frequently and scale and other insect pests should be removed by sponging, as otherwise they increase rapidly and soon disfigure the specimens. *W. G.*

ALPINE GARDEN.

HELICHRYSUM FRIGIDUM.

In the capital note on Helichrysum bellidioides by *M. W.*, in *The Gardeners' Chronicle* for November 10, p 366, your contributor incidentally refers to Helichrysum frigidum as less accommodating than H. bellidioides. This is perfectly true, but its intrinsic beauty should command for it a place where it will not only thrive and flower in summer, but where it may be protected in winter. I cultivated it successfully for several years, but during the war it was neglected and so lost, but I still hope to possess it again and to give it similar treatment to that which I gave it before.

It was grown in a moraine which sloped gently to the south-south-east, and where it received sun for the greater part of the day. The moraine was not formed on what may be called the orthodox lines, as there was very little soil within reach of the roots. After the thick layer of drainage was put in position, about two inches of soil was laid on it, the compost consisting of loam, sand, grit, and lime rubble. This was surfaced with about two inches of whinstone chips, with a small proportion of sand and crushed old mortar rubble. In this the Helichrysum was planted, with the roots just touching the layer of soil. It throve from the first, and in late autumn, as this district has a heavy winter rainfall, it was covered with a good-sized sheet of glass, raised on wires, about six inches above the plant. This was removed about April. Farrer states that the plant "gives more trouble than the money it costs," which is, perhaps, true, yet one takes much care of inferior plants, and the trouble should not lead to its utter exclusion from our gardens. Its growth is almost moss-like in its density, and the blue-grey of the leaves gives the plant a frosted appearance which is exquisite, even if the white, everlasting, Daisy-like flowers, borne about two inches above the soil, never appear to charm us.

H. bellidioides deserves all that your contributor has so well written of it, but a word in favour of H. frigidum may induce some to attempt it. Farrer recommends taking cuttings in August, probably with a view to maintaining the stock. *S. Arnott.*

HARDY FLOWER BORDER.

HERBACEOUS PHLOXES: EELWORM DISEASE.

On reading *W. A.'s* note on "Herbaceous Phloxes," in the issue of *The Gardeners' Chronicle* for November 10, p. 366, I was surprised to find no mention of the Phlox eelworm disease, which during recent years has spread very rapidly and has rendered the successful cultivation of perennial Phloxes a matter of extreme difficulty in many gardens. It is a disease far too serious to be ignored, for when once it becomes established in a collection, it rapidly renders many plants absolutely worthless from a decorative point of view. What is more, plants propagated from diseased specimens, other than by root cuttings, are invariably found to be infected; it has been definitely established that root cuttings form the only safe method of propagation where the plants are known to be diseased.

Investigation of the eelworm disease of Phloxes was carried out at the R.H.S. Gardens, Wisley, some few years ago by Mr. G. Fox Wilson, and the results of his work were admirably set forth in the *Journal* of the Royal Horticultural Society, Vol. XLIX, Part 2, p. 203, under "Contributions from the Wisley Laboratory." In this account, the disease is said to be the only one of importance attacking perennial Phloxes, varieties of both Phlox decussata and P. suffruticosa being liable to attack. It is widespread throughout Europe and is also known in America, to which country it is supposed to have been introduced from Holland. The symptoms of disease are unmistakable: The leaves become distorted, crinkled and narrow; the stems develop gaping cracks, prior to which, in the young stage, they become elongated and soft, or stunted and swollen. These, according to Mr. G. Fox Wilson, are the most obvious symptoms. Others are, that an inflated appearance is imparted to the foliage, owing to the separating of the epidermis of the leaf from the underlying tissues; and proliferation of the basal buds occurs. In the article quoted above, these symptoms are admirably illustrated.

It is no uncommon occurrence to see borders of Phloxes marred by diseased plants, and as the buds of the affected specimens definitely contain the eelworms, it is obvious that propagation by cuttings of young shoots, or by division, only tends to spread the disease. I have heard it argued that plants once attacked may be grown out of the disease if planted fairly deeply and treated liberally with regard to nourishment; and to a certain extent this may be true. It has also been established that some varieties of Phlox, notably P. Antonin Mercie and P. Widar, are resistant to attack, but the fact remains that the disease is a serious menace and one which should therefore be dealt with seriously.

The eelworms spread rapidly, actually migrating through the soil, or being carried by various agents, and it is obvious that success with Phloxes depends solely on growing them in disease-free soil, and planting clean, healthy stock. No practical methods are known whereby the soil may be rid of the eelworms, and seven years is given as the period which should elapse before Phloxes are again planted on land known to be infected.

The safest method to ensure clean stock is, as stated previously, to propagate by root-cuttings; the roots, at any time during the dormant season, should be washed thoroughly and then cut into lengths of about one inch (pieces of about one-eighth-of-an-inch or more thick form ideal material), and these should be inserted in clean sand, in boxes or pans, and placed in a warm house or propagating pit. The pieces of root may either be placed upright—top-end uppermost—in the sand with the tops level with the surface, or laid horizontally and lightly covered. The majority of the cuttings should form plantlets which, if hardened off early in a cold frame, and then planted out in well-cultivated and rich soil, should form single-stemmed flowering plants the first year and be fully established by the second. It is contended that Phloxes from root-cuttings often do not come true to colour, but my experience is that the variation, if any, is barely discernible. *M. W.*

THE FORCING OF PLANTS.

The leader in *The Gardeners' Chronicle* of November 3, dealing with the effect of various chemicals in hastening the growth of Potato tubers, brings to mind the discoveries made some twenty years ago, following close on those of the effect of chloroform, ether and other anaesthetics, and of the remarkable results following a warm bath in certain plants. My first acquaintance with these results was made by accident in 1905, when Mr. Hammond, of Pilgrim's Hatch, after treating a large number of Black Currant cuttings on my advice with a soft soap-sulphur dip, reported that those treated while the dip was warm started into growth more rapidly than those dipped in the cold mixture. About the same time, Professor Molisch published results of certain experiments made by him with various plants to which he gave a warm bath in autumn. His experiments were repeated and extended at Wisley and the results fully corroborated those Professor Molisch had obtained.

Dormant plants usually used for forcing were soaked for some hours in water kept at 100° to 110°F., and their growth compared with others soaked for the same time in cold water, and others treated in the usual way.

The treatment had no appreciable effect upon Potatos, or bulbs generally, but with woody plants like Lilacs, and herbaceous plants like Astilbes, Dicentras and Strawberries, growth was hastened to a marked degree, a difference in flowering time of three weeks being at times found. This hastening of growth occurred most markedly, as when plants are treated with ether and chloroform, if the treatment was given early in the resting period, and the difference was gradually less and less as treatment was delayed until later in the season. If only half of a bush was dipped in the warm bath, then only that half showed more rapid growth, so that it was possible to have one half a Lilac bush in flower long before the other half. The effect is therefore not due to the hastening of water absorption, as might be supposed if roots were alone concerned, but to some change brought about in the buds and probably in the stems of the plant by the hot-water treatment, even although the roots are not treated. *F. J. Chittenden, Wisley.*

THE FLORA OF THE BRECKS.

Situated in the north-west of the county of Suffolk, and extending for some miles north into that of Norfolk, is a remarkable district, forming roughly an ellipse with its two foci at Mildenhall and Thetford, known as the district of the "Brecks." It is most un-English in appearance, and possesses a peculiarly eerie fascination for those susceptible to scenic influences. The land (Fig. 190), although considerably higher than that of surrounding districts, and somewhat undulating in character, is best described as flat—in this part of the country, the term "hills" is applied to what elsewhere would be called "mounds."

It is a district of bare heaths, intersected by roads, which to the observer appear to be perfectly straight and to go on for ever, and is remarkably barren. Here and there are planted Firs, usually in straight lines, their effect being to heighten the impression of eerieness. Tramping across the heaths, one will suddenly come upon a mere—a large pool or lake of fresh water into which and from which no stream flows.

Surrounding the district are fens—or, rather, were, since these now are mostly drained—and running through it are two rivers, the Little Ouse (with its tributary, the Thet) in the north, and the Lark in the south. Nevertheless, the soil is very arid, this being partly due to its peculiar nature. It has also to be remembered that East Anglia has a lower rainfall than most parts of Britain, that for west Suffolk being particularly low. According to observations made by P. Grieve, some years ago, while rain fell in west Suffolk on an average on 156 days in the year, the average fall amounted to only 25·31 inches per annum.

The soil of the Breck district is peculiar, and largely accounts for its strange appearance. Over a stratum of chalk is situated a layer of light sand—"blown" sand, as it is very aptly called. It is particularly interesting to see calcifuges, such as Gorse, Broom, Bracken and especially so violently a calcifuge as Heather (Calluna vulgaris) growing in association with calciphilous plants, which latter thrust their roots down through the sand to the chalk beneath, and to note the decay of the Heather in places where its roots have come into contact with the chalk.

Part of the Breck district is under cultivation for cereals, etc.; larger portions have formerly been, but are now no longer, such once-cultivated land allowing the continued existence of a number of the smaller calciphilous plants. According to one derivation, the term "brecks" is only applicable to land of this character, the word meaning "land broken up." Another derivation connects it with "Brakes," the common local name for Heather. As a whole, the area consists of rabbit-warrens and sheep-runs—heaths now untouched by the hand of man.

It is not surprising that in so inhospitable a district vegetation does not luxuriate. On the other hand, it is remarkable that here a number of plants survive, which, probably widely distributed in Britain in days gone by, have elsewhere been exterminated in the course of the relentless battle for soil perpetually carried on between species in the plant world.

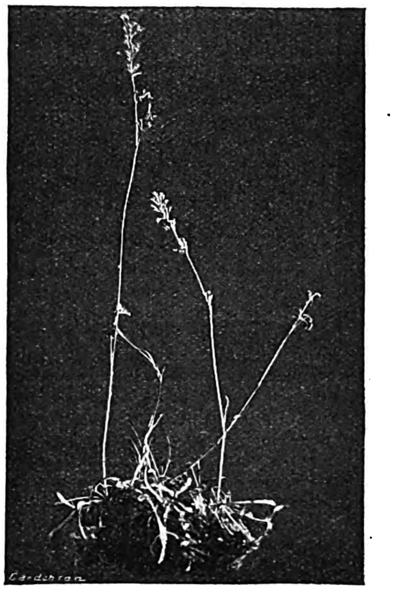


FIG. 189.—SILENE OTITES.

Moreover, it is somewhat remarkable that here and there maritime plants are to be found, indicating, according to some authorities, although alternative theories have been put forward, that at one time the Breck district was connected with the Wash. These latter plants appear, in certain cases, to be dying out. A prolonged search I conducted some years ago, for Vicia lutea, Erythraea littoralis and Corynephorus canescens proved abortive. Tillaea muscosa, Phleum arenarium and Rumex maritimus, however, occur in fair abundance, although whether Hind (*The Flora of Suffolk*) is correct in regarding the first of these as a maritime plant, may be questioned.

It may be added that failure to find a Breck plant, even after a prolonged search by one well acquainted with the district, is no proof that it does not occur. Many of the rarer Breck plants grow only in small isolated patches, and, in a district such as this, the right spot, in any particular case, may be easily overlooked.

The Breck plants, using the term to designate those more or less peculiar, so far as Britain is concerned, to this district, are mostly small and inconspicuous. Consequently, they are of greater interest to the botanist than to the horticulturist. A few, however, might be usefully cultivated for border purposes, especially the graceful Spanish Catchfly (Silene Otites) shown in Fig. 189. This lovely little plant whose slender stems bear panicles of delicate, greenish-yellow flowers, common in eastern Europe and Russian Asia, is restricted in Britain to East Anglia.

The Veronicas of the Breck district are interesting. V. triphyllos, V. verna and V. spicata all occur, although the first is not strictly speaking a Breck plant. It grows also in Surrey, and is, perhaps, most correctly described as a denizen of cultivation. V. spicata is a charming little chalk-lover, closely related to the larger V. hybrida of the west of England, well-known to horticulturists, but often miscalled V. spicata by them. In the native state, the true V. spicata has an annoying habit of not flowering every year, a peculiarity which necessitated my visiting a particularly ungetatable part of the Breck district (the plant is too rare for me to name the heath in question) in two different years in order to discover it.

Interesting also are the Medicks, of which Medicago minima, M. falcata and M. silvestris all occur. The two latter are hard to distinguish and probably hybridise. Plants bearing flowers of every shade compounded of yellow, green and purple can be found, the latter colour, of course, being that of Common Lucerne (M. sativa), cultivated and naturalised in the district.

Artemisia campestris is fairly abundant in two or three places on the Suffolk side of Thetford, and, unlike other species of this genus native to Britain, is not aromatic. Sclerantus perennis is another interesting plant found on the Brecks. When it occurs in abundant masses, the effect is that almost of a strip of white carpet; although if the plants are examined individually, the impression of whiteness is lessened, the white, scarious margins of the calices, however, serving easily to distinguish it from the rather uninteresting looking Common Knawel (S. annua).

There are also interesting grasses to be found on the Brecks. Two have already been mentioned: Phleum Boehmeri and Apera interrupta may be added. The interest attaching to these, however, is purely scientific, as none are sufficiently decorative to be worth cultivating.

Thalictrum minus, Silene conica, Arenaria tenuifolia, Herniaria glabra, Astragalus danicus and Dianthus deltoides may also be mentioned as among other Breck plants, not particularly common elsewhere in Britain.

The flora of the Brecks and, indeed, of East Anglia generally, shows some remarkable affinities with that of Holland. Certainly the visitor to the Breck district, whether botanist or not, might well imagine himself out of England. The reason for this floral similarity is well calculated to give rise to some interesting speculations. To indulge in these, however, would take me far from my original intention of describing what is to me, as a flower-lover, a very fascinating part of the country.

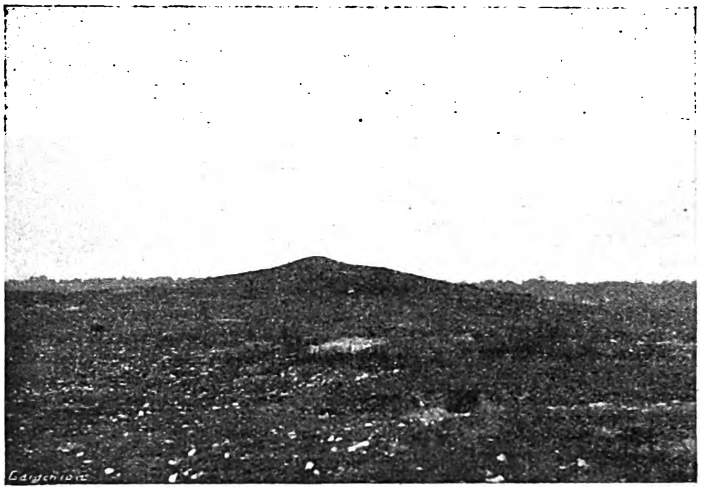


FIG. 190.—THE BRECK COUNTRY: STANTON WARREN.

My very best thanks are due and are hereby tendered to my friend, Mr. H. Dixon Hewitt, F.I.C., of Thetford, for the two photographs with which this article is illustrated. *H. Stanley Redgrove, B.Sc.*

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THE GARDEN PLANNING EXHIBITION.

Some Impressions.

THE Royal Horticultural Society has entered one more item in its catalogue of successful undertakings, and I respond with pleasure to a request to make a few comments upon it.

The first view of the New Hall suggested that the exhibition was devoted entirely to statuary and Cypress trees, but further investigation disproved this idea and made clear the wisdom of keeping the exhibits of sculpture apart from the pictorial illustrations of gardens. It is to be hoped that the members of the Society of Sculptors appreciated as they should the praiseworthy effort of their President to make the most of the unprecedented opportunities afforded them by the Royal Horticultural Society.

One wishes, indeed, that landscape architecture could produce someone with authority as unselfishly devoted to the wider interests of that profession.

That the exhibition was both well staged and well managed was attested by the disinterested compliments of foreign visitors. From my own standpoint the demonstration signified a great deal more than an interesting display of a large number of good garden pictures and plans.

It was the first concerted attempt in this country to focus attention upon the collective achievements and legitimate activities of landscape architects. Whether the importance of this fact was sufficiently realised is another matter.

It was the first time, also, that members of the profession had a comprehensive opportunity to appreciate the good work of their fellow craftsmen. It was pleasant to see how readily this opportunity was accepted, and I am sure that mutual respect was increased among several busy men who have few opportunities of exchanging views.

It was a good thing that the public was able to inspect such a large number of examples of good work, and enabled to judge between them and the inferior plans which are so frequently accepted by unknowledgable clients.

On the larger issue, landscape architects owe a debt of gratitude to the Royal Horticultural Society for offering a stimulus to their activity at the exact moment when the world is ready for the advice of competent men with a full-sized view of their profession, for, outside the making of mere pleasure gardens, but, perhaps, largely under their influence, are wonderful opportunities for public works on the largest scale.

The rural beauties of England are in the melting pot; it is imperative that something good, even if of a different character, should be substituted if we are to avoid the curse of posterity. The great Dominions of the British Empire await development, with possibilities unheard of in this small and crowded country.

Here is plenty of work for the landscape architects. Two conditions only are necessary.

In the first place, landscape architects must be technically efficient in all respects, and, secondly, public authorities must be convinced that the work they control cannot be done satisfactorily by amateur gardeners in other professions.

I feel that I am entitled to repeat here what I said in a lecture to the Royal Horticultural Society so long as twenty years ago. There are not left many landscape architects who graduated in the days when landscape gardening of the old style was almost universal. Those who visited the exhibition could scarcely fail to be struck by the almost entire absence of genuine landscape effects among the garden pictures displayed.

Going back a long way, I could not help wondering what Capability Brown would have had to say about garden art as expressed to-day. This idea occurred when going through the historical section, which was so admirably organised by Mr. Avray Tipping. Presumably, a good many of these old gardens were of the type completely eliminated by Brown. I suppose they were really as beautiful as is declared by every writer on the history of gardens!

Paragraphs of abuse of poor old Brown must be kept in type by the printers of garden books. We have never heard his defence, and I have never read an attack upon his clients for their share of the responsibility. Evidently the great landowners of those days were less conservative than are their descendants.

In spite of the vandalism attributed to Brown, I venture to suggest that the trees planted by him and his imitators are to-day the chief factors in some of the most beautiful scenes in England, and I deduce that the first qualifications of a "garden" architect is to be master of the landscape side of his art.

The title "Garden Planning," proved something of a misnomer, so far as concerned the character of the exhibits. It appeared to be generally recognised that plans in themselves are of little interest except to those accustomed to read them. Most exhibitors, therefore, preferred to show photographs. The photographic artist may not tell "the truth, the whole truth, and nothing but the truth," but he is an invaluable helper of the garden-maker. In the British group nearly sixty exhibitors participated, including several well-known architects.

The important public works included among the Dominion exhibits were interesting features and suggestive of the possibilities which lie ahead in the great countries of the future. English exhibitors were naturally much interested in the examples of work shown by the foreign experts.

The French are always masters of design, and the elaborate perspective sketches of Monsieur Duschene attracted deserved admiration. I wish some of Monsieur Jean Forestier's perspective sketches had been shown. His method is an excellent one to study. The German exhibits showed up particularly well because they were not too crowded—a point worth attention.

A writer in a contemporary declares that English landscape architects need to go to American experts for new inspiration. The American exhibits were good, but did not strike me so forcibly as that. In fact, the chief thing that occurred to me about them and most of the foreign gardens illustrated, was that they looked so very English. I flattered myself with the thought that English ideas had permeated other countries pretty thoroughly.

A most satisfactory feature of the exhibition, and one that went far to justify the whole project, was the willingness of many public authorities to show examples of parks and gardens under their control. Representatives of the park committees of a considerable number of towns made a point of attending. Everybody conversant with the traditions under which many public parks have been made knows how much might be said on the subject of their planning. It is to be hoped that the Royal Horticultural Society will continue to try to interest the public in the way their money is spent in this respect.

I was unfortunately prevented from attending the Conference until the last day, and missed the special papers I wished to hear. Everybody declared that they were very good, and I look forward to reading them when they are published by the Society. The attendances at the lectures were excellent.

The warm thanks of all exhibitors are due to Colonel Durham, the Royal Horticultural Society's Secretary, for his splendid organisation of the exhibition, because from very nebulous beginnings he succeeded in evolving a substantial success. Their sympathy went out to him when his hard work broke him down. Fortunately, Mr. Simmonds was able to step into the breach at a critical moment, and with great efficiency carried the exhibition to a successful conclusion. *Edward White.*

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

ONE of the sins that do most easily beset the amateur gardener is not making due allowance in planting for the ultimate stature of his subjects. Most of us must have suffered from want of foresight in this respect. Within fifty yards of where I am sitting, are two fine plants each about twenty feet high—Eucryphia pinnatifolia and Tricuspidaria lanceolata. Little did I foresee in planting them twelve feet apart when they were some two feet high that they would ever interfere with each other; but they are doing so fiercely. I cannot make up my mind to destroy either of them, for to attempt to move such large plants would entail destruction, as they are not conveniently ball-rooted like Rhododendrons; and if I did make up my mind to remove either, I would never have the courage to carry it into effect.

These reflections were started by reading in *The Gardeners' Chronicle* of November 10, p. 308, *M. W.'s* description of Berberis buxifolia as being of compact habit, forming "a rounded bush four feet or more in height." I went out straightway and measured an old bush of this species, and found it to be 141 feet in circumference and, as nearly as I could judge, twenty feet high. Luckily, it is standing clear of any carpeting growth, and is a really fine object when in flower, greatly to the delight of many bees.

The interest of Berberis in all its myriad species is much enhanced by the action of the stamens for securing cross-fertilisation. When the base of them is touched by an insect or by inserting something slender, they close with a silent snap on the intruder. The movement is not merely mechanical, as in the flowers of Salvia, Roscoea and some other plants, but is an action following on sensation.

Zelkova acuminata, one of the largest hardwood trees in Japan, and Z. crenata from the Caucasus, are not so frequently planted for ornament as they deserve on account of the rich yellow, orange and russet of their foliage in late autumn. The quality of timber in both species is said to be excellent; but in order to produce it judicious pruning is required when the trees are young, otherwise they take the form of huge bushes. This is the tendency especially of Z. crenata.

Helleborus niger altifolius has been in flower since mid-October, and is certainly the finest variety of the species. But it is liable to a disfiguring disease which killed off a good many of our plants and from which the rest are slowly recovering. It would be good to hear of any preventive or remedy for this, as the plant is of high value in the dark days. The finest display of it that I have seen is in Sir Ralph Anstruther's garden at Balcaskie, in Fife. *Herbert Maxwell, Monreith.*

NOVEMBER AT BURFORD.

The two frosts of 6° to 7° which we experienced in October cut down the Dahlias and Salvias; indeed, the great drawback of the latter is that they are generally too late in flowering. This year, we tried S. mexicana, a very beautiful plant with deep green foliage, purple stems and indigo-blue, furry flowers. I had seen this plant in flower at Kew, where its drawback was the immense size to which it grows, and thought that I might be successful with it planted out; however, it develops its flowers too late, and I shall have to grow it indoors from terminal cuttings taken late in the year. Two other Salvias, although they always survive the winter, invariably get their flowers cut; these are S. Pitcherii, which is, perhaps, the most beautiful of all Salvias, with fairly large, bright blue flowers, and S. leucantha, a plant with small purple flowers set off by copious white tomentum.

On the contrary, absence of severe frost has enabled Leonotis Leonurus to flower successfully; this is a very beautiful plant closely allied to Salvias and bearing large, orange flowers. In the same protected corner, Hidalgoa Wercklei, popularly called the "Crown of the Incas," continues to grow rapidly, and is covered with its brilliant-scarlet, Dahlia-like flowers. This plant roots easily at the present time of year, and in the course of the summer and autumn makes growths of twenty feet and more. Another very beautiful effect is produced by Senecio leucostachys, which makes immense growths late in the year, and by a happy coincidence is intermingled with the noble growths of Iris Wattii. I have never known Nerine Fothergillii better; Sternbergia sicula and S. sicula var. angustifolia have flowered splendidly; the plant now called S. lutea, but often described as S. macrantha, does not flower with anything like the same freedom.

Ceanothus Gloire de Versailles continues to flower freely, both in the open and against a wall, and Ceratostigma Willmottianum is covered with blue stars. The Veronicas of the large-growing type, with their white, violet and purple sprays, are at their best, and a plant which threatens to take the place of the Bramble—Mutisia retusa—continues to produce its pink, Gazania-like flowers.

Autumn foliage and berries are nearly over, although the Pyracanthas and Cotoneasters, where protected from the birds, are still very beautiful. We have now a very fine bank of Berberis, all grown from seeds selected from the brightest-coloured berries at Wisley, and this method of cultivating Barberries has proved most successful. Other correspondents have commented on the autumn colour in foliage; here, perhaps, the most gorgeous plant was Lagerstroemia indica, on a wall, where it grows well, but will not flower.

The turn of the year is heralded by the sprays of Jasminum nudiflorum, while Daphne Dauphinii is covered with its purple flowers which are nearly as large, and smell as sweetly as those of D. indica. Buddleia auriculata is in full flower; it is deliciously sweet, and although the individual flowers are small the orange throat gives them an air of distinction. I have hopes of flowering B. caryopteridifolia as the buds are forming well. Some plants of the Echium Wildpretii are already nearly five feet high; these must, of course, be protected in the winter, although self-sown seedlings from a plant which flowered in 1926, survived last winter without protection.

The garden is full of Crocuses which are so incontinent in their behaviour that I hesitate now to name them. *William Lawrence, Burford.*

MUNTINGIA CALABURA.

This ornamental tree has become most popular with both Europeans and Chinese in this country as a shade tree for gardens. It is a native of tropical America and commonly known as the West Indian Cherry.

When mature, it is umbrella-shaped, so that it assumes a pleasing outline when seen from a distance. It rarely exceeds thirty feet in height. The leaves are alternate, lanceolate in shape with a semi-cordate base; they are from three to four inches long and about one-and-a-half inch wide. The undersides of the leaves are softly hairy and sticky. This stickiness is due to the presence of glandular hairs.

The white flowers, which resemble those of a Blackberry, are bi-sexual, and produced in pairs in or above the axils of the leaves; each is three-quarters-of-an-inch in diameter. The fruit is produced on a peduncle one inch long, and resembles a Cherry. It is about half-an-inch in diameter, deep pink in colour, and contains a quantity of sweet, watery pulp, which is edible.

An infusion of the leaves is used as tea in Caraccas. The writer has collected the tips of the young branches and given them similar treatment to that adopted with Camellia Thea; the resultant beverage was quite palatable and had both the colour and flavour of the ordinary Indian tea.

M. Calabura may be propagated from cuttings of half-ripened shoots. Growth is at first slow, but so soon as it is established, the tree increases rapidly in stature. Considerable success has attended my attempts to propagate this tree from seeds recently.

Each fruit contains about two thousand minute seeds which are difficult to separate from the pulp by ordinary means. When seeds are required for planting, a few ripe fruits are taken and the pulp from them squeezed into a glass of water. The watery pulp thus obtained is then poured uniformly over specially prepared boxes of soil. In a month from sowing, the seeds germinate, when they should be potted singly.

In common with other trees of the Natural Order Tiliaceae, the species under reference has a fibrous bark, the branches rarely breaking as a result of heavy winds. *F. S. Banfield, Kuala Lumpur.*

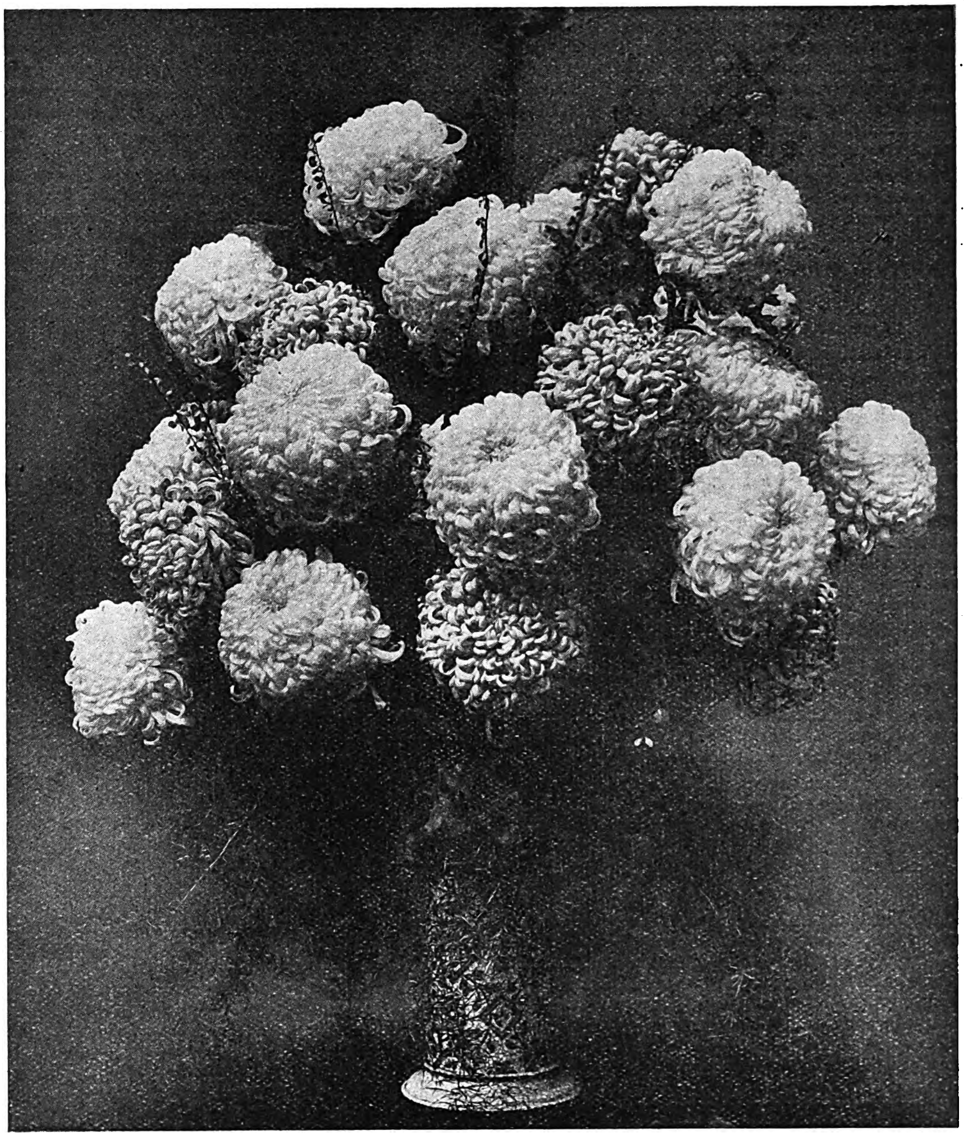

FIG. 191.—DECORATIVE VALUE OF BIG CHRYSANTHEMUMS.

First Prize "side-board" display exhibited at the National Chrysanthemum Society's show on November 1, by G. Richardson, Esq. (gr. Mr. J. Vanstone), Holly Mead, Tulse Hill. (see p. 377).

THE GENUS PRIMULA.

(*Continued from p.* 374).

FORTUNEI (Vatke.). Fortune's P.
(Farinosae).

This dainty little perennial is more or less evergreen in mild localities. It produces a rosette of numerous, lance-shaped, or oblong, blunt leaves from one inch to two-and-a-half inches long, gradually tapering to a winged stalk; margins furnished with fine, irregular, saw-like teeth; deeply veined and sparsely mealy above, densely covered with white meal below. Flower stems two to four inches tall, erect or slightly curved, slender, covered with white meal. Flowers in an umbel of about a dozen, mostly carried horizontally on stalks of medium length, covered with white meal. Corolla rosy-lilac with a primrose-yellow eye; three-eighths-to half-an-inch across, divided into five egg-shaped, slightly notched, frequently overlapping segments; tube cylindrical, three-eighths-of-an-inch long. Flowers in February and March. *Gard. Chron.*, 1913, Vol. LIII, Fig. 103, p. 238.

The native country of this plant is not known; it is considered by some botanists to be a hybrid of unknown parentage.

Culture: Loam, leaf-soil and coarse grit, in a damp, sheltered, half-shady spot, with protection from frost, are indicated.

FRAGILIS (Balf. f.). Fragile P.

A diminutive, stoloniferous perennial whose creeping rhizomes retain the dried remains of previous season's foliage. Leaves in a tuft, with oval-spathulate, thin, blunt blades from half- to one-and-a-half inch long, tapering to a winged stalk, dilated and sheathing at the base, equalling the blade in length; margins of blade toothed; both surfaces more or less coated with yellow meal. Flower stem one to two inches tall, slender, mealy, bearing a solitary violet or pale purple membranous blossom, one-quarter to three-eighths-of-an-inch across and the same measurement in length. Corolla with broadly wedge-shaped, spreading, bifid lobes; tube cylindrical, about a quarter-of-an-inch long. A sub-species of P. yunnanensis. Flowers in June.

Grows on limestone cliffs in half-shade, near the Feng-shin-ling Pass, in Upper Burma, at 9,000 to 10,000 feet above sea-level.

Culture: Plant it in soil consisting of peat, leaf-soil and limestone chips, in a damp, half-shady spot.

FRONDOSA (Janka.) Grecian Mealy P.
(Farinosae.)

A delightful little deciduous perennial with close, fleshy resting buds covered with white meal, resembling Hazel Nuts in shape. The thin, wedge-shaped, oblong or egg-shaped, blunt leaves taper to a winged stalk, in all from one to three inches long; margins remotely and finely toothed or scalloped; upper surface very sparsely mealy, underside densely covered with white meal. Flower stems two to three inches tall, slender, erect, mealy, bearing an umbel of five to thirty more or less erect, lilac or rose-purple blossoms on stalks half-an-inch to one inch long. Corolla about five-eighths-of-an-inch across, divided into five broadly heart-shaped, notched lobes; tube cylindric, a little longer than the calyx. *Gard. Chron.*, Vol. LXXIX, Fig. 112, p. 227.

Grows in damp elevated pastures, in open, sunny spots on mountains of Thrace.

Culture: This is an easily-grown species, thriving in most soils and situations that are not too dry; it seems to prefer heavy, damp loam, in an open, sunny spot.

GAGEANA (Balf. f.) Gage's P.
(Amethystina.)

A pretty sub-species of P. Kingii from the eastern Himalayas, with a tuft of smooth, gland-dotted leaves with oblong, narrowly elliptic or sub-egg-shaped, blunt blades tapering to a short, broad-winged stalk, in all one-and-a-half inch to three inches long; margins cartilaginous, furnished with small, widely separated teeth. Flower stem about four inches tall, bearing from one to eight blossoms in an umbel on rather short stalks of unequal length. Corolla reddish-purple, somewhat thick in substance, bell-shaped, downy outside, about half-an-inch long, divided into five short, nearly square or broadly wedge-shaped lobes, truncate at the tip, where they are coarsely toothed; tube cylindric, rugose within. Flowers in July.

Grows in wet alpine meadows near Joloong, in the Sikkim Himalayas, at 13,000 feet above sea-level. Not in cultivation.

Culture: Peat and a small quantity of calcareous loam, and abundant moisture when in growth, are the conditions indicated.

GAMBELIANA (Watt.) Gambel's P.
(Rotundifolia.)

A handsome deciduous perennial with somewhat fleshy resting buds, coated with yellow meal. Leaves with rounded blades a quarter-of-an-inch to one inch across, heart-shaped at the base, borne on thin, smooth stalks one to four inches long; margins finely or coarsely toothed. Flower stems two to six inches tall, smooth, bearing a few-flowered umbel of purple blossoms. Corolla one to one-and-a-half inch across, divided into five broad, concave segments; tube with a distinct ring in the throat.

This species is apparently confined to one locality near Jongi, in the Sikkim Himalayas, at 14,000 feet above sea-level.

Culture: It should succeed in good fibrous loam, leaf-soil and sand, in a damp, half-shady spot. *A. W. Darnell.*

(*To be continued.*)

INSECTICIDES AND FUNGICIDES.

(*Continued from p.* 395.)

Insecticides.

Arsenic Compounds.

Arsenic, chiefly in the form of lead arsenate, continues to hold the field as the most important contact insecticide. Its use has grown continuously since the initial discovery of its value for the control of the gypsy moth thirty-five years ago. Alterations in its preparation and mode of application have been of only minor importance, but endeavours are continually being made to cheapen and improve its production, to produce it in the form of colloidal suspensions, etc., and generally to increase its adhesive and suspension value. No startling improvements are on record, however.

Commercial arsenate of lead is usually a mixture of various lead arsenates, and efforts are being directed towards the production of commercially pure acid, neutral and basic arsenates, in order to take advantage of their individual properties as special insecticides.

In this country the arsenate of lead is chiefly the diplumbic hydrogen arsenate, chemically $PbHAsO_4$, but in America the basic lead arsenate is already used separately for special purposes.

In the meantime the most important point is the chemical control of the pastes put on the market. It is generally accepted that to be effective the mixture of water and lead arsenates used for spraying must contain not less than a definite minimum proportion of arsenic, and that it is necessary to limit the amount of water-soluble arsenic present owing to the injury caused by the latter to foliage. The recommendations of the Ministry of Agriculture on this matter are that there should be not more than one-half of one per cent. of water-soluble arsenic in commercial pastes, but it would be simpler and more practicable to express and to limit the proportion of water-soluble to total arsenic in the preparations sold. It would then be independent of the actual percentage of total arsenic and the amount of moisture in the pastes, both of which vary considerably.

The same thing applies to other arsenicals and notably to calcium arsenate, the water-soluble arsenic content of which is particularly prone to variation. In this connection the addition of lime to calcium arsenate may be recommended in cases where it is necessary to reduce the risk of injury to foliage to a minimum. When this is done it must be remembered that the insecticidal value may be somewhat reduced.

The continually increasing use of arsenical insecticides throughout the world is indicative of the intense value ascribed to these substances in the never-ending struggle to control the pests of our useful vegetation. It is to be hoped, in consequence, that new sources of supply of arsenic and more efficient methods of production will result in lower costs of material. At present initial cost is frequently the factor which prevents the grower's use of even admittedly effective insecticides. This probably applies more to arsenicals than anything else owing to the scale on which they frequently should be used. For this reason the economical calcium arsenate is likely to find more and more favour as a contact insecticide and the relatively harmful and expensive substances like Paris Green less and less.

Owing to their widespread use, more is probably known concerning the properties and proper mode and time of application of the arsenicals, than of other materials. Such gathering of information is always a "snowball" effect, and shows what can be done by systematic empirical observation and the collation of experience. It is possible in most cases to prescribe with fair accuracy for the use of the arsenicals, an advantage certainly not available to the grower for every type of insecticide.

There is one aspect of the use of arsenicals which deserves to be borne constantly in mind, and that is their poisonous qualities to man. Neither growers nor men of science have regarded as seriously as they deserve the insidious toxicity of the lead and arsenic used in sprays and dusts. Arsenic poisoning is so readily confounded in its symptoms with the effects attributable to other causes, and the cumulative poisoning from the heavy metals like lead is so slow in becoming manifest, that the bad effects from ill-controlled use of insecticides may readily be overlooked. A note of alarm should be sounded to all users of these compounds, not only for their own sakes but for that of the general public. It is essential to ensure that no addition, however slight, to the naturally occurring proportions of arsenic in many foods, should ever be laid at the door of the growers. Careful control of the use of poisonous insecticides will obviate the chance of even highly sensitive individuals tracing ill effects to this source. The occurrence of such cases is likely to cause much harm to the extension of use of one of our most effective weapons in the war against insects and fungi.

Petroleum Emulsions.

The insecticidal value of mineral oil has long been known, particularly that of kerosene, which has for a long time occupied an important place in spraying practice. Petroleum, from whatever source, is a complex mixture of hydrocarbons varying from the lightest constituents like petrol up to the heaviest lubricating oils and pitch. In the past only petrol (as a fumigant) and kerosene have been employed to any extent as insecticides, but more recently heavy petroleum fractions and crude oil have been found of great value both as winter and summer washes. In cheapness and effectiveness they are much superior to kerosene and other intermediate oil fractions, but, unfortunately, they are at the same time more toxic to the plant. Kerosene itself occasionally causes burning of foliage, but heavy oils in general and unrefined distillates in particular have, on occasions, produced the most disastrous effects on fruit trees, even when used as a winter wash.

Much work has been done on elucidating the reasons for these deleterious properties. The poisonous nature of a heavy oil has apparently no relationship to its physical properties of viscosity, surface tension and volatility. These properties, as gauged by the petroleum chemist's standard tests of viscosity, capillarity and flash point, are only useful in determining the probable value of an oil for penetration of the plant tissues. This, however, is a very important point, for without good penetration no oil can display its highest insecticidal value.

The toxicity to the plant seems rather to be a chemical property bound up with the presence in the oil of higher aromatic and "unsaturated" compounds. For this reason highly refined oils are the best. A sulphonation test has been proposed as a measure of the degree of refinement, and this gives a good indication at the same time of whether an oil is "cracked" or not. A straight-run, highly refined oil is essential. In general, the heavier the oil, the less injurious is it to the plant structure, but the slower its insecticidal action. A suitable oil should have a specific gravity around 0·90 and a viscosity of about eighty at 100°F., but decision as to the use of an oil should only be come to after suitable testing by an expert. It is, apparently, immaterial whether the oil is of asphaltic or paraffin base type.

The heavy oils are emulsified for use with suitable potash soaps or other materials, frequently tar oils, and diluted with water in ranges of 1·25 per cent. to five per cent. There appears to be a big future for them, especially as winter washes. *S. J. M. Auld, D.Sc.*

(*To be continued*).

NURSERY NOTES.

MESSRS. JOHN WATERER, SONS AND CRISP, LTD.

In all probability, no nursery in this country is better situated than that of Messrs. John Waterer, Sons and Crisp, Ltd., at Twyford, Berkshire, on the London to Bath Road. The nurseries, well over one hundred acres in extent, surround the cross-roads formed by the road to Henley branching off to the right, and the Twyford one to the left, so that whichever way the traveller may turn, his attention is arrested, and that very forcibly, by huge borders and beds of herbaceous plants and Roses, which have, of course, been specially designed to attract his attention. The portion of the main road which is bordered on either side by the nurseries has been aptly named the "Floral Mile," and at the time of our visit the appellation, which might at first sound blatant, still held good, for there was a magnificent display of late-flowering herbaceous plants and quite a moderate show of Roses.

Michaelmas Daisies and Chrysanthemums naturally contributed greatly to the general bright effect, and of the former we noticed that the firm has a very extensive stock, special prominence being given to the richly coloured Barr's Pink. Closer inspection of the herbaceous plant department, which occupies several acres and which has its separate propagating centre of glasshouses and frames, and a separate staff, revealed huge collections of Irises, in healthy condition and embracing many first-class varieties, large beds being devoted to Thalia, Eurydice, John Waterer, Minerva, Theseus and Vulcan, to mention but a few. There were drifts of fine healthy plants of Anchusa Lissadel Hybrid, A. Opal and A. Pride of Dover, while a plant which attracted special attention —a bed containing many hundreds of plants in full flower could be seen some considerable distance away—was the magnificent Geum Fire Opal, with flowers of vivid scarlet, flushed with orange. We also noted very healthy stocks of various Lupinus polyphyllus hybrids, among those in the stock beds still carrying a few flowers being Constant Nymph, with long spikes of mauve, purple tinged flowers; Mayflower, Penelope and Sunshine, rich yellow; plants of the latter are grown specially in pots to ensure their successful establishment.

Helenium Crimson Beauty, in conjunction with the metallic-blue Eryngium tripartitum, was extremely effective, while the many varieties of Dahlias, although so late in the season, continued to make a brave display. Among other subjects which this department seemed to be specialising in were Phloxes, Delphiniums, Japanese Anemones, border Carnations, Sidalceas, Pyrethrums and Violas, all of which were represented by large stocks of the choicest varieties.

In the well-ordered alpine department, thousands upon thousands of pots of well established plants were to be seen, embracing all the species and varieties in general demand among lovers of alpines. Large frames were devoted solely to Saxifrages, prominent among which, both in quantity and quality, were S. longifolia, S. Elf, S. Peter Pan and S. Pixie, the latter three being Mossy sorts.

Other frames were devoted to Helianthemums, and we noticed a splendid collection of Aubrietias, but then, there were fine collections of all subjects which one would expect to find in an up-to-date alpine plant establishment.

Beside herbaceous and alpine plants, fruit trees and Roses are grown very extensively at the Twyford nurseries. The Roses comprise a large selection of the modern varieties, both bush and climbing sorts, while many thousands of standard Roses were seen. With regard to the latter, it was of interest to note that, in the majority of instances, the rugosa stock had been used and the results were very promising, especially from the nurseryman's point of view, for the failures at budding were practically negligible, while in beds where Briar stocks were used, as is usually the case, there were numerous failures. Also, apparently, many varieties which do not do well on Briar stock flourish on the rugosa. It might be argued that the rugosa stocks do not make such stout stems as the Briars, and to a degree this may be true, but as the majority of standard Roses require to be staked, no matter what stock they are on, this would seem a point of little moment. Suffice it to say that Messrs. John Waterer, Sons and Crisp, Ltd., are great believers in the rugosa stock for standard Roses, and they state that the demand for such Roses has increased remarkably; judging by the healthy appearance of their specimens, their faith is not misplaced.

Many acres at Twyford are devoted to fruit trees and bushes. We noted large drifts of Gooseberry and Red and Black Currant bushes, all in splendid condition; Apple trees, in various forms and of various ages, all looking extremely healthy; Nuts in several varieties; many hundreds of specimen fan-trained Peach trees; trained Plum trees; and Raspberries and Loganberries, in fact, the fruit quarters displayed the same high standards of production and masterly organisation that were so evident in both the herbaceous and the alpine plant departments.

FOREIGN CORRESPONDENCE.

ARISAEMA TRIPHYLLUM.

The genus Arisaema is included in Araceae, and numbers some sixty herbs, having a wide geographical distribution. The species under notice is very common in woods in North America, where it is known by the vernacular names of Indian Turnip and Jack-in-the-Pulpit. It possesses a large, flattened tuber which is very acrid, and is used to some extent in home doctoring. Two leaves are usually produced, each consisting of three ovate or elliptic-ovate leaflets. The inflorescence is quite large and appears in the early spring. The spadix is club-like and protrudes above one side of the Calla-shaped spathe, but the other side of the spathe curves over and above the spadix in hood-like manner. The inner surface of the spathe is of a dull purplish hue, and the outer greenish-purple.

It is not, however, the inflorescence which renders this plant specially worthy of notice, but the brilliantly coloured berries which ripen in early autumn and remain in splendid condition for an extended period. In exposed situations the leaves die before the berries colour, but plants in shady places retain their foliage for a much longer period. The berries are of a brilliant scarlet hue, the biggest being somewhat larger than a good-sized garden Pea. They are aggregated together in a dense, thick spike, which is about three inches in length and very nearly as broad at the base, but tapering slightly towards the blunt apex. The ripe berries are very glossy, and the whole cluster reminds one somewhat of a huge bunch of Holly berries.

As may be imagined, such brilliant masses of colour, standing erect above a carpet of fallen leaves and dying herbage, make a striking feature of the woods in the autumn.

OTHONNA CRASSIFOLIA (HARV.).

So much confusion has resulted from the use of the trivial name crassifolia, applied by several authorities to different species of Othonna, that it is well to name the authority when referring to Othonna crassifolia. The plant described by Harvey under that name is the one usually cultivated as such by horticulturists, and is distinct from plants bearing the same name described by Linnaeus and by Meyer. It has also been named O. capensis (Bailey).

Belonging to the Order Compositae, it is of a succulent nature and trailing habit. The leaves, which may be up to one inch in length, are almost cylindrical, tapering to a sharp point, and are produced either in clusters or scattered. They are of a glaucous-green hue and show off to advantage the bright yellow flowers, which are borne either singly, or in pairs, on slender, ascending pedicels from two to four inches in length. The flowers are produced practically throughout the year, but only open during bright weather. It is well suited for cultivating in small hanging baskets or in pans, so that the trailing stems may hang in graceful manner. A light porous soil and a position in full sun are essential conditions. Cool greenhouse conditions suit this plant admirably.

Some time ago, when visiting one of the largest establishments devoted to growing pot plants in the eastern United States, I came upon a fine, healthy batch of Othonna crassifolia in four-inch pots. They were being grown and sold as Sedums, although anyone with even a rudimentary knowledge of botany would avoid making that mistake. Apparently the thick, succulent leaves and habit of the plant had deceived the nurseryman. Be that as it may, there is no doubt that he found them a profitable proposition, for he told me that they sold readily at fifty cents. each.

I secured some of these plants and planted them as a carpet at the front of a mixed border, using Lavender as "dot plants." The result has been delightful, for throughout the summer the Othonna formed a sheet of purest yellow, with which the grey foliage and the blue spikes of flowers of the Lavender harmonised perfectly. Even in mid-October there was a profusion of blooms on the Othonna and some on the Lavender. The slight frost we have experienced so far has had no ill effects on the Othonna, but it will have to be removed to the shelter of the greenhouse soon, before severe weather results in its demise.

Othonna crassifolia withstands drought excellently and revels in warm sunshine, consequently conditions here during the summer time suit it admirably. It is worthy of more attention from gardeners. *T. H. Everett, New York, U.S.A.*

HUCKLEBERRIES.

In reference to the note by *J. F.*, on p. 295, I may inform him that the word Huckleberry seems to be ambiguous and of local application in the U.S.A. to various plants apparently. Here, in the east, no one would think of calling Solanum nigrum or its varieties by that name, although along the Pacific coast, where the Gaylussacia does not grow naturally, some of these may be referred to as "garden Huckleberries," probably by settlers from the east. Here, in the New England states, no one would think of calling any of the Vacciniums "Huckleberries," but they are commonly spoken of as Low Bush Blueberries (V. pennsylvanicum, V. vacillans, and V. canadense). In parts of Maine the canning of the latter is an important industry. Then we have the High Bush Blueberry (V. corymbosum) commonly found in rather damp situations, but I have seen acres of it covering some hillsides of Essex County, Massachusetts. This plant has been improved so much by selection during the past few years that berries are being produced now approaching a diameter of one inch, and without the loss of much of their pleasant flavour. The Low Bush Blueberries are the principal dessert of the restaurants here during summer, in the form of pies, but no one would consider for a moment the picking of Huckleberries (Gaylussacia baccata) either for preserving or converting into pies; they are too seedy and unsuitable to the palate. Nevertheless, in New York, a request for Blue Berry pie is questioned, and we are informed by the waiter they only have "Huckleberry Pie" and immediately he places before you a nice, juicy slice of pie made from Vaccinium pennsylvanicum. While on the subject of common names, we frequently see in the English papers reference made to Mitchella repens as the "Checkerberry," but no one here has ever heard it called that; indeed, the name is applied only to Gaultheria procumbens, the Mitchella being known by the name of Partridgeberry. Mr. Kingdon Ward made the same error on his visit here a year ago, and was grateful for the correction. *Wm. H. Judd, Arnold Arboretum.*

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for the opinions expressed by correspondents.*]

Smoke Abatement.—I was pleased to see Mr. W. W. Pettigrew's most interesting paper, which was read at our Conference at Harrogate, reprinted in your journal. The paper must have drawn the attention of your readers to the enormous damage and destruction caused by smoke, not only to vegetation, but to health, buildings, materials and everything that it may fall upon. . Indeed, it is a conservative estimate to put the cost of smoke per year at not less than £50,000,000, or over £5,000 per hour. The cutting off of the sunlight by as much as fifty per cent. in our cities, and so depriving the children of their main support of health, is a thing for which it is hard to find words strong enough. Just as the delicate plant cannot live in the gloom of the towns, neither can the children thrive as they should. The cause for which the Smoke Abatement League is working is, I am sure, one that will appeal to all lovers of nature, and I would be grateful if those who realise the gravity of the problem could help our campaign for a cleaner country by becoming members of the League or by sending a donation. *Arnold Marsh, Secretary*, 23, *King Street, Manchester.*

National Chrysanthemum Society's Show.—I am very glad the above Society included in its show a class for specimen Chrysanthemums in pots, and it must have been very disappointing to the Committee to have had but one specimen shown; no doubt another year more will be forthcoming. I am not a member of the Society but am a regular visitor at the horticultural shows at Vincent Square, and for years I have wondered why there were no pot plants exhibited. I would like the Committee to go a step further and have a class for six or twelve distinct varieties to be grown in pots not larger than eight inches, then one would get an idea as to which varieties were best suited for decorative purposes as pot plants. While on this subject of pot plants, could not the National Rose Society include a class for Roses grown in pots to be shown at the show held in the spring? Here, again, one would be able to make a selection of the best varieties for pot culture. *J. H.*

Table Decorations.—Having read Mr. J. Prewett's letter on the above subject (October 27, p. 336), I find he has been, evidently unconsciously, even more amusing and, I am afraid, less instructive, than *Formakin*. Surely, read in conjunction with *Formakin's* remarks, a table two feet by six feet is quite explainable. Nor is the idea for table decoration suitable for different ideals, altogether unreasonable; the table is surely as entitled to be suitably decorated or dressed for different meals as are individuals for different functions. For example, it is scarcely correct to come down to breakfast dressed in a dinner jacket; or appear at a ball in pyjamas; or even walk down Bond Street with a heavy fur coat and a straw hat on a winter's day; although I have lived long enough to see all these done. As to one breakfast table against several for lunch, and still more for dinner, I have invariably noticed the more there were for dinner and the cheerier the evening, the smaller the proportion to appear for breakfast, so, possibly, it is only reasonable, the former should be in the minority! I do not agree, by any means, with all that *Formakin* has written, but he has made a bold bid for something original, and to give table decorators more scope to work on for new ideas. Personally, I have never found any use for the man who never makes a mistake. *Professional Table Decorator, Glasgow.*

Tulip Tree at Horsham Park.—Dr. Williams' interesting notes on the Tulip Tree at Horsham Park (pp. 343 and 347) call for amplification. It is always the peculiar pride of tree lovers in Sussex that four among the fifteen or so great Tulip Trees mentioned by Elwes and Henry are in west Sussex—at Petworth, Leonardslee, Woolbeding and Horsham Park, and all, save the first, are illustrated in that work. The Petworth Tree—alas!—has been going back these last ten years, but although the leaves have in recent years become noticeably smaller, the tree still flowers well. The measurements to-day are, seventeen feet eight inches in girth at four feet high; at eight feet high, seven branches spring out to a total height of sixty-five feet. According to Mr. Elwes, writing in 1906, the largest living specimen then was the Woolbeding tree, measuring, in 1903, one-hundred-and-five feet by seventeen feet. This, and the Leonardslee tree, I have seen recently, and both are in good health. Mr. Elwes reports Sir Edmund Loder as saying his tree could not be more than ninety years old (112 in 1928); it was then ninety-seven feet high. At Petworth, we have a flourishing young tree planted small in 1911, now measuring forty-two feet, with a girth of thirty-seven inches at five feet high—a remarkable growth in seventeen years. We are contemplating an avenue of sixty Tulip Trees in a wood within the Park, which may be a source of pilgrimage in years to come. *Violet Leconfield, Petworth House, Petworth.*

MARKET FRUIT GARDEN.

The long drought was broken in most decided fashion by the deluge of October. A rainfall of 7·61 inches made it the wettest month of which I have any record, with the single exception of November, 1926, which had 8·16 inches. At the beginning of the month the ground was dry to a depth of a foot, and it was impossible to drive in a stake. At the end the surface was running with water in a good many places. I was caught unawares, for I was waiting for a shower before having the usual water-furrows drawn between the rows of trees and bushes. These furrows would have been very valuable during such a wet period.

I believe the rain came just in time to be of some use to Apples. Many of the leaves on the older trees had already turned yellow, and these soon fell; but some that were still green, notably around the new fruit-buds, stayed on. As a result, what appeared certain to be a very early defoliation, even for this southern district, became a rather late one. Young trees were still full of leaves at the beginning of November. All Apples are wonderfully well provided with fruit buds, so that a fine display of bloom next spring seems certain. Black Currants and Raspberries have also made a lot of growth and look promising. Plums were almost leafless before the drought broke, and presumably did not benefit from the rain.

Marketing Apples.

The information about crop prospects abroad, issued by the Empire Marketing Board, can be of great service to fruit-growers. Acting on these, I thought it would be wise to make every effort to market all dessert Apples before imported supplies reached their height, and almost succeeded. When the market became full of Apples from overseas, sales of home-grown fruits were effected much more slowly than they had been, and prices fell considerably; but first-class samples, properly graded and packed, still realised far more than the imported fruits. My Cox's Orange Pippins, which had been selling at 24s. to 25s. per half-bushel box, fell at last to 22s.; but this compares well with only 12s. to 16s. per bushel box (double the weight) for the same variety from British Columbia. Blenheim Pippin realised 8s. to 14s., and even the unpopular Allington Pippin up to 8s., per half-bushel box, in face of American Jonathans at 7s. 6d. to 9s. per bushel box, and several other imported kinds still lower—prices at which there could be no profit left for the unfortunate growers after paying for transport. Even the much-praised and greatly over-rated Newtown Pippin could be bought for 10s. to 11s. per bushel box. These comparisons show that there is a discriminating section of the public who are willing to pay for the superior flavour of English Apples of the best varieties, no matter how plentiful is the attractive-looking produce from abroad. There is every reason to suppose that, if we had a few really choice varieties to come in still later, we could hold our own against imported produce right through the winter; but they must be varieties good enough to win a position by fine flavour as well as appearance, as Cox's Orange Pippin has done. It is to be hoped that the efforts of those who are now engaged in the work of raising and testing new varieties for commercial use will result in the discovery of such Apples. It is extraordinary what poor varieties are recommended for market culture from time to time. Ellison's Orange is a recent instance. I do not believe that there is any commercial future for this Apple. The prevailing colour is an unattractive green, and the flavour is little better than that of Keswick Codlin, and not unlike it.

Field Drains.

The busy marketing season being finished, field drains should be inspected. The recent heavy rains have caused all these to run if they are in order, giving a good opportunity to examine all outlets to see which need attention. This has to be done every year, or the outlets are likely to be overgrown and lost, or blocked so that the drain cannot function. Always some drains are found which are not working properly, and these have to be traced until the faulty section is reached. This year I am giving special attention to this work, because there are several places in the plantations where trees are in a bad way because of water-logging. The trouble is not always bad enough to show on the surface of the land; but the trees soon give some clue by ceasing to make growth and sometimes beginning to die back. In nine cases out of ten where trees go seriously wrong, faulty drainage is at the bottom of the trouble. My place has been elaborately drained; but I would never advise any one to plant fruit trees on land that needs much of this treatment. The drains are a perpetual nuisance. When they have to be traced through the plantation it is necessary to cut the roots of the trees, doing a lot of harm. Some drains remain in good order for an almost indefinite time, but others are always blocking. On my land this occurs most frequently where the subsoil is very fine sand (silt), which gets into the pipes and fills them completely. In other cases the drains go wrong because they have not sufficient fall. It is almost useless to put in a drain where a thoroughly good fall cannot be obtained. Where drains pass out of the plantation through shelter belts of Poplar or Cupressus macrocarpa, the pipes are often choked with a solid core of fibrous roots. Black Currants cause the same trouble; but Apples hardly ever root into the drains, even when they are quite shallow. Much bother and expense are avoided where fruit trees can be planted on naturally drained land.

Physiological Diseases in Apples.

The abnormal season has brought about an unusual prevalence of various physiological or non-parasitic diseases in Apples. Bitter pit was common in the early Codlin varieties, and glassiness in Rival, Charles Ross and Lane's

Prince Albert. Late varieties, particularly those with Cox's Orange Pippin blood in them, are showing a form of brown spotting which is distinct from bitter pit, being more on the surface. It often appears after the fruit has been stored for a time. It bears a strong resemblance to the "Jonathan spot" of American Apples. Although mycologists have, from time to time, found various fungi in these spots, I am advised that these are probably not the cause, but that, as in the case of bitter pit and glassiness, the trouble can only be attributed to abnormal conditions which upset the physiological balance of the trees. The fact that these disorders have been unusually prevalent in this year of severe drought is strong evidence that this is the correct explanation. No doubt the drought may be blamed also for the internal breakdown which is occurring in stored Apples. I have found a good deal of this in Bramley's Seedling after keeping them for a few weeks, so decided to put them on the market at once. Doubtless, prices will be high for this variety in the early spring; but I fancy that some of those who attempt to hold the fruits until then, even in cold storage, will have cause to regret it, particularly as quite good returns may be secured this autumn.

Top-grafting Results.

One never knows what success one will have in top-grafting unless the particular combination of varieties has been tried before. Last spring I headed down and top-grafted two varieties of Apples growing in blocks side by side, Domino and Early Julyan, the scion variety being Blenheim Pippin in both cases. At the time when the work was being done, those engaged in it found that Early Julyan was the easier to graft, the bark lifting better than that of Domino. The result, however, has been very much better with the latter variety. In this case practically all the grafts "took," and the scions have made tremendous growth. On the Early Julyan there are more failures, the growth has been nothing like so vigorous, and the unions have not grown over so completely. These trees have interested me very much during the season. Both varieties were in an under-vigorous condition before grafting, making hardly any growth but covered with fruit spurs. As they stood too closely together all were not headed down, but some left at regular intervals to bear for a few years until the top-grafted trees want the room, when they will be grubbed. These trees bore crops and the fruits were thinned. In heading down the rest for grafting, I left a few branches, as I always do for one season. In some cases one central branch was left, in others two or three outside branches were allowed to remain. In all cases those branches were enormously invigorated, particularly the outside ones. Some of them made a forest of shoots three feet in length. Moreover, they carried crops of very large fruits, which were more valuable to me than the crops of much smaller fruits from the trees left untouched. Heading down, of course, severely upsets the balance between head and roots in favour of the latter. This is interesting when considered in conjunction with my experiment in pruning old and stunted trees described in previous notes. Apparently any form of pruning, by reducing the leaf area, and so giving the roots a smaller head to support, invigorates the tree. The maximum result is obtained where a tree is headed down as for top-grafting; but it may be secured in less degree by the thinning out of crowded branches in neglected trees, cutting back old trees into five or six-year-old wood, or cutting clean off a number of the largest spurs on trees which are covered with fruit spurs, but making little or no growth. Every treatment which I tried invigorated the trees in some degree. Even where it does not show in the production of shoots it is apparent now because of the later hanging of the leaves. There may be no golden rule for the pruning of old trees which lack vigour; but apparently good results may be expected from any treatment which is sufficiently severe, no matter whether it be thinning out, cutting back, or reducing the number of spurs. The method may be adapted to suit individual cases.

Will Root-stocks Deteriorate?

At a meeting of fruit-growers which I recently attended, a lecture was given by an agricultural expert on the breeding of plants on Mendelian lines. In the course of this it was stated that all crops which are reproduced vegetatively, as in the case of Potatos, are bound to deteriorate, so that new varieties (seedlings) are constantly required. At the close of the lecture, one of the growers asked whether this was likely to occur in the case of vegetatively reproduced root-stocks, such as those used for fruit trees. The answer was that this was certain to be so. I found this idea to be rather disturbing, and should be glad to hear other opinions on the matter. If it is true, then it is high time that seedling root-stocks, received more attention from research workers.

In this connection, an interesting article by Mr. T. Swarbrick appears in the *Report* of the Long Ashton Research Station for 1927. He states that, in America, where seedling stocks are used almost exclusively, the trees in the large commercial orchards do not show the variation in size and vigour which is associated with trees on "free stock" in this country. There is, in fact, a remarkable degree of uniformity of tree size and vigour. He suggests that this may be due to the American method of propagation, which differs from ours. The seedling stocks are lifted in the autumn and all lateral roots trimmed off, leaving only the long, narrow tap-root. These trimmed roots are then severed from the top well below the crown region, and cut into five-inch or six-inch pieces. The scions are grafted directly on to these sections of the root. No part of the stem of the tree, therefore, is composed of the stock. In England, it is the custom to graft six-inches or eight-inches high upon the seedling stock, thus leaving several inches of seedling stem between the scion and the root. Because of this interposed stem-piece Mr. Swarbrick contends the trees have the same make-up as double worked trees. Trees worked upon vegetatively propagated root-stocks also have a stem-piece of varying length between the scion and the root-system, the stem of the stock. In the case of trees worked upon the stems of seedlings, the interposed stem-piece varies in character from tree to tree; but in trees worked upon uniform vegetative stocks, this interpolated stem-piece is of a uniform character. In experiments with double-worked trees at East Malling, it has been found that a piece of stem six inches long inserted between the scion and the root-stock, has a marked influence on the growth and behaviour of the scion variety. What it all comes to is this: It is possible that we might overcome one of the objections to seedling stocks, lack of uniformity, if we adopted the system of root-grafting. This should certainly be tried. *Market Grower.*

A NEW INTENSIVE SYSTEM OF COMMERCIAL APPLE GROWING.

In May, 1928, two articles, describing a new method of Apple-growing, appeared in this journal under the above title. As a considerable number of enquiries have been made, both personally and by letter, it may not, perhaps be out of place to give some figures relating to actual cropping during 1928.

The figures given refer to a small experimental plot of 126 trees planted as maidens in 1918. They were thus ten years from the maiden state when these crop weights were taken. The variety is Cox's Orange Pippin, with a few Worcester Pearmain scattered about as pollenators. The distance of the trees apart is one metre on the square. This spacing is, of course, too close for commercial purposes, and the trees have suffered to some extent from excessive shading since they have reached their full height. This shading must, of course, react disadvantageously on the crop weight. It certainly causes a general lowering of quality, although this is not experienced on commercial plantations planted six feet by three feet. In addition, the plot was frankly an experimental one and, like all experimental plots, it suffered from a certain amount of wrong treatment.

The number of trees employed, namely 126, is high enough to get rid of the larger experimental errors and, accordingly, the results may be held to apply to field practice.

The crop from each tree was weighed separately to the nearest quarter-of-a-pound. If the crop weights were put up separately an undue amount of space would be occupied. In the following table, therefore, the number of trees bearing a certain weight in pounds is expressed instead.

Crop weights involving a quarter- or three-quarters-of-a-pound are reckoned as the nearest whole number. Thus, four-and-a-quarter becomes four and four-and-three-quarters becomes five. Half-pounds are reckoned alternately to the lower and higher whole number.

Crop Weights from 126 Cox's Orange Pippin (Fuseaux), Age ten Years, from Maiden. Distance Apart One Metre.

Weights in lbs.	Number of trees carrying this weight of crop.
0	1
1	5
2	11
3	7
4	15
5	26
6	16
7	19
8	11
9	9
10	2
11	2
12	1
13	0
14	1

The total crop weight was 706 lbs. carried by 126 dwarf trees. This gives an average weight of 5·56 lbs. per tree. In addition, there were a large number of windfalls. These were not due to codlin moth, but were partly due to the packing being delayed for a few days, and partly to bird attacks. The windfalls amounted to about one pound per tree, bringing up the average weight per tree to 6½ lbs.

On the commercial scale of planting, there are 2,400 trees per acre at six feet by three feet, so that a pound of fruits is approximately a ton per acre. The crop on these 126 Cox's Orange Pippin, fuseaux, is therefore at the rate of six-and-a-half tons per acre. The fact that there were trees bearing as high weights as 10 lbs., 11 lbs., 12 lbs., and 14 lbs., suggests that by more careful and scientific treatment still higher average weights could be secured.

Taking the average as it stands, however, it is interesting to see what weight fruit bushes, planted at fifteen feet on the square, must be in order to secure the same crop per acre. A bush fifteen feet by fifteen feet occupies exactly twelve-and-a-half times as much space as trees planted under this commercial system of six feet by three feet, the rates being 225 to 18 square feet. A plantation of bushes, therefore, to average the same weight per acre, must average 81 lbs. per bush. *A. H. Lees, M.A., Long Ashton.*

PUBLIC PARKS AND GARDENS.

The Colne Town Council has resolved to provide a recreation ground in a field north of the junction of Harrison Drive and Birtwistle Avenue.

The Cudworth Urban District Council has appointed a Committee to prepare a scheme for planting the park.

The Hazel Grove and Bramhall Urban District Council has resolved to make application to the Ministry of Health for sanction to borrow £422 for the lay-out of the recreation ground.

The Newcastle Town Council has under consideration a proposal to enlarge the lake in the Town Moor recreation ground. The cost is estimated at £9,300.

SOCIETIES.

MARLOW CHRYSANTHEMUM.

The seventh annual exhibition of the Marlow and District Chrysanthemum Society, held in the Public Hall, on November 7 last, well maintained its high position. The little hall was well filled with beautiful examples of high cultural skill, and the arrangement of the various exhibits left nothing to be desired. Much credit is due to the Secretary, Mr. H. A. Elkington, for the smooth working of everything connected with the show.

The three exhibits in the premier class for eight vases of Japanese blooms, three blooms of one variety in each vase, were splendid. An even lot of well-finished blooms won first prize for Mrs. Hornby Lewis (gr. Mr. A. E. Friend), Danesfield. The varieties shown were: Majestic, Red Majestic, Mrs. B. Carpenter, W. Rigby, Louisa Pockett, F. J. Fleming, Princess Mary and Mrs. Gilbert Drabble. A. G. Bendir, Esq. (gr. Mr. G. Clarke), Medmenham Abbey, was a good second, his blooms of Red Majestic, Princess Mary, Majestic and Mrs. Algernon Davis being especially noteworthy. The Rt. Hon. Lord Hambleden (gr. Mr. W. Turnham), Henley-on-Thames, was third, with an excellent series, his blooms of Mrs. Gilbert Drabble being superb.

There were three exhibitors in the class for a group of Chrysanthemums in pots, set up in a space of six feet by five feet. There was little to choose between the first and second prize exhibits, leading honours being awarded to Lady Vansittart Neale (gr. Mr. J. McCaul), Bisham Abbey. Her plants were well-grown and carried good blooms of diverse colours. A. R. A. Heath, Esq. (gr. Mr. J. Platt), Blounts, was an uncomfortably close second, some of his flowers were fine, but there were others below par. Third prize was won by F. A. Bontoe, Esq. (gr. Mr. W. Clark), Quarry Wood, with a pretty group.

In the class for a display of Chrysanthemum blooms, arranged for effect, with any foliage or foliage plants, on a table space five feet by three feet, only two exhibits were set up. A really excellent display won first prize for Mr. Friend; it was highly decorative, large Japanese blooms and Singles predominating, with the free use of Codiaeums. Second prize was awarded to C. Glidden Osborne, Esq. (gr. Mr. T. E. Jones), Highfield, who had a pretty and bright exhibit.

Singles were shown in excellent form and condition, and the competition was most satisfactory. For six vases of Singles, distinct, six blooms of one variety in each vase, there were five exhibitors. A fine set won first prize for Mr. Turnham, who showed beautiful blooms of Susan, Bronze Molly, Hon. E. Smith, Molly Godfrey, Audrey and Hon. Mary Smith. This was closely followed by an exhibit from Mr. Friend, who won second prize, his best sorts being Absolute, White Model, Susan and Molly Godfrey; Mr. T. E. Jones won third prize.

The three exhibits in the class for two vases each of Japanese (two varieties), Single (two varieties), and Decorative (two varieties), made a most attractive display. Leading honours were won by Mr. Friend, who showed W. Rigby and Mrs. Gilbert Drabble, Bronze Molly, Susan, Jean Pattison and In Memoriam, all in splendid form. A heavy lot of blooms won second prize for Mr. G. Clarke, and third prize went to Mr. Jones.

For two vases of Japanese, distinct, three blooms of each variety, Mr. Turnham was an excellent first, showing heavy blooms of W. Rigby and Majestic. With Majestic and Red Majestic, Mr. McCaul was placed second, and Mr. Jones, third.

The five exhibits of one vase of three Japanese blooms, one variety only, was a splendid effort, grand blooms of Queen Mary winning first prize for Mr. Turnham. With noteworthy blooms of Mr. T. W. Pockett, Mr. McCaul was second, and with splendid blooms of Mrs. R. C. Pulling, Mr. G. Clarke was placed third. In the class for one vase of three blooms of one variety of Incurved, grand blooms of Ondine secured first prize for Mr. Jones; and with neatly-finished blooms of Romance, Mr. Friend was placed second; with the same variety, Mr. G. Clarke, was third.

In the class for twelve Japanese cut blooms, distinct, shown on boards, Mr. Turnham was first of the three entrants. He showed well-finished blooms of Majestic, Yellow Majestic, Mrs. Gilbert Drabble, Thalia, W. Rigby, Victory, Mrs. P. Murray, J. M. Symmonds and Red Majestic. A good even lot of blooms won second prize for Mr. G. Clarke, his specimens of F. J. Fleming, Majestic and Red Majestic being noteworthy; Mr. T. E. Jones was third.

There were several other most interesting competitions, and the classes were well filled with exhibits of a high order of merit.

BRIGHTON, HOVE AND SUSSEX HORTICULTURAL.

The Chrysanthemum Show, held at the Dome and Corn Exchange, Brighton, on November 13, 14 and 15, was yet another triumph for the above Society, which has, incidentally, during the past six years increased its membership from 600 to 2,500 members.

Although this exhibition is described as a Chrysanthemum Show, it was not devoted solely to this popular flower, for there were splendid exhibits by the trade of fruits, vegetables, shrubs, etc.; and the competitive classes, both for vegetables and fruits, were extremely well filled, competition in most instances being very keen. The Corporations of Brighton and Hove realise full well the value of horticulture as a means of improving the amenities of the towns, so that their support was not lacking so far as this show was concerned, and the floral decorations carried out by the Brighton Corporation were highly creditable.

The trade was well represented, numerous local nurserymen and florists, and many from further afield, all contributing to the general success of the show.

Grand displays of Chrysanthemums were staged by Messrs. Keith Luxford and Co. and by Mr. A. G. Vinten. The former, whose blooms were of outstanding quality, showed Japanese and Single varieties chiefly. The Japanese sorts which made special appeal were Geraldine, Louisa Pockett, Mrs. Keith Luxford, Freya, Aloma and Margaret Sargent. There were several Incurved varieties, notably Monument; while among Singles we noted R. B. Burge, Sportsman, Catriona, Daphne, Fantasy, Bob Greenfield and Pink Beauty as being of outstanding merit.

Mr. A. G. Vinten's exhibit was equally meritorious, displaying skill and taste in arrangement, and high quality of flowers. Decorative varieties dominated the collection, such fine sorts as Golden Marvel, Golden Wonder, Blanche du Poitou, Fiona, a good new variety; Mohawk, also new; Sanctity and Silver Queen being very striking. The most notable among Single varieties were Miranda, Westhall Gem, Bridgewater Absolute, Golden Seal, Susan and Everbright, while Chiltern White and Monument, also received much attention.

Messrs. W. Balchin and Sons, Ltd., had a spectacular florists' display of Chrysanthemums chiefly, consisting of a reproduction of the Cenotaph in white Chrysanthemums, with a base of moss, and a well-arranged bank of excellent blooms surrounding it on three sides. Messrs. George Miles and Son staged a small collection of Chrysanthemums; Mr. Arthur Pratt showed wreaths and decorative baskets of Chrysanthemums and Carnations, together with pot specimens of various Heaths; and Messrs. W. Miles and Co., Ltd., arranged a charming mixed group of Cyclamens in pots, Carnations, Cypripediums, Chrysanthemums and various foliage plants.

Mr. H. Anscombe showed attractive Cyclamens, Begonias and Chrysanthemums, and Messrs. G. Eastwood and Sons had a mixed group consisting of many varieties of Apples, foliage plants, Chrysanthemums, Cyclamens, Ericas and Carnations; Mr. Baldwin Pinney showed Violets, and Messrs. Reamsbottom and Co. displayed their well-known St. Brigid Anemones.

Heaths in pots were exhibited by Messrs. Barnwell Bros., while Messrs. Sutton Bros. had a small collection of Orchids, among which we noticed good specimens of Brasso-Cattleya Nestor and Epidendrum vitellinum, together with Cypripediums in variety. The outstanding sorts in the display of Carnations set up by Messrs. Allwood Bros. were Spectrum, Maine Sunshine, George Allwood, Wivelsfield White, Maud Allwood and Enchantress Supreme.

Mr. W. C. Bright showed many well-flowered specimens of Primula obconica Brighton Special, Chrysanthemums and Heaths, arranged in association with Maidenhair Ferns; while Mr. Frank Woollard staged various shrubs, including fruited Barberries, Veronicas and Ericas; also various Conifers and many varieties of Apples. The bandstand was decorated magnificently with fine Chrysanthemums and stately Palms, provided by the Brighton Corporation.

Vegetables were exhibited on a large scale by Messrs. Fogwills, Ltd., whose representative collection included Leeks, Spinach, Potatos, Marrows, Tomatos and Celery, all in several varieties and of excellent quality. Potatos, in many varieties and excellent condition, were displayed by Messrs. Sutton and Sons, while Messrs. Daniels Bros., Ltd., had exhibits of both Apples and Vegetables. Of the former there were exceptionally good examples of Newton Wonder, Vicar of Beighton, Charles Ross, Lord Derby and Allington Pippin; while in their group of vegetables, Celery, Leeks, Cauliflowers, Tomatos and many others, all in several varieties, were shown in excellent condition.

The Premier Seed Co., Ltd., also staged a magnificent and very representative collection of vegetables, while Apples, notably the varieties King George, Ontario, Crawley Beauty, Forge and Baxted Favourite, together with fruited shrubs and coloured foliage, were displayed by Messrs. J. Cheal and Sons, Ltd. Apples were also shown well by Messrs. L. Cook and Co., Ltd.; the Barnham Nurseries, Ltd., and Messrs. Barnwell Bros.

In the open competitive classes for flowers and plants many grand exhibits were to be seen. Alderman Charles Kingston (gr. Mr. A. B. Bishop), Brighton, was first in the well-contested class for an oval group of Chrysanthemums, fifteen feet by nine feet, showing fine specimens of many Japanese sorts; the William Balchin Cup went with this prize. Mr. R. Middleton (gr. to Annie, Viscountess Cowdray, Crawley) was first for twenty-four Japanese Chrysanthemums, with a very fine collection; he was also first for three vases of Chrysanthemums, showing Majestic, Red Majestic and Mrs. H. Wells; and for four vases of Decorative or Incurved sorts, with excellent examples of Dr. Englehart, Teresa, November Sun and Romance.

Mr. R. W. Wheare showed the best blooms in the class for twelve distinct Japanese Chrysanthemums; Mr. T. Elder, Lindfield, was successful with grand specimens in the class for six Japanese sorts; and Mr. J. G. Caswell, gardener to W. S. Pool, Esq., Haywards Heath, showed the best six vases of Single Chrysanthemums, his blooms being of Red Molly, Susan, Molly Godfrey, Bronze Molly and Pink Beauty. Mr. Caswell was also first for twelve Single Chrysanthemums.

There was a number of splendid displays in the class for six bush Chrysanthemums, W. H. Vokins, Esq. (gr. Mr. W. J. Scott), Withdean, Brighton, securing the premier award, while in the popular and very attractive table decoration classes, C. T. Chandless, Esq., was first for an arrangement of Carnations; and Miss C. M. Smith for a table decoration of natural flowers and foliage, for which she used Single Chrysanthemums.

For six Gloire de Lorraine Begonias, Mr. J. H. Manton was first, with magnificent specimens, the plants being literally pyramids of flowers; Mr. A. Humphrey was the recipient of the premier award for three plants.

In the classes for fruits in this section, the same high standard of quality was to be seen. The Silver Cup and first prize for two bunches of black Grapes was secured by Messrs. Douglass Bros., who had fine bunches of Gros Colmar;

other first prize winners in the classes for fruits were:—Mr. R. W. Wheare, gardener to Sir W. R. Champion, Hurstpierpoint, for one basket of culinary Apples, with fine fruits of Newton Wonder; also for four dishes of dessert Apples, showing richly coloured specimens of Blenheim Pippin, American Mother, Charles Ross and Cox's Orange Pippin; Mr. A. Mason, gardener to the Earl of Chichester, Stanmer Park, for four dishes of cooking Apples, his varieties being Newton Wonder, Annie Elizabeth, Peasgood's Nonesuch and Bramley's Seedling; also for two dishes of cooking Apples, with Peasgood's Nonesuch and Newton Wonder; Mr. C. S. Johnson, Durrington, for a specimen cooking Apple, his example of Lane's Prince Albert being very fine; and Mr. J. H. Manton, for two dishes of dessert Pears.

Mr. R. W. Wheare was again first for two dishes of dessert Apples, his specimens of Cox's Orange Pippin and American Mother being very richly coloured; Mr. C. S. Johnson secured the premier award for two dishes of Apples and two of Pears; and Mr. A. H. Parsons was similarly placed for three dishes of Apples and three of Pears. In the class for one dish of Quinces, Mr. Parsons was again successful.

Throughout the classes for vegetables keen competition was noticeable, among the prize-winners being Mr. J. H. Manton, Mr. W. Sinfield, Mr. A. E. Morris, Mr. J. Herriott, Mr. R. W. Wheare, Mr. A. Deadman and Mr. J. E. Shirley.

The numerous classes for allotment holders and amateurs attracted large numbers of competitors, the exhibits of vegetables, flowers and fruits displaying in many instances very clever cultivation; while the classes for table decorations and decorative baskets in the ladies' section, as usual, proved very popular and an important feature of the show.

The general arrangement of the exhibits left little to be desired, and the Show Committee is to be congratulated upon the manner in which it organised and conducted such a successful exhibition.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The monthly meeting of this Society was held in the R.H.S. Hall, on Monday last, Mr. T. R. Butler presiding. The sum of £19 0s. 10d. was paid to three members from their Deposit Accounts, and the sum of £111 10s. 8d. was passed for payment to the nominees of three deceased members. The sick-pay for the month on the Ordinary side amounted to £85 6s. 4d., and on the State side to £70 11s. 8d.; maternity benefits totalled £9 10s. 0d. The sum of £37 2s. 3d. was passed for payment to members towards dental and optical treatment, and twelve other cases were considered.

The Society's Almanac for the year 1929 was produced, and it was agreed that copies be sent to nurserymen and large garden establishments in England. The Trustees reported that they had invested a further £1,000.

DERBYSHIRE HORTICULTURAL.

The twenty-first annual Chrysanthemum, Fruit and Vegetable Exhibition, held on November 8, 9 and 10, in the Royal Drill Hall, Derby, on a floor space of 3,375 square feet, was a spectacle commanding the admiration of all who beheld it. The opening ceremony was performed by Viscountess Petersham. The high standard of exhibits was well maintained; they included seventy additional entries, totalling 294 in a schedule of fifty-two classes, displays coming from Edinburgh, Manchester, Birmingham, Nottingham, Northampton, and many of the large establishments in Derbyshire.

The centre of the hall was tastefully laid out with miscellaneous groups, an excellent effect being obtained by the skilful arrangement of a dozen large Kentias and Phoenix, surrounded by sub-tropical plants of bright hue, viz., Dracaenas, Eulalias, Nandina domestica, Pandanus Veitchii, Alocasia Lowii, Grevillea robusta, Codiaeums, Liliums, Begonias, Cyclamens and Primulas, for the most part surrounded by Nephrolepis todeaoides and Adiantums.

The central group and platform decorations were kindly supplied by Leslie A. Wright, Esq., of Butterly Hall, admirably arranged in a circle by his gardener, Mr. James Cartledge, accompanied on either side by competitive groups, each covering one hundred square feet, the Chairman's Silver Cup, presented by H. T. Ann, Esq., and the first prize, going to Mrs. Walter Evans, of Darley Abbey (gr. Mr. John Maxfield); second, to The High Sheriff of Derbyshire, Captain A. J. E. Drury-Lowe, Locko Park (gr. Mr. J. G. Stevens).

In the open classes for Japanese Chrysanthemums, five Silver Cups were offered. The class for twenty-four Japanese blooms arranged for effect with any natural foliage, attracted the heaviest blooms in the show, and these occupied a position in front of the orchestra; Mrs. Walter Evans secured the Drury-Lowe Silver Challenge Cup and first prize; Captain A. J. E. Drury-Lowe being a very close second. For eighteen Japanese Chrysanthemums, six varieties, the President's Cup, presented by J. A. Aiton, Esq., was won by Mr. H. Tomlinson, Derby.

The G. H. Strutt Silver Cup, for a display of seventy-two Single Chrysanthemums, was awarded to J. A. Aiton, Esq. (gr. Mr. G. Neale). The Silver Cup presented by Messrs. John Peed and Sons, West Norwood, S.E., was won by W. E. Ann, Esq., Darley Fields, (gr. Mr. Len Dutton), for twelve Japanese and twenty-four Singles effectively arranged. The best twelve Japanese blooms in competition for a re-presented Cup by C. W. Catt, Esq., The Outwoods, Duffield, was won by Mrs. Walter Evans, while the best group of Chrysanthemum plants, to fill a space five feet by four-and-a-half feet (amateurs), was from Mr. J. Potter, Derby, who won the C. W. Catt Trophy. Mr. F. Meakin, Derby, won the W. E. Watt Cup for six Japanese blooms.

A new class in which a Silver Shield was offered by the Association in memory of the late Chairman, Mr. James Martin, was awarded for a collection of twelve dishes of British-grown hardy fruits to Mrs. Walter Evans.

The premier bloom in the show was a large Red Majestic, for which a cash prize and the Association's Certificate of Merit was presented to Captain Drury-Lowe, who also was awarded the R.H.S. Bronze Banksian Medal, for obtaining he second highest number of points in the show Mrs. Walter Evans having secured this award the previous year could not take it again, although obtaining the most points.

Mr. J. Woodward, Draycott, led for a superb collection of vegetables, nine kinds, and for six kinds, the new Cup presented by the *Derby Daily Telegraph* was won by Mr. A. Moore, Alvaston.

Excellent Grapes—Muscat of Alexandria, Alicante, Mrs. Pearson and Gros Colmar—were shown in splendid condition.

Trade exhibits were staged by Mr. H. Woolman, Messrs. Dickson and Robinson, Messrs. William Barron and Son, Mr. William Lowe, Messrs. Dobbie and Co., and Messrs. J. M. Stewart and Son, Ltd.

The Secretarial duties were carried out by Mr. W. Wardman, 5, St. Augustine Street, Derby, and the dates for next year's show are November 7, 8 and 9.

On Monday, November 12, Dr. J. R. Bond, M.Sc., M.B.E., Agricultural Organiser to the Derbyshire Education Committee, delivered a lecture on "How Plants Grow" to the members of the Derbyshire Horticultural Association at the Council Chamber, St. Mary's Gate, Derby.

The lecturer commenced with the structure of the simple cell in plant life, and from that, by means of lantern slides, led on to the structure of a grain of Wheat. The minimum and maximum germinating temperatures of various seeds received attention, and the reason for the asphyxiation of seeds in the soil was explained. The development of a plant by means of both roots and leaves, the absorption of CO_2, from the atmosphere by means of the leaf stomata, and the special adaptation of the stomata in plants and trees which occupy moist and dry soils respectively, came next in consideration. Experiments were shown to demonstrate the tremendous pressure exerted by the roots in forcing the sap upwards through the plant; the transpiration of water from the leaves; and the release of oxygen from the plant. That it was necessary for six hundred pounds of water to circulate through the plant in order to produce one pound of dry substance, was a statement made by the lecturer to show the necessity for freedom of root run in the soil.

The effects of nitrogenous substances in the initial stages of the plant's life, phosphatic substances and their action on the plant, and the necessity for humus in heavy soils, were demonstrated. The ability of Leguminous plants to derive their nitrogen direct from the soil was explained. Some remarkable diagrammatic slides showing the depth of root penetration in the soil were shown; that Beet could penetrate ten feet; Carrot, seven feet; and Horse-radish, thirteen feet, were facts which caused many hearers to alter their conception of tillage operations. Compared with these depths, the Cabbage, two feet; and Peas, three feet, were but shallow rooters.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL.

The annual meeting of this Society was held in the Christian Institute, Glasgow, on November 7, when there was an exceptionally large attendance of members, presided over by Mr. Joseph Dobson. According to the annual report and accounts for the past year, which were submitted by Mr. J. Carrick Kerr, the membership had increased by 237 to 760, while the income showed a balance of £113 18s. over expenditure. Sir John Reid was re-elected President, and after a keen contest, the following candidates were appointed to the vacancies on the directorate:—Gardeners: Messrs. K. Campbell, George Banks, Joseph Johnston and John Stewart. Amateurs: Messrs. James Garrioch, D. A. Stewart, and George Hunter, and Major Brown Paisley.

In the course of a lengthy discussion, objection was taken to the method by which Gold Medals had been awarded to seedling Roses at the recent show, and a proposal to revise the constitution by abolishing the existing nurserymen, gardener's and amateur's qualifications, was defeated by a large majority.

Prior to the meeting, the Directors presented tangible tokens of their esteem to Mr. Harry Reid, an old Director, who recently relinquished his position as head gardener at Ruchill Hospital, on the occasion of his departure for New Zealand.

NATIONAL CHRYSANTHEMUM.

The Floral Committee met at the Royal Horticultural Hall on November 12 and considered the merits of seventeen varieties. The following awards were granted.

First Class Certificates.

Yellow Nona. V. 2a.—A dainty, sulphur-yellow sport from the popular White Nona.

Hugh Mitchell. II. 1a.—A big Japanese variety of full exhibition size and deep crimson colour, with a few florets showing a bronzy reverse. These two varieties were shown by Mr. H. Woolman.

Phineas. II. 1b.—A useful Decorative variety of rosy-crimson colour, a trifle dull, perhaps, except in artificial light. Shown by Mr. H. Shoesmith, Junr.

W. Knight. V. 2a.—This is a very large exhibition Single sort, with flat florets of deep, rich rose-pink colour. Shown by Mr. A. Robertson, St. John's Wood.

Fiona. II. 1b.—A showy Decorative variety of good form and substance; the colour is a light shade of terra-cotta. Shown by Messrs. Cragg, Harrison and Cragg.

Shoreham Spray. II. 1c.—An excellent spray variety and regarded by the Committee as the best spray white they had seen. Shown by Mr. P. E. Halse, The Gardens, Shoreham Place, Shoreham.

NEW ZEALAND DAFFODIL.

THE second annual South Island exhibition of the above Society was held recently at Oamaru, and again emphasised the utility of such shows, whereby the grouping together of seedlings raised in the South Island may be subjected to inspection and compared to the ultimate benefit of growers.

The display indicated a marked improvement in substance, distinction, and in symmetry of perianth, while the New Zealand-raised seedlings compared most favourably with importations from England, Holland and Australia, and experts present considered the seedling Narcissi raised in the Dominion could hold their own with those exhibited under the auspices of the Royal Horticultural Society of England.

Greatest interest centred in the Oamaru Challenge Cup class for twenty-four varieties, three blooms of each. These were considered to be superior to those exhibited at the Society's recent show at Wanganui, and also of better quality than those staged at Lower Hutt. Sir HEATON RHODES gained pride of place, among his specimens the most pleasing in those of the Leedsii section being Silver Plane and Silver Dawn. The first-mentioned bloom was really distinctive. The perianth was particularly broad and rounded and crowned by a pale, flat, citron-coloured eye. Silver Dawn is an English importation and apparently is now doing well in the Dominion. The pick of the group, however, was an Incomparabilis, Gloaming. This is one of the best varieties raised by the late Mr. A. E. Lowe, being a large flower of clear, light yellow throughout. Another Incomparabilis of note raised at Otahuna was Heart of Gold, this bloom showing remarkable substance, with broad, lemon perianth segments and bright orange cup. Others worthy of mention were Tasman Fliers and Great Ace.

Although placed second in this section, Mr. A. G. BULL, Christchurch, was the most successful exhibitor of Narcissi, securing from eighteen entries, fourteen first and four second prizes. Excellent specimens staged in the Challenge Cup class by Mr. BULL included Moonstone, Militant, Antonie, Golden Gate, Mary Blewitt, Ballarat, Cora and Peerless, all Australian-raised seedlings. Militant was a great favourite on account of its very vivid colouring. This flower has gained many first-class awards in Australia and New Zealand. The perianth overlaps nicely at the base and extends well out at right angles, having a bold, crinkled cup of rich orange-red. A white trumpet Narcissus, Beersheba, raised in England by the Rev. G. H. Engleheart, was outstanding. The flower is said to be superior to any other white introduced to the Dominion.

In the class for eighteen varieties, representing not fewer than four divisions, Sir HEATON RHODES was placed first, the predominating blooms being Gloaming, Silver Plane, Heart of Gold, Sunshine and Silverine. Sixteen of the eighteen varieties were seedlings raised for Sir HEATON by the late Mr. Lowe. Heart of Gold (Incomparabilis) is a Narcissus which created a sensation when first introduced. It has a large flower with a very thick perianth of ivory-white and a distinct, large cup of deep yellow.

Sir Heaton Rhodes' Challenge Cup, for twelve varieties of New Zealand-raised seedlings, was won by Mr. A. G. BULL. Of the varieties exhibited, five were raised by the late Mr. Lowe, six by Mr. BULL and one by Mr. Goodson. Mr. BULL's exhibit included Sandstone, Ninth Lancer, Alburnia, Peggy, Great Ace and Maunganui. Of these varieties, the latter two were outstanding. Mr. H. T. TREVENA (Dunedin) was second, among his blooms being General Allenby, War Cloud, Mastiff, Oamaru and Marconi. The specimens of War Cloud were well staged, the red-gold trumpets being of good size, and the perianths creamy-white.

Mr. J. T. GRAY, Dunedin, who staged a splendid bloom in Yeomanry, an Incomparabilis of great substance, was first in the class for six New Zealand-raised seedlings, although Mrs. W. D. BURNS, Oamaru, was a close second, the margin of difference being one-and-a-half point; seedlings from Bernardino were the pick of the latter's group.

In the section for six seedling Narcissi, raised by the exhibitor, the Otago Daffodil Club's Gold Medal was won by Mr. BULL.

Mr. GRAY was well to the fore in the Daffodil class, for six distinct varieties, his specimens being Lord Roberts, Bernardino, White Emperor, Queen of Hearts, Isis and Firetail. Lord Roberts, an old favourite, is well known at horticultural shows throughout the Dominion; Mr. GRAY's bloom of Oamaru was adjudged the champion trumpet Daffodil; Sir HEATON RHODES was second in this section. The red-cup Daffodils, for which Mr. BULL gained first place, were a feature of the display; he showed Militant, Bernardino, Gadfly, Festive, Croesus and Robespierre.

It is pleasing to record that Mrs. R. K. IRELAND, Oamaru, a novice, was successful in exhibiting the best New Zealand-raised seedling Daffodil—W. D. Burns. This seedling was grown by the late Mr. W. D. Burns, who was well known as an enthusiastic hybridist.

WATFORD HORTICULTURAL.

THE Watford Horticultural Society held its first Chrysanthemum Show on November 2, in the Essex Rooms, Watford. The intention of the Committee was to hold a show in the Clarendon Hall on November 6 and 7, but unfortunately, these intentions were doomed to disappointment, both as regards date and place. The exhibition was a good one, but suffered greatly in effect by reason of its arrangement in several large rooms. Given one well-lighted hall of sufficient size, the exhibition would have been far more attractive; moreover, visitors do not like the jostling that is unavoidable when the exhibits are in several rooms and the connecting passages and corridors are narrow. Mr. Cheeseman, Mr. Miles and the Committee are to be congratulated upon the success achieved under difficult conditions.

Only one group of large Chrysanthemums was forthcoming, and this was from S. WALLROCK, Esq. (gr. Mr. W. Holloway), Stanmore, who obtained the first prize and Gold Medal with a creditable exhibit in which the plants carried large flowers of popular varieties. The class for a group of Decorative Chrysanthemums, in pots, proved a great attraction, for the competition was excellent, and as each group occupied an area of about two hundred square feet, the display was fine. Here, again, S. WALLROCK, Esq., secured the premier award with a grand lot of plants of very useful material, well arranged; second, Miss WALLIS (gr. Mr. W. Holland), Ox Hay; third, J. P. MORGAN, Esq. (gr. Mr. F. A. Stewart), Wall Hall.

S. WALLROCK, Esq., was a particularly successful competitor, winning first prize for twelve Japanese blooms, first for three Japanese blooms, first for dessert Apples, first for single dishes of Lane's Prince Albert, Cox's Orange Pippin, Allington Pippin and Adams' Pearmain Apples; firsts for Celery, Cauliflowers, Carrots, Parsnips and Leeks; and similar honours for six specimens of Begonia Gloire de Lorraine, and a collection of vegetables, the latter award carrying with it the Clarendon Cup.

Successes obtained by J. P. MORGAN, Esq., included first prizes for six Japanese Chrysanthemums, one vase of Chrysanthemums, six Cyclamens, six winter-flowering Begonias of the Elatior type, twelve flowering and foliage plants, and Grapes.

Miss WALLIS was second to S. WALLROCK, Esq., for a vase of Single Chrysanthemums, and won second prize for foliage and flowering plants; this lady was also first in the class for six vases of Decorative Chrysanthemums, with a fine set of flowers; she was also second for Grapes.

J. H. BATTY, Esq. (gr. Mr. Stacey), had the best three Japanese blooms, and was third for Grapes and Single Chrysanthemums.

Mrs. E. R. BARKER, Mr. A. J. SINFIELD, Mr. E. REYNOLDS, Sir W. HALSEY and Mr. C. L. TOMKINS were successful prize-winners in the fruit classes, while Mr. W. E. CHEESEMAN, Mr. SCHRIEBER, and Sir W. HALSEY, were leading prize-winners in the vegetable classes, where some excellent produce was staged.

In the amateurs' section, Miss MATTHEWS and Mrs. HERBERT SMITH (gr. Mr. G. A. Hayes), led for a group of Chrysanthemums and also for a group of miscellaneous plants. W. MARTINEAU, Esq. (gr. Mr. C. Ball), led for Decorative Chrysanthemums, while Mr. A. J. SINFIELD, Mr. E. REYNOLDS, Mr. J. R. SMITH, Mr. CHEESEMAN and Mr. E. BUCKINGHAM were other prize-winners in this division.

All the fruit classes were well filled, and the quality of the exhibits proved that Apples and Pears can be grown well in Hertfordshire.

Mrs. STRETCH showed the best basket of Chrysanthemums and suitable foliage, and Miss F. J. JONES, St. George's Road, led in the table decoration class with yellow and red flowers. There were thirteen competitors and the remaining awards were obtained by Mrs. S. GOODE, Hall Farm, and Mrs. VEITCH, Cassiobury Drive.

SALISBURY AND DISTRICT GARDENERS.

WHAT proved to be a most delightful lecture, on "Interesting Plants and Bulbs Worth Growing," was delivered on Wednesday evening, the 14th inst., at the White Hart Hotel, by Mr. W. H. Walters, of Colesbourne, Cheltenham. A large attendance was presided over by Mr. S. W. Tucker, who stated that their Secretary, Mr. W. F. Gullick, and the lecturer, were very old friends, having more or less commenced their horticultural careers together at Kew.

The lecturer, in introducing his subject, mentioned that possibly his many years' association with the late Mr. H. J. Elwes, gave him an unique opportunity of acquiring knowledge relative to new and rare plants and bulbs. The name of Elwes was a household word in horticulture, he, in his time, having introduced very many new and rare plants. The wonderful store of knowledge, combined with the lecturer's humour, held the attention of his audience from start to finish, and the information extended occasioned a long and lively discussion.

Mr. A. E. Davis, in proposing a vote of thanks, mentioned that the enthusiasm of the lecturer had so infused them that they were encouraged to try many of the wonderful plants and bulbs he had that evening brought to their notice. They were all very much indebted to him for the valuable information imparted, and he hoped they would have the pleasure of Mr. Walters' company again in the near future.

A wonderful collection of Apples was exhibited by Mr. A. J. HOOPER; rare and interesting greenhouse flowers, by Miss WARRE (gr. Mr. Bennett); beautifully grown Cyclamens by Mr. W. F. GULLICK; and cut Chrysanthemums by Mr. R. C. CRASKE, all of whom were congratulated and thanked by the Chairman.

Obituary.

Johannes Josephus Jurrissen.—We regret to learn from the Dutch horticultural press of the recent death of the Nestor of Dutch horticulture, the veteran bulb-grower, J. J. Jurrissen, of Naarden. The deceased, who had attained the advanced age of eighty-nine years, came from a horticultural stock, his family having been nurserymen in Germany so far back as the eighteenth century. His nursery in Naarden extended to fifty hectares, and he was active in all local affairs, being for thirty years a member of the local Council, besides filling other positions of responsibility in various societies. For his services to horticulture he was decorated with the rank of Chevalier in the Order of Oranje-Nassau, and was also an Officer of the French Ordre du Mérite Agricole. In 1906, his business was converted into a limited company, but he retained the chief control, and up to the last, in spite of advancing years, was active in its management and in the affairs of the Dutch National Nurserymen's Association. He was a member of one of the Committees of the Association, and was present, and took part in the discussion, at its last meeting. Heer Jurrissen was a nurseryman of the old school, and had keenly at heart the interest of his country; he will be sadly missed by his many friends, and by those in other countries to whom his international reputation had made him known.

ANSWERS TO CORRESPONDENTS.

Acorns from Linkungtao.—*A. L.* The seeds received for identification are those of an Oak (Quercus sp.). Many contained weevil larvae, and if you have any quantity of them it is probable that a high percentage will be worthless for planting.

Assessment of Garden House.—*J. W. W.* Under the Rating and Valuation Act, 1925, a deduction of seventy-five per cent. from the net value is allowed in respect of Agricultural land and buildings occupied therewith and used solely in connection with agricultural operations thereon, except dwelling-houses. You cannot therefore claim any deduction in respect of your house.

Bonfire near Wych Elm.—*R. P. H.* The smoke from the bonfire would not harm your tree, but there is always a danger that the bonfire may burst into flame and so do harm to trees and shrubs near it.

Chrysanthemums Diseased.—*E. C.* The Chrysanthemum foliage is severely infected with a fungus, Phoma chrysanthemi. As the fungus is a deep seated one, it is advisable to pick off and burn all infected foliage. The stems, denuded of their leaves, may be left in order to retain the flowers. Adjoining plants should be sprayed with Bordeaux mixture as a preventive against attack. Special care must be taken with the ventilation and watering—an atmosphere heavily charged with water vapour will render the plants susceptible to attack.

Cyclamens Failing.—*A. L.* We advise you to dust the foliage of the plants with Tobacco powder. The grubs present in the soil are the larvae of the clay-coloured weevil (Otiorhynchus picipes), and these are probably responsible, to a large extent, for the failing of your plants. In future, it would be advisable to sterilise your soil before using it; fumigating with hydrocyanic may kill those now present in the soil.—*H. T.* The above remarks also apply to your trouble.

Grapes Disfigured.—*E. F. J. H.* Your Grapes appear to be affected by what is generally termed "shanking." This is very liable among late Grapes; it is not the result of any direct cause, but may be the result of over-cropping, bad ventilation or draughts, red spider, the roots getting down into a cold subsoil or being allowed to become excessively dry, or other faulty conditions. An inspection of the vines and borders with the above points in mind may discover the cause of the trouble.

Herbs and Mesembryanthemum.—*H. W.* The Savory is Satureia hortensis (Summer Savory). It is an annual and grown every year from seeds for use in the kitchen for flavouring various dishes. It might well be distilled as an herb medicine for indigestion. There is also a sub-shrubby evergreen species used for similar purposes in winter, namely, S. montana. The broad-leaved plant is Melissa officinalis (Balm), also used in the kitchens of private establishments, and for mixing with cut flowers for the sake of its fragrance. The Mesembryanthemum is M. denticulatum var. glaucum. It is so nearly hardy that it might withstand the winter in Cornwall, if you plant it on a rockery in sandy soil, with some big stones to shelter it from north and east winds. The other plants sent are Berberis verruculosa, Selaginella Kraussiana, Helxine Soleirolii and Asperula odorata—the Woodruff.

Insects on Heliotropes and Geraniums.—*F. G. T.* Your Heliotrope and Geranium plants are attacked by white fly. The best method of eradicating this pest is to fumigate the house with hydrocyanic acid gas; if the attack is only on a small scale, try dipping and washing the plants in a nicotine and soft soap solution. These operations may have to be repeated at fortnightly intervals to completely rid the plants of the pest.

Names of Fruits.—*O. M.* 2, Mabbott's Pearmain; 4, Tyler's Kernel; 5, Annie Elizabeth; 6, Mannington's Pearmain; 7, Cox's Pomona; 10, Striped Beefing; 11, Herefordshire Pearmain; 12, Winter Hawthornden; 13, Golden Noble.—*S. E. A.* 1, Williams' Bon Chretien; 2, Fondante de Cuerne; 3, Jalousie de Fontenay; 4, Autumn Nelis; 5, Beurré Hardy; 6 and 10, Marie Louise; 7, Zéphérine Grégoire; 8, Maréchal de Cour; 9, Beurré d'Amanlis; 11, Madame Treyve; 12, Van Mons Léon Leclerc —*W. A.* 1, Passe Colmar; 2, damaged in post, not recognised; 3, Madame André Leroy.—*G. K. T.* 1 and 2, Josephine de Malines; 3, Comte de Lamy.—*F. W. H.* Worcester Pearmain.

Names of Plants.—*A. P.* Lycaste cruenta; 2, Maxillaria picta; 3, Epidendrum radicans; 4, Cupressus Macnabiana; 5, Epidendrum vitellinum majus; 6, a form of Cypripedium Leeanum.—*C. W. W.* Sorry we cannot undertake to name florists' flowers, but we believe No. 4 to be Harvest Home, and No. 6, Blanche de Poitou.—*E. B. A.* Probably Cytisus supinus.—*B. O. W.* It is extremely difficult to recognise Conifers without specimens bearing winter buds or cones; those recognised are:—1, Thuya plicata; 2, Cupressus pisifera; 4, Cupressus pisifera squarrosa; 5, Picea orientalis; 9, Cupressus Lawsoniana erecta viridis, and 10, Cupressus Lawsoniana Allumii. The Berberis (11) is not recognised; 12, Berberis Wilsonae.—*F. A.* 1, Berberis yunnanensis; 2, Berberis dictyophylla; 3, one of the B. Wilsonae hybrids; 4, Cassinia fulvida; 5, Azara microphylla; this flowers in February and the blooms are so small that you have probably missed them; they are, however, very fragrant.—*E. N. B.* Probably Rose Gruss an Teplitz.—*F. D.* We do not undertake to name florists' flowers, but we think your variety is very like Exmouth Crimson—*J. B.* Adiantum polyphyllum (syn. A. cardiochlaena).—*H. W. A.* Gilia coronopifolia.—*G. K. T.* The climber is Lycium barbara, and the flowering plant is Malva moschata alba.—*W. T.* Saponaria Vaccaria, which is an annual and requires to be sown every year.—*J. V. S.* Fruiting Tree, Crataegus coccinea; Conifer, Picea orientalis; Climber, Akebia quinata.—*A. N.* Pyrus intermedia.—*E. K.* Please send better specimen.—*Hortus.* Crataegus coccinea.—Petasites fragrans; 2, Senecio tanguticus; 3, Berberis Aquifolia; 4, Spiraea arguta; 5, a form of Veronica salicifolia; 6, Leycesteria formosa; 7, Ruscus aculeatus; 8, Hypericum calycinum; 9, Spiraea sorbifolia.

Pigeon Manure and Wireworm.—*A. N.* There is no evidence that pigeon manure would encourage wireworm so much even as farmyard manure, and the latter would only furnish the larvae with food when live plants are scarce. Green weeds on the ground are always more tempting to the skip-jacks, which lay their eggs among grass and other living weeds. The antidote to this is to keep the ground clear of weeds at all times—to avoid attraction to the parents of wireworms in summer and various other soil pests in winter. It should be remembered that pigeon manure is very rich in nitrogen, like the dung of sea-birds, that gives rise to guano. It must not be used in quantity like farmyard manure for anything, but well diluted or mixed with other material to give bulk. In moderate quantity it is good for Onions, Leeks, all leafy vegetables of the Cabbage tribe, old or well established fruit trees, fruit bushes, Roses, etc. It is unwise to use it for Peas or Beans of any kind.

Replanting Irises.—*H. T.* The rhizomes and roots of the Irises you sent us were quite healthy, but the foliage was slightly infected with Iris leaf-blotch. You should certainly try replanting them, preferably in a sunny situation and enriched soil.

Red Spider on Vines.—*E. A. G.* In bad cases such as yours, it would be wise to fumigate the vineries with flowers of sulphur, using a Campbell's vaporiser (according to directions accompanying it) before removing any loose bark; repeat the fumigation after the removal of all loose bark and cleanse the structure with a strong solution of paraffin and soft soap. The vines should then be dressed with a nicotine wash several times, at intervals or ten days or so. Finally, the rods may be painted just before they are started into growth, with a mixture of sulphur and soft-soap, using only sufficient of the latter to make the former adhere to the rods. Red spider may also be checked by careful attention to cultural details, such as damping and syringing; faulty root action tends to render vines an easy prey to this pest.

Richardia Pentlandii.—*H. T.* Your yellow-flowered Richardia may be either R. Pentlandii, or R. Elliottiana; the former has green leaves, while the leaves of R. Elliottiana have translucent spots or blotches on them. Both species have a definite resting period when they must be kept dry; they may be started into growth any time early in the year, say during February. Place each strong tuber in a six-inch or seven-inch pot, according to the size of the tuber; it should be placed about half-way down and just covered with soil. When it starts to grow and make roots, fresh compost should be gradually added until the pot is full. Stood in a warm, moist house in a temperature of 60° to 65°, little or no water should be needed until the tubers have started to grow and have made a quantity of roots. When in full growth, these yellow Arums required ample supplies of water. They also enjoy a compost consisting of three parts good mellow loam and one of leaf-soil, or fibrous peat, with enough sand to keep the whole porous. Strong tubers are essential to produce flowers. After flowering, the plants must not be neglected, but should be regularly watered until the foliage shows signs of turning yellow, when the plants should be gradually dried off and subsequently stored dry for several months. Yellow Arums may be increased by division of the tubers or from seeds. R. Elliottiana is the one most commonly grown; R. Pentlandii, a very beautiful species, is, unfortunately, very scarce in cultivation.

Communications Received.—R. L. H.—W. K.—W. Y.—C. P.—V. S.—J. H.—P. F. B.—W. G. C.—E. G. E.—F. W. C.—J. S. W.—T. B.—F. D. D.—T. S. D.—J. MacG.

THE LATEST TRADE MARKS.

This list of Trade Marks, of interest to readers, has been selected from the Official *Trade Marks Journal*, and is published by permission of the Controller of H.M. Stationery Office.

EN-TOUT-CAS.

493,455.—Spraying machines for watering hard lawn tennis courts.—The En-Tout-Cas Company (Syston), Limited, 7, Union Court, Old Broad Street, E.C.2. October 17.

494,482.—Illustration of a saxophone and the word SAXOPHONE for agricultural and horticultural machinery and parts of such machinery.—The firm trading as P. D. Rasspe Söhne, Solingen-Stöcken, Germany. October 17.

493,352.—Illustration of a god (illustrating thunder) fighting a Roman type soldier, for spades and shovels of ordinary metal.—James William Bowden, trading as J. W. Bowden and Son, 28, Sedgley Street, Wolverhampton. October 10.

ORION.

493,326.—Edge tools in class 12, which includes pruning knives, shears, etc.—B. Elliott and Co., Limited, St. Pancras Iron Works, Tileyard Road, Bell Isle, York Road, London, N.7. October 3.

GARDENING APPOINTMENT.

Mr. A. Metcalfe for the past two years Foreman at Amport St. Mary's, Andover, Hants., as gardener to Brig.-Gen. Sir J. F. Laycock, K.C.M.G., D.S.O., Wiseton Hall, Doncaster, Yorks. [Thanks for 2/6 for R.G.O.F. Box.—Eds.]

MARKETS.

COVENT GARDEN, Tuesday, November 20th, 1928.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d.	s. d.
Adiantum cuneatum, per doz.	10 0	12 0
—elegans	10 0	12 0
Aralia Sieboldi	8 0	9 0
Araucarias, per doz.	30 0	40 0
Asparagus plumosus	12 0	18 0
—Sprengeri	12 0	18 0
Aspidistras, green	16 0	60 0
Aspleniums, doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Cacti, per tray, 12's, 15's	5 0	7 0
Chrysanthemums per doz.	15 0	24 0
—white, per doz.	15 0	24 0
—yellow, per doz.	18 0	24 0
—pink, per doz.	21 0	24 0
—bronze, per doz.	12 0	18 0
Crotons, per doz.	30 0	45 0
Cyclamen, per doz.	24 0	36 0

	s. d.	s. d.
Cyrtomiums	10 0	12 0
Erica gracilis, per doz.	24 0	30 0
— — 60's, per doz.	12 0	15 0
— — 72's, per doz.	6 0	8 0
—nivalis, per doz.	24 0	36 0
— — 60's, per doz.	12 0	15 0
— — 72's, per doz.	6 0	8 0
Nephrolepis in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia,	30 0	48 0
—60's	15 0	18 0
Pteris in variety	10 0	15 0
—large 60's	5 0	6 0
—small	4 0	5 0
—72's, per tray of 15	2 6	3 0
Solanums, per doz.	12 0	15 0
— 60's, per doz.	9 0	12 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum decorum, doz. bun.	9 0	10 0
—cuneatum, per doz. bun.	8 0	9 0
Anemone, St. Brigid, per doz.	4 0	6 0
Arums (Richardias), per doz. blooms	4 0	6 0
Asparagus, plumosus, per bun., long trails	2 6	3 0
—med. sprays	2 0	2 6
short ,,	—	1 0
—Sprengeri, bun. long sprays	2 0	2 6
med. ,,	1 0	1 6
short ,,	0 6	1 9
Autumn foliage, various, per doz. bun.	6 0	12 0
Camellias, white, per doz. blooms	2 0	2 6
Carnations, per doz. blooms	2 6	4 6
Chrysanthemums—		
—white, per doz. blooms	2 6	6 0
—yellow, per doz. blooms	2 6	6 0
—bronze, per doz. bunches	10 0	18 0
bronze, per doz. blooms	3 0	6 0
—pink, per doz. bunches	12 0	24 0
—pink, per doz. blooms	3 0	6 0
—single varieties, disbudded, per doz.	3 0	4 0
—single varieties, spray, per doz. bun.	12 0	18 0
Cornflowers, blue, per doz. bun.	3 0	3 6
Croton leaves, per doz.	1 9	2 6
Fern, French, per doz. bun.	10 0	12 0
Forget-me-nots, per doz. bun.	10 0	12 0
Gardenias, per doz. blooms	4 0	9 0
Heather, white, per doz. bun.	9 0	12 0
Lilac, white, per doz. sprays	5 0	6 0

	s. d.	s. d.
Lily-of-the-Valley, per doz. bun.	18 0	30 0
Lilium longiflorum, long, per bun.	2 6	3 0
— — short, per doz. blooms	2 6	3 0
—speciosum rubrum, long, per doz.	3 6	4 0
— — — short, per doz.	2 0	2 6
Marigolds, per doz. bun.	4 0	6 0
Myrtle, green, per doz. bun.	1 6	2 6
Narcissus, Paper White, per doz. bun.	12 0	15 0
Nerines, scarlet, per doz. spikes	8 0	9 0
Orchids, per doz.		
—Cattleyas	18 0	30 0
—Cypripediums	8 0	15 0
Roses, per doz. blooms—		
—Mme. Butterfly	2 6	5 0
—Columbia	3 6	5 0
—Golden Ophelia	2 6	3 6
—Richmond	3 0	4 6
—Roselandia	2 6	4 6
—Hoosier Beauty	5 0	6 0
—Molly Crawford	2 6	4 0
Smilax, per doz. trails	4 6	5 0
Stocks, white, per doz. bun.	6 0	10 0
Violets, Prince of Wales, per doz. bun.	2 6	4 0
French Flowers—		
—Acacia (Mimosa), per doz. bun.	12 0	15 0
—Chillies, loose, per pad	4 0	5 0
—Eucalyptus foliage, per pad	5 0	6 0
—Marigolds, per pad	5 0	6 0
—Narcissus, Paper White, per doz. bun.	6 0	7 0
—Roses, Safrano, per pkt. 24's	2 0	2 6
—Ruscus foliage, per pad	4 0	5 0
—Solanum berries, loose, per pad	6 0	8 0
—Violets, Parma, large, per bun.	4 0	5 0

Remarks.—Business continues quiet generally throughout this department. Among Chrysanthemums, some of the latest sorts are already on sale, notably disbudded blooms of Favourite, Enfield White, Tuxedo, Balfour and December Gold. Mrs. Wilcox, Winter Cheer and Heston White are the additional sorts in spray varieties. Single varieties are now at their best, some very fine bunches of Mary Morris being offered at moderate prices. Richardias of very fine quality are arriving—the best so far received this season—but moderate prices prevail. Other subject are more than sufficient to meet the moderate requirements and prices are similar to last week's quotations. White Lilac from Holland is gradually improving in quality, and Lily-of-the-Valley, on roots, meets with good demand; the blooms last longer when sent in this condition. Consignments of French flowers are already on the increase, and now include Narcissus Paper White, single Violets, Marigolds and Orange Blossom. Large bunches of Parma Violets are also more plentiful and much finer in quality. Carnations arrive in fairly good condition, but are difficult to clear owing to a good supply from home-growers.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples, English—		
—Cox's Orange Pippin, ½-bushel	10 0	15 0
—National Mark Standard Cases	30 0	40 0
—Bramley's Seedling	7 0	12 0
—Newtown Wonder	6 0	9 0
—Lane's Prince Albert	6 0	9 0
—Blenheim Pippin, ½-bushel	3 6	5 0
Apples, Californian—		
Newtown, per case	9 0	9 6
—American Jonathan	7 6	10 6
—Winter Banana	7 6	10 6
—Spitzenberg	7 6	10 6
—Oregon, per case	11 0	14 0
Apples, Nova Scotian—		
—Cox's Orange Pippin, ½ barrel	20 0	27 6
Bananas, per bun.	22 6	35 0
Grapes, English—		
—Muscat of Alexandria, per lb.	3 0	7 0
—Alicante	1 0	2 6
—Canon Hall Muscat, per lb.	4 0	7 0
—Gros Colmar	1 6	3 6

	s. d.	s. d.
Grapes, Almeria, per barrel	14 0	26 0
Grape Fruits—		
—Honduras	—	24 0
—Jamaica	—	22 6
—Florida	—	27 0
Lemons, per case—		
—Messina	12 6	42 6
—Malaga	14 0	16 0
Nuts—		
—Chestnuts, Italian, bag	25 0	30 0
— — French ,,	—	15 0
—Walnuts ,,	12 0	14 0
Oranges—		
—Cape Valencia	12 6	20 0
—Jaffa	9 0	10 0
—Australian	16 0	18 0
—Jamaica	—	20 0
Peaches, hothouse, per doz.	6 0	3 00
Pears—		
—Oregon Winter Nelis	20 0	22 0
—Washington Winter Nelis	17 0	19 0
—Californian Doyenné du Comice, ½-case	17 6	18 0
Pears, English—		
—Doyenné du Comice, half-bushel case	7 0	10 0
—trays	4 0	6 0
Pineapples, each	3 0	6 0

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Beans—		
—Worthing, per lb.	1 0	1 6
—Guernsey, per lb.	1 0	1 9
Beet, per bag	5 0	6 0
Brussels Sprouts, ½-bag	2 0	4 0
Cabbage, per doz.	1 6	3 0
Cauliflowers, English—		
—Cornish, crates, 18's, 24's	7 0	8 0
Kent, 15's	—	5 0
French—		
St Malo	6 0	7 0
Celery, washed, per doz.	18 0	24 0
Cucumbers, doz.	10 0	14 0
Lettuce, Cabbage, English, doz.	0 6	1 0
—French, per crate	4 0	6 0
Mint, per doz. bun.	6 0	8 0

	s. d.	s. d.
Mushrooms—		
—cups, per lb.	2 6	3 0
—broilers ,,	1 6	2 0
—"field"	1 6	3 0
Peas, French, per boat	4 0	6 0
—Hothouse, per lb.	4 0	6 0
Potatos—		
—English, cwt.	4 0	7 0
—Algerian new per box	7 0	8 0
—Azores, new per case	17 0	18 0
—new hothouse, per lb.	1 0	1 6
Savoys, per doz.	2 6	3 0
Tomatos, English, New Crop—		
—pink	5 0	7 0
—pink and white	5 0	6 6
—white	4 0	4 6
—blue	4 0	4 6
Old crop—		
—pink	3 0	4 0
—pink and white	3 0	4 0
—white	3 0	4 0
—blue	2 0	2 6
—Guernsey	2 0	4 0
—Jersey	2 0	4 0
—Canary Island, per bundle	14 0	17 0

Remarks.—Some slight improvement has been noticeable during the past few days in the general demand, and after the recent period of depression almost throughout the trade, the change is welcome. A keener enquiry for good Apples has been experienced, and the selling levels of Apples from America are higher. Well-packed English Apples are selling a shade better, large cooking fruits being enquired for; good Cox's Orange Pippins are also moving with more freedom. In the choice fruit department there is also a little more activity, hothouse Grapes being moderately plentiful and going out well. Pears, both English and imported, are a firm trade, and both Australian and Cape Oranges are selling with more freedom. In the vegetable section, hothouse Beans are selling well, and there is an active demand for hothouse Peas and Potatos. Brussels Sprouts, after a very weak period, are selling much better at higher prices. Some good Cauliflowers are arriving from the west of England and selling well in spite of the competition of supplies from St. Malo. New crop Tomatos are a slow trade, and there is not much movement in the Canary Island Tomato section. Cucumbers are scarce and dear. Salads sell well, France sending the bulk of the more popular varieties. The green vegetable trade is not good, supplies being plentiful and prices on the low side. The mild weather encourages comparatively heavy supplies of cultivated Mushrooms, but prices hold up very well. The Potato trade is moderately good and prices steady.

GLASGOW.

An average amount of business was transacted at steady prices in the cut flower market last week, when ample supplies of Chrysanthemums were disposed of as follows:—Absolute, 1s. 9d. to 2s. for 6's; Mary Morris, 1s. 6d. to 2s.; Phyllis Cooper and lemon and white Thorpe, 1s. to 1s. 6d.; special, 1s. 6d. to 1s. 9d.; Almirante and Blanche de Poitou, 1s. to 1s. 6d.; Delores, 1s. to 1s. 3d.; Joan Pattison and Rose Maid, 10d. to 1s. 3d.; and Ada Brooker, 4s. to 7s. per doz. Carnations ranged from 2s. 6d. to 3s. 6d.; pink Roses, 2s. to 4s.; red and white, 1s. to 2s. 6d.; Lily-of-the-Valley, 1s. 6d. to 2s. per bunch; Violets, 1s. to 1s. 6d.; Richardias, 2s. 6d. to 3s.; Mimosa, 10s. per cane; Ruscus, 10s. per large cane; 7s. small; and Smilax, 6d. to 9d.

American Apples continued to dominate the fruit market. Imports consisted of 10,000 barrels and 14,000 cases, and prices showed a distinct upward tendency. Jonathans, extra fancy, made 10s. per case; fancy, 8s. to 9s.; McIntosh Red, fancy, 9s. to 11s.; Newtown Pippin, 11s. to 12s.; York Imperial, 22s. 6d. to 25s. per barrel; Ben Davis, 17s. 6d. to 19s. 6d.; Winesap, 18s. 6d. to 22s. 6d. t and Staymen, 16s. to 17s. Winter Nelis Pears sold a; 18s. to 19s. per case; Grape Fruits, 96 counts, 26s.; Jamaica Oranges, 19s. to 20s.; South African, 25s.. Pineapples, 3s. each; English hothouse Grapes, 2s. 6d, to 4s. per lb.; Scotch, 2s. 6d. to 3s. 6d.; Cranberries, 5s. per sieve; Burnet Plums, 3s. per sieve; and Scotch Tomatos, 7d. In the vegetable market, Cucumbers advanced to 13s. per dozen; Cauliflowers made 3s. 6d.; and Lettuces, 2s.; Brussels Sprouts, 5s. per bag (40lbs.); French Beans, 5s. per cane; and Mushrooms, 2s. 6d. per lb.

NEW HORTICULTURAL INVENTIONS.

These particulars of new Patents, of interest to readers, have been selected from the Official *Journal of Patents*, and are published by permission of the Controller of H.M. Stationery Office.

Latest Patent Applications.

29,528.—Bott, H. W., and Willdey, H. A.—Hose reel for garden hose. October 13.

29,575.—I. G. Farbenindustrie Akt.-Ges.—Immunizing seed grain. October 13.

28,302.—Bamford, C. J., and Bamford, J.—Rakes. October 3.

28,192.—Fowler, C. H., and J. Fowler and Co. (Leeds), Ltd.—Machine for land cultivation. October 2.

28,764.—I. G. Farbenindustrie Akt.-Ges.—Manufacture of fertilisers. October 6.

Specifications Published.

297,923.—Taylor, J. H.—Stakes and supports, for plants, flowers, netting and fencing wires.

283,194.—Rhenania-Kunheim Verein Chemischer Fabriken Akt. Ges.—Production of mixed manures.

298,391.—International Harvester Co., and Thompson, F.—Fork-action control for Potato-diggers.

Printed copies of the full Published Specifications may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at the uniform price of 1s. each.

Abstract Published.

Plant Supports. *Patent No.* 295,737.

A practically indestructible method of erecting various kinds of garden arches, screens, etc., has been patented by a Mr. C. E. West, of 3, Higham Street, Higham Hill, London. Such arrangements as plant supports, garden arches, trellis-work, screens, fences, chicken-runs, tennis-court surrounds, and frames for tents, summer-houses, etc., comprise, or are built up of, longitudinally-slotted, thin metal stakes or bars of various lengths and of V, semi-circular, or like section, with bendable, flattened, V-shaped end. For supporting a single plant, a soft metal strip is used in combination with a stake, having its upper V-shaped end cut off. The strip is bent on itself to form an opened loop, the ends being passed through one of the slots in the stake and bent back. The stakes or bars may have flattened, plain V-shaped or barb-like ends. For supporting a row of plants, stakes are driven into the ground and connected together by top and bottom rails consisting of other stakes or bars having their V-shaped ends bent at right angles and pushed into the slots in the stakes, the rails serving to receive strings, wires, or wire-netting.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 41·1°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, November 28, 10 a.m. Bar. 32. Temp. 40°. Weather, Fine.

Lily Disease.

Nearly fifty years ago, Berkeley, the great mycologist, described for the first time a disease of Lilies which he attributed to a fungus named by him Ovularia elliptica. Since that date the disease has become more and more prevalent in this country, and accounts for many and bitter disappointments to which cultivators of Lilies have to submit. Some eight years after Berkeley's description of the Lily disease, Marshall Ward made a close study of the fungus associated with a disease of Lilies, and showed that it is a member of the genus Botrytis. Since that date it has been assumed generally that the species of fungus which causes such heavy losses among Lilies of diverse species is the widespread fungus Botrytis cinerea. This fungus is of special interest because of its catholicity of behaviour. It may flourish in the soil as a saprophyte, or upon occasion it may show parasitic proclivities and, developing a cell-wall destroying enzyme, penetrate into and spread through a plant's tissues, destroying them as it goes until the whole plant dies, when the fungus, its full work accomplished, may once again resume the rôle of a harmless saprophyte, biding its time until another victim comes its way; or it may rest after its labours in the form of small, black, closely woven hyphae, known as sclerotia, which, when soil conditions allow of growth, may throw out "spawn," known as mycelia, which runs through the soil. Recent investigations* extend our knowledge of the fungus, and suggest means—albeit none too sure—of mitigating its effects. The subject used in these investigations is Lilium candidum. The symptoms displayed by the diseased plants are not unfamiliar to growers of this Lily; orange-brown specks on leaves, stems, flower-stalks and buds; a browning and shrivelling of the tissues, and if the dead plants are not taken away and destroyed, bulbs and all, as they should be, white specks appear, presently turning black, which are the resting sclerotia by which, as already stated, the fungus may spread in the soil. Mr. James Wright has satisfied himself that the fungus is a member of the genus Botrytis, but that it differs sufficiently from B. cinerea to deserve another specific name. He therefore adopts that used by Berkeley, and names the fungus Botrytis elliptica. We have, therefore, the somewhat slender satisfaction of knowing, when we lose, as lose we often do, bulbs of even more precious if not more beautiful subjects, than L. candidum—L. auratum, L. formosum and so forth—the name of the fungus which contrives our loss. Yet another fungus of the same genus, Botrytis liliorum is, according to the Japanese mycologist, Fujikuro, the agent of destruction of L. longiflorum in Japan. Mr. James Wright is naturally concerned with the problems of how to rid Lily beds of these insistent diseases. He recommends that inasmuch as any check to the plants arising from cold, wet, or stormy weather, gives the fungus its chance, Lilies should have adequate shelter on the north and north-east sides, and he advises a southern aspect. Needless to say, however, this alone, at least in southern gardens, would, while perhaps saving the plants from one death, ensure them of another. The south aspect chosen must, of course, be one which permits of the ground about the Lilies receiving some shade from direct summer sunshine. Precautionary measures, directed to eliminating the parasite, must take the form of an early destruction (or lifting) of diseased plants. A third line of defence should take the form of soil sterilisation, and for this purpose a two per cent. solution of calcium bisulphite is recommended. Spraying with Bordeaux mixture is said to keep down the blight of the Bermuda Lily, L. longiflorum var. Harrissii, but we doubt whether any amateur growers will willingly adopt that expedient. The common means of prevention, of dusting bulbs and the ground around them with flowers of sulphur is, in our experience, sometimes, but by no means always, efficacious. Therefore where the disease is endemic, quarantining the bulbs of valuable species of Lilies by growing bulbs for a year in pots, may in the long run prove the best method. More research into preventive methods is needed, and if it is not already engaging their attention, we commend the subject to the research staff at Wisley, for there is no more beautiful genus in the flora of the whole garden world than Lilium.

Help for the Gardeners' Royal Benevolent Institution.—Mr. C. H. Cook and the staff of the Royal Gardens, Windsor, held their annual dance and social evening in aid of the above Institution, on November 15, at the Guildhall, Windsor. The hall was filled to its utmost capacity and the effort was a great success, for besides being a most enjoyable function, the Institution will benefit to the extent of about £40. A number of gardeners from the surrounding districts attend this function, which helps to bring them into closer touch with the needs of the Institution. During the evening, an auction was held and the proceeds, which amounted to £11, were handed to Colonel Churcher, Secretary of the King Edward VII Hospital, Windsor. The success of the evening was in a great measure due to the untiring energy of Mrs. Cook and the wives of the staff at Windsor, who provided and served refreshments to well over three hundred people. This function gains in popularity annually, and only lack of accommodation restricts the number who attend.

The Palm Garden at Frankfurt.—Work has now commenced on the partial re-building of the restaurant in the famous Palm Garden, in Frankfurt. The new hall will accommodate about two hundred people, and two smaller halls are to be added, with terraces, which will seat one-hundred-and-fifty persons. The south front of the building will be glassed in, and will serve as a forcing house, while recesses in the restaurant will contain pillars decked with climbing plants. The arrangements will permit of a view of plants and flowers all the year round, as, besides the advantages above-mentioned, the restaurant will overlook the large Palm House. New buffets and cloak-rooms are also to be erected, and a saloon is projected. It is anticipated that the alterations will be completed by the beginning of April; they will cost about half-a-million Reichsmarks.

New Branch of Professional Gardeners' Association.—Chiefly through the efforts of Mr. J. T. McCormack, President of the Professional Gardeners' Association, a branch of this Society has been formed at Harrogate, the inaugural meeting being held on the 7th inst. Mr. McCormack presided over the meeting, and during the evening read an interesting paper entitled, "Horticulture: Past and Present."

Legacies to Gardeners.—The late Mr. William Bouche Sproule, of Lynton, Merrilocks Road, Blundellsands, Liverpool, who died on October 3, left £500 to his gardener, Mr. Ernest Gittins.—The late Mr. Edward Hollingworth, of Moordale, Dobcross, Saddleworth, Yorks., left £100 to his gardener, Mr. John Hoyle.

"Successful Gardens for Every Amateur."—Under this title, a valuable booklet containing many cultural hints, together with sound, practical information regarding the economical use of fertilisers for flowers, fruits and vegetables, has been published by direction of the Chilean Nitrate Committee; copies of it may be obtained gratis and post free from the above Committee, Friars House, New Broad Street, London, E.C.2, and secretaries of horticultural societies are particularly invited to write for supplies. The various types of soil and the methods of manuring them are dealt with in turn; the work associated with each season of the year is given in a concise and practical manner; how the secret of success lies in the keeping of the soil "fit," and how this end may be attained, is also discussed; and the qualities of various animal and artificial manures receive consideration. Other subjects dealt with in this interesting booklet are "Soil Elements and their Relation to Plant Growth"; "Vegetable Crops," including "Method of Sowing Seeds," "Rotation of Vegetable Crops," and "The Practice of Manuring Vegetable Crops"—with the latter a table showing the amount of manures required per rod by each type of vegetable is given; "Tomatos"; "Fruits—Apples, Pears, Plums, etc."; "Flowers and Lawns"; "Sweet Peas," and "Plants in Pots and Greenhouse Plants." The publication is printed excellently and is well illustrated.

British Carnation Society.—The Floral Committee of this Society will meet at 11 o'clock, at the R.H.S. Hall, on Tuesday, December 11, 1928, to judge new varieties of Perpetual-flowering Carnations. All members who propose to exhibit new varieties are requested to communicate so soon as possible with Mr. P. F. Bunyard, Hon. Secretary, so that the necessary arrangements may be made.

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* The Causal Parasite of the Lily Disease, by James Wright, B.Sc., in *Transactions and Proceedings of the Royal Society of Edinburgh*, Vol. 30, pt. 1, 1927-28.

The R.H.S. Gardeners' Diary.—The 1929 edition of this handy diary, published by Messrs. Charles Letts and Co., the famous diarists, jointly with the Royal Horticultural Society, is now obtainable from the Royal Horticultural Society, or from *The Gardeners' Chronicle* office, post free for 2s. 3d. The R.H.S. Gardeners' Diary has now appeared for eighteen years in succession, and no doubt the majority of our readers are familiar with it. Although the information it contains is of necessity brief, it is yet very useful as a book of reference and we recommend it to all horticulturists.

Presentation to Mr. J. Emberson.—At the annual meeting of the National Dahlia Society, held on November 27, in the Royal Horticultural Society's new hall, Mr. J. Emberson was presented with a silver tray, suitably inscribed, in recognition of his services to the Society, especially in the capacity of Honorary Show Superintendent. The presentation was made by Mr. Joseph Cheal, Chairman of the Society, who spoke very highly of Mr. Emberson's work.

Nomenclature of Garden Plants.—The meeting which was called by the Council of the Royal Horticultural Society on Tuesday last to consider the vexed subject of the Nomenclature of Garden Plants was exceedingly well attended. The Lecture Room was filled with a very representative gathering of horticulturists who were interested in the subject from almost every possible standpoint. Mr. E. A. Bunyard was an admirable Chairman, and at the close of the meeting expressed the opinion that it had been productive of information which he was sure the Council would welcome and value. In opening the meeting, Mr. Bunyard referred to the International Horticultural Conference which, as our readers are aware, is to be held in London in 1930, when it is hoped that definite agreements regarding the naming of garden plants will be adopted. He said the principal points which concerned the meeting were trueness to name, and methods of regulating the bestowal of names, for, at present, while the botanist has definite rules and regulations, there are none to guide those responsible for the names of garden varieties. There had been considerable criticism of the horticultural trade on the subject, but he was of the opinion that, while there were grounds for criticism, the balance would be found to be in favour of the trade. Mr. E. A. Bowles referred to past efforts regarding the problem which was still unsolved. Expressions of opinion were invited on a variety of points, such as whether varietal names be in Latin or ordinary language; whether the number of words to a name should be limited; should foreign names be translated; should there be a limit to the repetition of a family name for one flower; what should constitute registration of a name and would publication in a catalogue be considered sufficient; should a governing body have power to reject unsuitable names, and should it invent new generic names for bi-generic hybrids; and who should be the recognised authority for standardising names. Mr. F. J. Chittenden remarked that in the United States of America names were standardised by a method which probably would not be adopted in any other country, nor would they agree with some of the American rules for nomenclature. Sir William Lawrence spoke of the painstaking work Mr. Peter R. Barr was doing with Iris names, with which it is hoped all other countries would co-operate. Mr. Charles H. Curtis pointed out that the R.H.S. had already started in the business of registration with Daffodils, and that the Daffodil Committee did not countenance the American system of first registering a name and later finding a variety to fit it, therefore all names had to be accompanied by a description of the variety—a system which is followed by the British Carnation Society. Mr. Curtis's suggestion that the R.H.S. might advantageously enlist the help of kindred societies met with general approval. Mr. Amos Perry expressed the opinion that the trade has been waiting for a lead in the matter from the R.H.S., and was convinced that they would have confidence in any committee the Council might appoint. Mr. J. G. Bryson spoke of the chaos which he insisted existed in the multitude of synonyms of garden Peas and other vegetables, although Mr. Fells strongly dissented, and claimed that, to the expert, many varieties which had been classed as synonymous were distinct. In summing up, Mr. Bunyard said that the R.H.S. would do nothing without obtaining the full support of the trade. In response to an invitation, the meeting suggested the following as a nucleus for a committee to confer with the Society on the matter: Mr. Amos Perry, Mr. Peter R. Barr, Mr. Charles H. Curtis, Mr. J. G. White, Mr. Tayler, Mr. F. W. Giles, Mr. Laxton, Mr. L. R. Russell, Mr. Humphrey Carter, Mr. W. B. Cranfield and Mr. M. Prichard.

MR. J. W. FUNGE.

Mr. J. W. Funge.—Mr. Funge started his gardening career in 1898 at the Earl of Rosebery's garden at Mentmore, under the late Mr James Smith, V.M.H., and his successor, Mr. James McGregor. Here he had a good experience in all departments, inside and out, until the year 1904, when he left and took up a position as journeyman under Mr. A. W. Metcalfe, at Luton Hoo, and obtained a large and varied experience with fruits and plants. He remained at Luton Hoo until 1907, when, anxious to gain further experience, he obtained a post as Carnation grower at Silverlands, Chertsey, under Mr. James Wilson. A year later he became fruit specialist to Mrs. Bischoffshiem, The Warren House, Stanmore, and remained there for four years, and many readers will remember the fine autumn-fruiting Strawberries he exhibited in pots. On leaving the Warren House, he became gardener to The Bethlem Royal Hospital, London. Later, the late Sir Harry Veitch offered him the position of gardener to H.H. Prince G. V. Bibesco, Mogosoea, Roumania, which he accepted and has held for the past fifteen years. The Princess takes a great interest in her gardens, at Mogosoea, and also at Posada, in the Carpathian Mountains, which is a most beautiful place, where Mr. Funge has introduced many subjects. He was the first to grow the English Carnations in Bucarest, and he has cultivated Grapes and Nectarines under glass with great success, winning four gold medals, a premier award, and one silver medal in five years at the Bucarest Autumn Horticultural Show. And now the Royal Order of "Serviciu Credincios" (Faithful Service Medal) has been awarded to Mr. J. W. Funge by M. C. Argetoiano, Minister of Foreign affairs for Roumania, in the name of H.M. King Michael I. As a rule, this Order is given only to those Roumanians who have rendered distinguished service for a length of time in the different public services, but the Roumanian Government has bestowed this honour on Mr. Funge in consideration of the services he has rendered to horticulture in Roumania. The Royal Order of Faithful Service Medal includes three classes, and that with which Mr. J. W. Funge has been honoured is of the first class.

London's Squares.—The great interest that is being taken in the preservation of London's Squares was further demonstrated on Tuesday last, when a Labour member moved the following resolution at the meeting of the London County Council:—"That the Council regrets the action of the General Purposes Committee in not deciding to bring before it, in connection with the report of the Royal Commission on London Squares, a report on the question of the promotion of interim legislation protecting London Squares and enclosures from the builder, pending permanent legislation." The seconder of the motion referred to an advertisement of the sale of one of the squares for building purposes. It was stated, however, that out of 136 squares only nine—occupying four-and-a-quarter acres—would be in any danger during the next few years. Mr. H. Greenwood observed that the chances of a late Bill were very remote, and he considered there was no cause for anxiety, because the members of the General Purposes Committee were quite as much concerned about the preservation of the squares as were the members of the Labour party. It should be remembered that the Royal Commission recommended that all enclosures, with the exception of five, should be permanently preserved as open spaces. The motion was defeated by sixty one votes to forty-five.

Public Park Administration.—During his lecture before the Association of Parks and Botanic Gardens Superintendents, at Westminster, on November 13, Mr. W. W. Pettigrew stressed the fact that it was merely "hints" on public park administration that he proposed to give, and even these, in the limited time at his disposal, could only be of the most cursory character. He dealt with his subject under five distinct heads:—(1) Oversight of grounds and general staff matters; (2) Supervision of games, pastimes and the revenue derived from the same; (3) Estimates for and control of expenditure; (4) Routine of committee work; and (5) duties and responsibilities of the Chief of a Parks Department. The lecture was illustrated by various lantern slides depicting various forms and documents that were considered as helpful in the administration of a fair-sized public parks department. In dealing with the question of staff matters he expressed the opinion that a parks department could not possibly attain its maximum degree of efficiency unless the staff had absolute confidence in the fairness and justice of their chief, and in the reasonableness of their conditions of service. As a factor in promoting a contented staff, he mentioned that in Lancashire the Whitley Council had adopted a grading scheme for Parks which recognised two classes of employees, viz., Trained Gardeners and Garden Labourers, each of which was divided into three grades based on experience, skill and length of service. Trained gardeners in every instance are paid higher wages than labourers in the same grade. The scheme has been in operation for several years and has proved most satisfactory. In the course of his remarks on various phases of committee work, he strongly advised superintendents to protect themselves from the risk of future adverse criticism by adopting the practice of always submitting such recommendations as they had to make to their committee in the form of written reports. The advantage of following this procedure can be referred to at any time, a fact that is all the more important in that the personnel of a committee not infrequently changes very considerably within a few years. An interesting discussion followed the lecture after which the Secretary announced that the next lecture would be given by Mr. Charles H. Curtis, of *The Gardeners' Chronicle*, at 6.30, on December 11, 1928.

Olive Culture in South Australia.—Experience in the cultivation of Olive trees in South Australia has proved that this is one of the few countries in the world where Olive fruits can be grown to perfection. So far back as 1851, at the Great Exhibition in London, oil manufactured in this State gained honorable mention on account of its clearness, colour and flavour. Since then, it has won many awards, and the reputation it has acquired has created a demand which cannot be met by the present output. The crushing of the fruits for this season has just been completed, and it is estimated that the returns are, approximately, fifty per cent. above the average, which, over the last five years, has been 19,600 gallons of oil. Apart from the recognised Olive plantations, these trees are also grown extensively as break-winds and hedges around gardens and orchards. Experts recommend that settlers on the numerous fruit blocks contained in the widespread River Murray Irrigation Scheme can, by planting Olive trees around their properties, not only protect their fruit trees, but also add to their sources of income. Were this plan adopted generally, the annual yield for the State would be appreciably augmented. One interested firm has offered, gratis and in any quantity, "truncheons" to those settlers on the River Murray who care to avail themselves of the concession.

Cooking Tests of Potatos.—In *The Scottish Journal of Agriculture*, Vol. XI, No. 3, the results of cooking tests carried out by the North of Scotland College of Agriculture are included in a contribution by W. M. Findlay, N.D.A., dealing with quality in Potatos. The following list shows the position of the varieties tested, all having been grown under identical conditions. Early: Good:—Duke of York, Di Vernon, Harbinger, Mein's Early Round, Edzell Blue, Witchhill and Early Pink Champion; Fairly Good:—America, Immune Ashleaf, Sharpe's Express, Early Eclipse, Dargill Early, Arran Rose and Herald; Fair:—Puritan, May Queen, Epicure and Katie Glover; and Poor:—Ninetyfold. Second Early: Good:—British Queen, Arran Comrade, Abundance, Great Scot, Nithsdale, and Tinwald Perfection; Fairly Good:—Queen Mary, St. Malo and Crusader; Fair:—Giant Marvel, King Edward, Ally and Majestic; and Poor:—Evergood and King George. Maincrop Late: Good:—Arran Victory, Irish Queen, Arran Chief, Arran Consul, Champion, Kerr's Pink, Golden Wonder, Langworthy and Early Market; Fairly Good:—Bishop, Up-to-Date, Field-Marshal, Rhoderick Dhu, President and Templar; Fair:—Achievement and Lochar; and Poor:—Irish Chieftain and Northern Star.

German Nursery Employee's Long Service.—On November 19, Heinrich Kästner, an employee in a responsible position in the famous Berlin nursery of L. Späth, celebrated his seventy-fifth birthday. He has been in the service of the firm for forty-eight years, and as he is still quite vigorous it is hoped that he may look forward with confidence to celebrating the fifty-years' jubilee of his employment.

The Coniferae.—An interesting paper on the Coniferae was read before the Royal Society of Dublin a few days ago by Mr. H. A. Fitzpatrick, of the Forestry Division of the Irish Free State Department of Agriculture. Mr. Fitzpatrick graduated at University College, and has arranged a method of classifying Conifers by a system of identification keys based on the annual study of the foliage. Mr. Fitzpatrick is one of Professor Augustine Henry's pupils.

Distribution of the Brown Rot Fungi.—This is the subject of a well illustrated contribution to the *Journal* of the Ministry of Agriculture, Vol. XXXV, p. 741 (November, 1928), by H. Wormald, D.Sc., of the Horticultural Research Station, East Malling, Kent. Mr. Wormald has, in the course of studying the Brown Rot fungi, and the forms of damage caused by them on fruit trees in this country, collected various types of Brown Rot organisms from the chief fruit-growing centres throughout the world, with a view to comparing the forms prevalent in this country with those found abroad. The results of these comparisons are not without practical interest, for Brown Rot diseases are to be found in all the countries where species of Pyrus and Prunus are cultivated extensively, but the Sclerotinias responsible for fruit-rotting are not the same in all regions, and a knowledge of their bionomics and distribution should enable methods to be adopted whereby the introduction of any one type into a country in which it is not at present found may be avoided. Sclerotinia fructigena, the chief Brown Rot fungus with which fruit growers in this country and throughout Europe have to contend with, and which is particularly destructive to Apples and Pears, also infecting Plums, has so far not been recorded in North America, Australia or New Zealand, its ravages at present being confined to Europe. Another fungus of this group, so far found only in Europe, is S. cinerea mali, which causes Blossom-wilt and Brown Rot canker of Apple trees. S. cinerea f. pruni, an insidious disease which produces Blossom-wilt, and causes fruit-rot on stone-fruit trees, also infecting the young shoots, is distributed throughout Europe and the Pacific coastal regions of North America, no evidence being available of its occurrence in Australia or New Zealand. Finally, S. americana, which is primarily a fruit-rotting fungus of the stone-fruits, but which also infects flowers, although it seldom attacks Apple trees to any great extent, is found in North America, Australia and New Zealand, but has not, so far, appeared in the British Isles, it being doubtful whether this disease occurs at all in Europe.

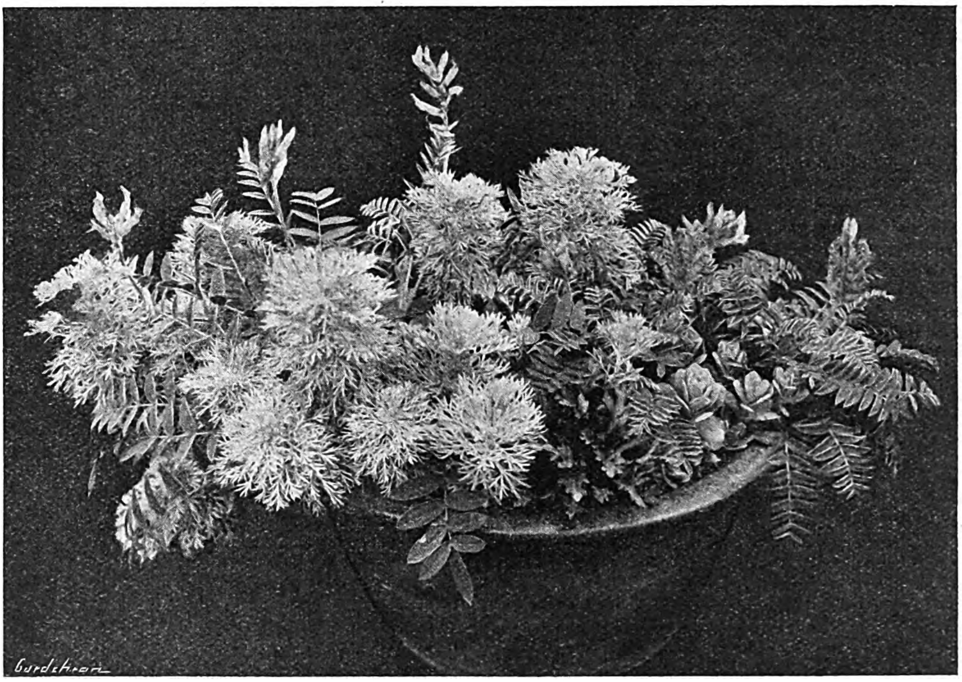

FIG. 192.—ARTEMISIA SCHMIDTIANA.
(see p. 427.)

Appointments for the Ensuing Week.—Sunday, December 2: Wakefield and North of England Tulip Society meets; Monday, December 3: Derbyshire Horticultural Association's lecture; Romsey Gardeners' Association meets; East Anglian Institute of Agriculture's lecture. Tuesday, December 4: Royal Caledonian Horticultural Society meets. Wednesday, December 5: Wimbledon Gardeners' Society meets; Nottingham and Notts. Chrysanthemum Society meets; Pangbourne and District Gardeners' Association's lecture. Friday, December 7: Orchid Club meets; Dundee Horticultural Society's lecture; Bridport Chrysanthemum Society meets; Accrington Chrysanthemum Society meets; Saturday, December 8: Leeds Paxton Society's lecture.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Wintering Antirrhinums.*—I have found the following plan of wintering these preferable to any other mode I have hitherto adopted; it not only preserves them from the effects of damp, to which they are so very liable in winter, but it protects them from slugs. I strike the cuttings in July and August, under cap-glassses, on a cold cutting bed; and when rooted, I pot them into well-drained three-inch pots, using mould of ordinary quality. I put four and six plants in each pot; the later the cuttings are rooted the more plants I put into a pot, and increase the drainage in the same proportion; my reason for doing this is to get the pots as full of roots as possible before the winter sets in, as, the less mould there is about them not penetrated by roots, the better; the frame in which they are wintered is raised by means of a brick at each corner; in this way a plentiful supply of air is secured, which contributes greatly to their preservation, and to still further promote this desirable object, as well as keep slugs from the plants, I place each store pot on an inverted pot of the same size; I do not water during winter when the weather is wet, or close and damp, for three weeks or a month together, and then the morning of a fine day is chosen for the operation. I keep the lights off day and night in dry weather; if sparingly watered and sheltered from rain, they stand the sharpest frosts without injury. *R. Miles, Kingsdown. Gard. Chron., November* 26, 1853.

Publications Received.—*Composition and Cost of Commercial Feeding Stuffs in* 1927, by A. W. Clark; New York State Agricultural Experiment Station, Geneva, N.Y.—*Forty-seventh Annual Report for the Fiscal Year ended June* 30, 1928, by F. B. Morrison; New York Agricultural Experiment Station, Geneva, N.Y.—*The Cytology of Oenothera*, by R. Ruggles Gates; (re-printed from *Bibliographia Genetica* IV. 1928), The Hague, Martin Nijhoff.—*Forest Insurance and Its Application in Michigan*, by Paul A. Herbert; Agricultural Experiment Station, East Lansing, Michigan.—*Strawberry-growing in Michigan*, by R. E. Loree, Agricultural Experiment Station, East Lansing, Michigan.—*Observations on the Pathology of Bacterium Abortus Infections*, by E. T. Hallman, L. B. Sholl, and A. L. Delez; Agricultural Experiment Station, East Lansing, Michigan.—*Studies in Flax Retting*, by Antoinette Trevethick, B. B. Robinson, and R. M. Snyder; Agricultural Experiment Station, East Lansing, Michigan.—*Belladonna, Bittersweet, Black Nightshade Potato*, by Mrs. M. Grieve; M. Grieve, Whins Cottage, Chalfont St. Peter, Bucks.—*Beautiful Flowers of Kashmir*, Vol. II, by Ethelbert Blatter; John Bale, Sons and Danielsson, Ltd., 83, 91, Great Titchfield Street, W.1.

The Week's Work.

THE ORCHID HOUSES.

By W. GILDEN, Orchid Grower to Dr. F. CRAVEN MOORE, Manchester.

Lycaste Skinneri.—Where a quantity of these easily-grown Orchids is required, a succession of flowers may be had for several weeks; the lasting quality of the flowers is well-known, but the blooms are not good subjects for travelling, being easily damaged. A batch of the most forward specimens may be placed in a warmer house and the roots afforded an increased quantity of water; the flower buds now showing will then develop more quickly. Other plants that have completed their season's growth will only require a moderate supply of water to keep them in a normal state, although a long period of dryness is detrimental to these Orchids.

Winter-flowering Cypripediums.—Well-grown plants of this section of Cypripediums form one of the chief attractions in many Orchid collections at this season, a fine display of flowers being provided for many weeks. The lasting qualities of these blooms are well-known, for they remain perfect over long periods, either on the plant or when cut and placed in water. Moreover, the flowers are not easily damaged by fog, so that Cypripediums are valuable for growing in smoky districts. The numerous species and richly-coloured hybrids are highly decorative at this season, and although some of the more choice and rare forms are cultivated as single-flowered specimens, the flowers are shown to the best advantage when several are displayed on each specimen, especially if the flower-stems have been kept in position by securing them to neat stakes before the blooms expand. When the flowers are fully developed, a smaller amount of water is required at the roots, and a moist and buoyant atmosphere should be provided during the daytime, drier conditions being maintained at night; a minimum night temperature of 55° is suitable for the plants at this season.

Brassia Lawrenceanum.—This interesting Orchid and its distinct variety longissima, are now commencing to grow. New roots are produced as the growths advance, at which stage any necessary repotting may be done. Well-drained receptacles should be used, with three parts Osmunda or A.1. fibre, one part Sphagnum-moss, and a few dried Oak or Beech leaves, well broken up, as a rooting medium. The plants should thrive in the intermediate house.

THE KITCHEN GARDEN.

By ALLAN FALCONER, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

French Beans.—In some gardens the sowing of French Beans under glass at this time of year is not advisable, but in others, quite good results may be obtained. The method of sowing seven or eight Beans in an eight-inch pot, after watering the soil with boiling water, may be recommended, no more water being required until the plants are growing well and have passed the stage when damping-off is liable to take place. French Beans, at this time of the year, should be placed in a temperature of not more than 65°.

Lifting Horse Radish.—The roots in spring-made beds should now be ready for use; they should be lifted during the next few weeks, trimmed, and laid in soil, the small, whip-like thongs being saved to make sets for a new bed. During inclement weather, the most suitable thongs may be cut into pieces about nine inches long, scraping off all eyes with the exception of those on the top and bottom half-inches, which should be left to produce roots and top-growth. If these are laid in sand until early March, several growths will be produced at the top, but these should be reduced to one at planting time. The method of growing Horse Radish on ridges, with a hard bottom, is preferable to the usual method employed in many places of relegating this crop to any odd piece of land, where it is allowed to remain until required, and becomes an eyesore. When lifting the crop, every small piece of root should be taken out, and the ridge may again be prepared by placing a good layer of manure at the bottom and ridging up the soil as the work proceeds.

Lifting Crops.—Celery, Leeks, Parsnips and other vegetables are now in demand, and where the soil is heavy, a quantity of each should be lifted during dry weather and placed in sand, to avoid working on the soil during wet weather. Carrots in frames, if of fair size, may also be lifted and stored in sand.

Sterilising Soils.—There are several methods adopted for the partial sterilisation of soil, notably by steam, baking, or by chemicals. Each method has its adherents, but I have come to the conclusion that steam sterilisation, under proper conditions, is the best and quickest. As large quantities of soil will be required for seed-sowing and potting shortly, it is advisable to prepare and sterilise sufficient material beforehand, as after sterilisation a certain time should elapse to allow the bacteria to again become active in the soil. Where liquid sterilisers are employed, several weeks should elapse before the soil is used. I am convinced that the extra work entailed in sterilising the soil is amply repaid by the better condition of the crops, the risk of losing plants through disease and insect pests being minimised.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to Sir CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Figs.—Trees in borders, for producing fruits in succession to those in pots, should now be pruned and cleansed, preparatory to starting them into growth towards the end of the present month, until which time the ventilators may be left open so as to expose the trees to the cold. To produce ripe fruits early in May, the house should be closed at once, but the trees intended to produce fruits at the end of May need not be started until the third week in January, as later on growth will be more rapid. I do not advise hard forcing at any season; much better results are obtained by forcing the trees gently. At the start, the night temperature should not exceed 50°, with 5° to 10° increase by day. Damp the trees frequently overhead with tepid water. Admit a little air on all suitable occasions, but close the house early. As growth increases, reduce overhead syringing, for Fig trees do not like a steamy atmosphere when in full growth. If the trees are subjected to excessive warmth in the early stages they are very liable to cast their fruits.

Late Figs.—Trees intended for the production of late fruits should be kept under cold conditions, and all cleansing operations should be completed so soon as possible. When pruning, it is advisable to remove some of the older branches and to train in young growths in their places. Cleansing of the trees may be accomplished by washing them with Gishurst compound; an ordinary scrubbing brush may be used for cleaning the old wood, but a softer brush should be employed on the young growths to avoid damaging the embryo fruits.

Late Grapes.—Vines which are still carrying crops, and which have their roots in outside borders, should be watched carefully during cold, wet weather, which usually has the effect of lowering the temperature of the soil, to the detriment of the ripe fruits. Such conditions may be avoided by placing a good depth of dry Oak or Beech leaves on the border, covering them with straw to prevent them being blown away by the wind; sheets of corrugated iron are preferable to straw, if available, as they will ward off snow and rain. Late Muscat Grapes need careful treatment if allowed to remain on the vines, and where means are available for storing them in bottles, this method should be adopted.

PLANTS UNDER GLASS.

By J. COUTTS, Assistant Curator, Royal Gardens, Kew.

Lapagerias.—These favourite climbers for the greenhouses or conservatory prefer a cool, moist and partially shaded position. Although they may be successfully grown in large tubs, they are seen at their best when planted out in a well-drained bed where they have a free root-run. It should be remembered that they have a tendency to roam and send up suckers a long way from the parent plant. They enjoy an open compost of about equal parts of lumpy peat and fibrous loam, with enough sand and charcoal to keep it open and porous. Stock is best increased by means of layers. Now that the growths and leaves are hard and matured, it is a good time to take down the plants and do any cleaning and thinning that may be necessary. Slugs are especially fond of the young shoots, and these must be protected in some way until they are hard and matured; cotton-wool wrapped around the base of the stem is effective, but means should be adopted to destroy the slugs. The young growths are subject to attacks of green fly which, however, may be dealt with by fumigation. Mealy bug, scale and thrips are more serious pests which must be guarded against.

Philageria Veitchii.—This plant is a hybrid between Lapageria and Philesia, raised in the nurseries of Messrs. James Veitch and Sons and described in *The Gardeners' Chronicle*, 1872, p. 119. It is more or less intermediate between its parents, and succeeds under the same conditions as indicated for them. It is some years since the writer saw this plant, and it would be interesting to know whether it is still in cultivation.

Camellias.—Care should be taken that specimens growing in borders do not suffer from lack of water at the roots during the winter months. This is a common cause of bud dropping, as also is overcropping. If the plants are thickly set with buds, thinning should be practised without delay. During the summer months it is an easy matter to keep the plants clean by a regular and vigorous use of the syringe or hose, but during the winter months the leaves become covered with a black, sooty layer, which is really a fungus growth living on the excreta of insects, such as mealy bugs. If the plants are syringed well and sponged with a solution of soft soap, the black covering is easily removed, while the main stem and branches should be examined and cleansed of mealy bug. Camellias are becoming increasingly popular, especially the single sorts, of which there are now quite a number, including such beautiful forms as Lady Clare, White Swan, Kimberley, Wild Rose, C. magnoliaeflora, and C. japonica var. grandiflora, a variety with huge white flowers composed of several rows of petals, with a central cluster of yellow stamens; this latter variety is, perhaps, more generally known as the variety Mrs. Sander. C. rosaeflora, very charming and distinct, has small, double, rose-coloured flowers, which do not fall off so readily as those of the large japonica varieties. Lady Ardilaun, a variety with small, white flowers, behaves in the same way, retaining its blooms until they fade. Both of them are readily propagated by means of cuttings, as also are many of the forms of C. japonica. Varieties that do not root readily should be grafted on seedling stocks, or on free-rooting varieties.

HARDY FRUIT GARDEN.

By T. E. TOMALIN, Gardener to the EARL OF BESSBOROUGH, Stansted Park, Emsworth, Sussex.

Pears.—Fan and horizontally-trained Pear trees should have been summer-pruned during July, and the lateral growths, which were then shortened back to the fourth leaf, should now be pruned to two buds. The leading shoots should be pruned, but may be left a little longer than advised for Plums, because the lower buds usually break quite freely. Care should be taken to cut to a bud on the under side of the shoot, because those on the upper side are apt to produce growths at an angle which makes it difficult to bring them into line with the rest of the branch. All dead spurs should be cut clean out, and where the spurs have become too closely placed on the older branches, they should be thinned by removing some of those that are unfavourably situated in regard to air and sunlight. All borders should be examined and renewed if necessary, for the strain on the trees is considerable when the crop is maturing.

Wall Fruit Trees.—The pruning and training of fruit trees on walls should be proceeded with whenever weather conditions are favourable. This work may be accomplished in comfort during mild, showery weather, when the soil is not in a suitable condition for planting operations; but, when the soil is wet and sticky, planks should be used for the operator to walk on, in order to prevent the surface soil becoming caked.

Plums and Gages.—If the lateral growths were stopped twice during the growing season, all that now remains to be done is to shorten the longest of them to two or three buds from the base. The leading shoot on each branch should be pruned to a length of about one foot, unless the allotted wall space is covered, when they may be spurred back in the same manner as the laterals. Nothing is gained by leaving the leading shoot at a greater length, with a view to covering the wall sooner, because when this is done, only the buds on the upper half may break into growth the following season, and much wall space will be wasted.

Apricots.—Most of the restriction of growth on Apricot trees should be applied during the summer months, by pinching out the points of all growths not required to extend the tree; also by judicious root-pruning in early October, while the trees are young. Winter treatment consists only in cutting out all dead spurs and worn-out branches, for hard pruning at this season is likely to cause gumming and the consequent loss of branches the following season.

Peaches and Nectarines.— The pruning and tying-in of these is better left until the end of January, the object being to retard the flowering somewhat. This purpose may be assisted by severing the ties now, and allowing the young shoots to hang free from the walls.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to the DUKE OF DEVONSHIRE, Chatsworth, Bakewell, Derbyshire.

Bedding Plants in Frames.—Cuttings of many of the summer-bedding plants, which were inserted early in the autumn, should now be rooted, and plenty of air may be admitted during favourable weather, to ensure strong and healthy growth. Plants in cold frames, such as Pentstemons, Calceolarias, Violas and Veronicas, should be grown so hardily as possible, by having the lights removed entirely during the mild days of autumn, as keeping the frames close will tend to make the plants drawn and spindly. Bedding Pelargoniums should be kept in a warm, dry atmosphere. Very little water will be required during the next three months, until after they are potted and root action is active in the spring. All decaying leaves should be removed at frequent intervals, to avoid loss by damping.

Hardy Azaleas.— These charming flowering shrubs may be planted any time from September until April, provided the weather is suitable. In a general way, it is good practice to get as much planting done in the autumn as possible, and no opportunities should be lost while the weather remains favourable. Very few flowering shrubs rival the hardy Azaleas; for beautiful effects in spring they cannot be surpassed, added to which, the foliage of many of the varieties takes on brilliant colouring in the autumn, so that where they thrive, very few shrubs give such good results. Although anxious to grow them, many would-be planters are deterred from planting Azaleas, Rhododendrons and other shrubs of the same class, because their particular soil is not peaty. But there need be no hesitation for this reason, provided the soil is free from lime, or is not shallow and hot, on a chalky sub-soil. Under the latter conditions, it would be advisable to substitute other shrubs, as Azaleas and Rhododendrons rarely thrive sufficiently to recompense the extra labour involved in making such soil in any way suitable for them. Where the staple soil is a heavy clayey loam, the ground should be trenched or deeply dug, mixing in plenty of leaf-soil as the work proceeds, and when planting, turfy loam and leaf-soil should be placed around the roots. This should encourage root action. When the planting is finished, mulch the surface of the bed with leaf-soil to protect the delicate roots from extreme cold. Bulbs may be planted freely among Azaleas and Rhododendrons, and if early-flowering varieties are selected, the beds will remain attractive over a long season. Many new varieties of Azaleas are continually being introduced, but for the beginner, the following standard sorts are recommended:—J. C. Van Tol, Prince of Orange, Anthony Koster, Glory of Boskoop, Floradora, Mrs. Anthony Koster, Aurora and Raphael de Smet. For woodland planting on a large scale, seedlings of the mollis × sinensis section are strongly recommended. A charming effect may be obtained by planting a few standard specimens to break the uniformity of the dwarf bushes.

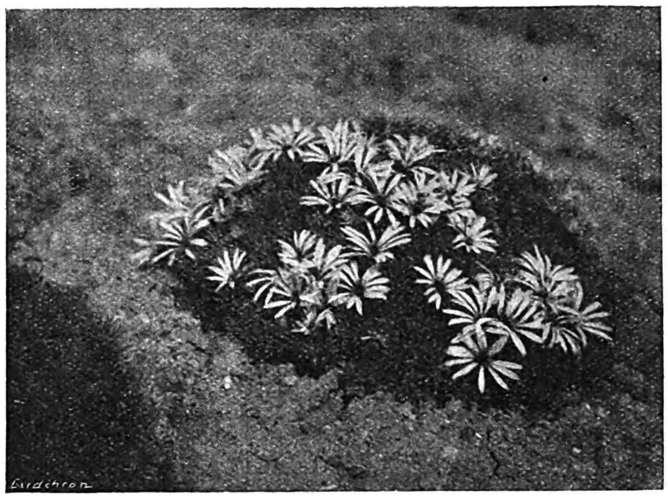

FIG. 193.—CELMISIA ARGENTEA IN THE DUNEDIN BOTANIC GARDENS.
(see p. 429.)

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener at Jordanhill Training Centre, Glasgow.

Root Cuttings.—It is not too late to insert root cuttings of such plants as Anchusa italica, or any of its improved forms, including Opal and Pride of Dover; Tropaeolum speciosum, Romneya Coulteri, or any especially good forms of Oriental Poppies. These root cuttings are secured by digging around an established plant or clump, and removing roots about the thickness of a stout lead-pencil. Such roots are cut into pieces from two to three inches long, and laid in sandy soil, either in boxes or pans, covering them about one inch deep, and placing the receptacles in a moderately warm house. Do not put root-cuttings end up unless certain that the end nearest the surface is in its original position; to avoid trouble it is better to lay them on their sides until they have sprouted, when the young plants may be potted up in preparation for transferring them to open quarters during the spring months. When removing these root cuttings care must be taken to disturb the parent plants so little as possible, but where a whole plant can be spared it may be lifted bodily, and all suitable-sized roots used in the way indicated.

St. Brigid Anemones.—The early batches of St. Brigid Anemones which were planted during June, are now producing their flowers in increasing numbers, and means should be taken to protect them from impurities in the atmosphere and the inclemency of the weather, by placing spare frame lights over them. A good mulch of decayed farmyard manure may also be applied between the rows; this should greatly improve the quality of the flowers. Close inspection of these plants from time to time, especially in the seedling stages, is necessary, as they are subject to severe attacks from aphis, which, if not controlled, soon do irreparable damage. Boxes of seedlings in frames and cool houses should be sprayed at intervals with suitable insecticides and kept growing freely, to be in readiness for planting out in the spring. By sowing two or three batches during the year, it is possible to have St. Brigid Anemones in flower over an extended period, although the greatest profusion is normally during the spring months.

Hellebores.—These are now preparing for their annual crop of flowers, and, like the Anemones, they should be covered to preserve the purity of the blossoms, and given a mulch of manure or an occasional supply of liquid manure. In covering these and other subjects, such as Violets, it is necessary to provide hand-lights or frames, which, if open all round, admit plenty of air, and also permit of the flowers being collected without removing the sashes; during severe weather the mats or other protecting materials may be allowed to hang down all round, and so prevent drying, frosty winds from damaging the plants. Good clumps of Helleborus niger and its varieties may be lifted and gently forced into flower, all that is necessary being shade from strong sunshine, a moderate temperature to exclude frost, and a reasonable supply of moisture.

Dielytras.—Dielytra (syn. Dicentra) spectabilis is probably one of the easiest plants to force into flower early, and also one of the most graceful flowering plants we have. It is an extremely beautiful subject for the herbaceous border, being perfectly hardy, although it does not grow and flourish in the milder western districts so freely as it has been seen to do in midland and eastern localities. This may be accounted for when one considers how seldom severe frost and snow visits these milder parts of the country, whereas in its native land—Siberia—the winters are extremely severe. Good clumps may be lifted and potted, or planted in small tubs, and, if placed in a moderate temperature, should soon start into growth and make useful plants for decoration purposes.

Freesias.—The bulbs of these, which were potted up during August, should now have made sufficient growth and roots to warrant the application of weak doses of liquid manure at regular intervals. These may be alternated with soot-water. Keep the plants growing in a moderate temperature, 45° to 50° being suitable, and admit air on all suitable occasions. Freesias in many beautiful shades are now procurable; Amethyst, lavender-mauve and Buttercup, primrose-yellow and orange, may be mentioned as two varieties of outstanding merit.

THE MULBERRY.

FROM the utilitarian point of view the Mulberry may be best described as a thoroughly impracticable fruit, for although most delicious and refreshing in late summer, it is almost a stranger to our tables; yet the appearance of the lusciously ripe, rich black berries, on a layer of their own cool leaves, is sufficient to challenge at once the eye of the artist and the palate of the connoisseur.

This lack of usage is not due to a scarcity of the tree, as the black Mulberry is by no means uncommon in many parts of the country, and its increasing capacity for bearing fruits as it ages is one of the characteristic features of the family to which it belongs. The reason lies in the fact that the fruit has but one day of perfection; before it is ripe it is acid and almost nauseous, and the day after it is flat and insipid. Of little value, then, except at the very moment of maturity, it shrinks at that moment from the most delicate touch. Its wealth of refreshing juice is so near the surface, and contained within so thin a skin, that the berry will not submit to even careful handling, but, staining all it touches, soon loses its picturesque plumpness and lapses in a few hours into an undesirable purple. Even in the gardens of the old chateaux of France, most of which have their ancestral Mulberry trees—beneath which fine nets are strained or occasionally beds of common Cress are sown to receive the berries as they ripen and fall—only a relatively small proportion of the fruits is harvested in perfection.

Indigenous to the East, the Mulberry was cultivated by the Greeks, and later on it became invested with that individuality which is characteristic of many of the better-known trees. According to Ovid, it is the blood of Pyramis and Thisbe which gives its hue to the ripe fruits. The tree was dedicated by the Greeks to Minerva, and it has been since almost universally adopted as the symbol of wisdom. From the habit of withholding the bursting of its buds until every sign of frost has vanished, Cowley named it the "Cautious Mulberry," and Fuller has described it as "a tree which may pass for the emblem of prudence, slow in consultation, swift in execution; for it putteth forth its leaves the last of all trees, but then all in one night."

The Mulberry was introduced to this country in the sixteenth century, probably by monks, to whom posterity owes more than it is careful to acknowledge, since it is generally considered that the first trees were planted in Kent by the Knights of St. John of Jerusalem, and it is a remarkable fact that some of the finest specimens known have been situated in close proximity to monastic buildings. Its cultivation, however, was not extensively undertaken until the begining of the seventeenth century, and the almost national devotion of which the Mulberry subsequently became the object, was entirely due to its inseparable connection with the silk industry. At that time, Mulberry gardens became the rage, the reigning monarch looked on the industry with favour, and it was regarded as an acceptable demonstration of loyalty to plant Mulberry trees. But although sericulture was warmly espoused by some people of influence of that day, the industry never made real headway, and this may have been as much due to the national character as to the supposed unfitness of the climate.

The fruit of the Mulberry is of considerable value in medicine, and its syrup is listed in the British *Pharmacopaeia* its actions being nutritive, refrigerant and laxative. The juice forms a grateful drink for convalescents from febrile diseases, as it checks the thirst and cools the blood. The bark of the tree is also purgative and vermifuge. In the eighteenth century, Mulberry juice had a great vogue for gouty and rheumatic affections, and the syrup was used extensively both for medicines and confections. Devonshire was then famous for a special kind of cider, made by mixing a certain proportion of Mulberries with the Apple-pulp in the press, and the beverage was highly prized.

The Mulberry tree is not now cultivated to the extent it was in those earlier days, but it may still be grown in many ways. It succeeds well as a standard, except in the most exposed positions; trains readily against a wall; and submits to the espalier process, while if grown in a large pot it becomes not only a beautiful object to the eye, but yields fruits of surpassing richness and flavour. But if the fruit is not sure of occupying a position of honour on the sideboard, the tree has great beauty and interest, if little profit. *W. A.*

TREES AND SHRUBS.

COTONEASTER DIELSIANA.

AMONG the many species of Cotoneaster now in general cultivation, C. Dielsiana is worthy of a high position. It was introduced by E. H. Wilson from western China in 1900, and has also been collected by Forrest. An Award of Merit was granted to this species on October 1, 1907.

It is a shrub of spreading rather than upright habit, and although it may attain six feet in height, three or four is more usual, while the width across may be from five to seven feet. The branches are slender and arching, pubescent in the young stage, but turning a dull reddish-brown with age. The leaves, arranged singly or in small clusters of two or three, are densely grey-tomentose beneath, while above they mature to a shining green; in shape they are more or less ovate, from three-quarters-of-an-inch to one inch in length, and just over half-an-inch wide. C. Dielsiana is sub-evergreen, a certain number of old leaves being shed each winter, but the branches never become bare.

In June, the small, pinkish flowers appear, borne in clusters at the tips of short lateral spurs, each cluster carrying from four to eight flowers. Like other species of this genus, they seem particularly attractive to bees, although otherwise rather inconspicuous. The sepals are pubescent, and have a distinct mucronate tip.

The real beauty of this shrub is seen in the autumn (Fig. 197), from late September onwards, when each twig and branch is loaded with fruits of the most brilliant scarlet, so that the bush becomes a perfect glow of colour. The berries are obovate, about a quarter-of-an-inch across, and rather more in length; the illustration shows how they are clustered on the lateral growths. There is a variety major, introduced by Wilson, with larger leaves and fruits; while the variety elegans, having pendulous, orange-red fruits, more nearly approaches C. Franchetii.

C. Dielsiana does not seem particular as to soil, thriving in a hot, sandy, medium, in full sun; it may be propagated by seeds, layers or cuttings, and presents no difficulty by any of these methods. *B. M.*

BERBERIS DICTYOPHYLLA.

THIS charming species from China is at the present time one of the most attractive shrubs in the garden, the white "bloom" of the young growths, the vivid colouring of the foliage—in shades of orange and scarlet, with here and there a leaf still green—the reddish-brown of the older growths, and the rich red fruits, combining to produce a colour scheme not often met with in individual shrubs. Undoubtedly, B. dictypohylla has a great future before it.

It grows to about four feet high, the slightly arching or erect growths being thickly covered in the young state with white, waxy bloom, which gives place to reddish-brown as the stems age; they are furnished with triple spines and clothed with bright green leaves, white beneath, which are about one inch in length, sometimes more, sharply pointed, and with a few sharp teeth on the margins. They are borne in clusters, and from among them, during May, large, solitary, primrose-yellow flowers are produced, which give place to rich red fruits.

B. dictyophylla is deciduous, and if a number of the older branches are cut away each spring, the annual production of numerous fresh growths, which are so striking, will be assured. It seems to be fairly hardy—last winter only the unripened tips of the growths were injured—and is quite free in growth if given a sunny position and a good loamy soil, while it may be increased by layering or from seeds. *M. W.*

SEDUMS IN AUTUMN.

IF the autumn is rather an off-season with most of the Sedums, there are one or two which have a special interest just now. S. pulchellum is, perhaps, the most noteworthy, for it is still as full of blooms as it has been nearly all summer. One seldom sees this fine North American species doing really well, probably because the average gardener does not realise that it is a lover of moisture. I grow it in boggy soil at the edge of the water, and there it makes a large patch of attractive, crimson-tinted, emerald leafage which proves such a striking setting for the large, claw-shaped, bright purple and white inflorescences. S. pulchellum ranks high among the best of the hardy species.

S. Ewersii and S. Sieboldii, both herbaceous species of the Telephium group, are autumn flowering, with bright pink blooms in terminal heads, and semi-trailing or arching habits of growth. The latter species is the later of the two, continuing to flower until cut back by the first frosts. Although the weather is often against it, this old cottage-window favourite is, I think, a better garden plant than S. Ewersii, but both are well worth a warm rock garden ledge. The handsome S. kamtschaticum is rather earlier than the above, but it generally carries a few heads of its fine golden-orange flowers into the later autumn. Very different is the fate of the big Japanese Stonecrop, S. spectabile, which, although it may prevail until early October, hastily surrenders its splendour so soon as the rosy heads have lost colour. This is another lover of moist, rich soil, albeit a long-suffering plant under almost any conditions. The butterflies are even more attracted by its countless blossoms than they are by those of the Buddleias, but S. spectabile's nectar is one of the "drowsy syrups" of the world, having an effect upon its bibulous patrons—especially the poor old humble-bees—which would sadden the soul of a temperance reformer. I have never been able to regard any of the varieties of S. spectabile, such as atropurpurea and Brilliant, as improvements on a well-grown specimen of the type.

It is at this season that many Sedums develop that characteristic leaf-colour which is often their primary charm. This is very noticeable in S. spathulifolium, more especially vars. majus and purpureum. The large rosettes of both of these are plum-purple, dusted with a blue-grey bloom. But from now onwards, throughout the winter, both colours will be intensified, and in poor, dry soil, S. s. var. purpureum should become a vivid carmine-crimson hue, a colour even brighter than that developed by S. oreganum under similar conditions. The very tiny S. brevifolium—a smaller plant than the S. farinosum usually sent out by the nurseries—is another which now positively gleams with the electric bluish-white meal with which it has colour-washed its four neat, closely-packed rows of small, round, purple leaves. The more familiar S. dasyphyllum also refurbishes its bundle of opal-tinted foliage, but it cannot equal the achievements of the smaller plant, nor, perhaps, the bluish, frosty pallor which pervades S. farinosum. The pretty rosettes of S. Nevii have settled down for winter in a paler and more mealy primrose-green, and even the somewhat despised S. Anacampseros does not pass unnoticed, for its glaucous leaves are bluer than they were and very lovely when beaded with flashing pearls of dew. Even so, in this particular shade of cool and silvery grey-green, few Sedums may compare with S. Palmeri in its winter dress. This Mexican, worth growing for its foliage alone, bears large, tousled heads of rich orange flowers in early spring, often continuing until late in May. In poor, stony soil, with a little shelter from a neighbouring bush, S. Palmeri was unharmed by 23° of frost last winter.

Some of the Sedums take on rich autumnal tints. The leaves of S. spurium, when the plant is growing in a dry, hot chink, glow with vivid shades of orange and crimson. These do so much to brighten the rock garden at this dull time of year that a few plants might well be planted with this object in view, but one would hardly condemn the finest forms, such as splendens, of this familiar old Stonecrop to conditions severe enough to produce these hectic hues. S. Middendorffianum and S. moranense (including arboreum) both assume a warm, bronzy-purple, and S. Stahlii, whose fat, egg-shaped leaves the birds regard as berries, turns bright red. S. coeruleum, the well-known little annual species, which often continues to yield its clear blue stars until severe frosts come along, also develops autumn tints of unusual brilliance.

One of the most interesting of Sedums is S. amplexicaule, a Spanish species, which, having withered about midsummer, now puts forth its tufts of glaucous, linear leaves. It bears bright golden-yellow flowers in early summer, and it is after these are over that it sheathes its tender tips with a thatch of dried leaves—presumably as a protection against the fierce sun of its southern home—to awaken with the first autumnal rains. A delightful plant for a stone-sink or other close-up position. *A. T. J.*

ALPINE GARDEN.

ARTEMISIA SCHMIDTIANA.

THE Morning Mist or Asagiriso—to use the popular names of this lovely Wormwood—is highly appreciated by the Japanese fancier of alpine plants, the finely divided, silky-white foliage, combined with its neat habit, making it a good subject for the garden and for pot culture.

A. Schmidtiana is found on the plains in Northern Japan, attaining a height of one or two feet, and the silky-white foliage retains its colour the whole year round. Before the small, yellow florets—which are of the least interest to us—open in August, it is better to cut them off, and thus encourage a bushy habit. The plant delights in a cool, moderately rich root-run, a place that is exposed to the morning sun, and a perfect drainage. It is readily increased by division. A. Schmidtiana combines, as shown in the illustration (Fig. 192), with other subjects to produce a charming effect.

The Leguminous plant growing with it in the pan is a rare form of Astragalus sinicus, called Todoshimagenge, whose pleasing green leaves combine well with the Artemisia. It is the Japanese method to grow several alpine and wild flowers together in a pan, and we find the plants succeed admirably, even those requiring different treatment. The *Kew Hand Lists* of rock-garden plants and herbaceous plants, which name forty-three species and two varieties of Artemisia, do not include A. Schmidtiana, so it is, I believe, practically unknown in English gardens. *K. Yashiroda, Japan.*

CAMPANULA PLANIFLORA.

A PLEASING and interesting little Campanula which has been in cultivation for many years and which is not widely grown now, although stocked by some nurseries, is that long known in gardens as C. nitida, but whose correct title is C. planiflora. It has been supposed to be of garden origin, but, where or when it was raised, no one appears to know. Farrer stated that its origin was "obscure," but gives its native country as America. The late Rev. C. Wolley-Dod, one of the best authorities on hardy flowers in his time, declared that from seeds of C. persicifolia he had raised a plant of C. planiflora. This statement was received with some incredulity, but Mr. Wolley-Dod, who was, beyond doubt, most particular, would not admit that this was impossible. The habit of the plant and the form of the flowers resemble C. persicifolia, but there the resemblance ceases.

C. planiflora is only about six inches high, has narrow, rigid, thickish leaves of a dark green colour, and sometimes these are imbricated at the margins. The flowers are borne in a close spike, and are set almost flat against the short, rigid stem. There have been four forms in cultivation. What has been considered as the type has blue flowers, flat, saucer-shaped, and large in size for the plant. There is also a single white variety, C. p. alba, which is very pretty. Then there are double blue and double white varieties, much sought after in former times by some, but not so pleasing as the single ones. There is a Japanese air about this plant which seems to give it a special charm, and I have sometimes wondered if it did not come originally from Japan. But this is a mere conjecture without any authority. C. planiflora and its variety look very well on rock work, not too low down. It grows well in ordinary soil, not requiring special composts. I have never tried to raise plants from seeds, but C. planiflora may be propagated by careful division of fair-sized plants. I have found it necessary to divide the plants every two or three years to prevent the stock being lost.

CAMPANULA GARGANICA.

IN its various forms, the charming Campanula garganica is well-known, and is a great favourite with most cultivators of rock plants. It derives its specific name from having been introduced from Mount Gargano, but is plentiful on the rocks, in other parts of Italy and along the coasts of the Adriatic. It possesses numerous forms, varying in smoothness or hairiness of foliage, size and shade of colour of flowers, and also in vigour of growth, but every one is of much beauty in the crevices of the rock garden, for which its habit renders it specially appropriate. From a central tuft of foliage, clinging almost to the rocks, there are sent out trailing branches, each decorated with good-sized flat, starry flowers of high charm. What is generally known as the typical C. garganica has smooth, pointed, heart-shaped leaves and blue, white-eyed flowers. There is a larger form of this in cultivation, named C. garganica major. One of the finest of all the forms is W. H. Paine, with purple, white-eyed blooms and of so much fascination that it may be called an indispensable plant.

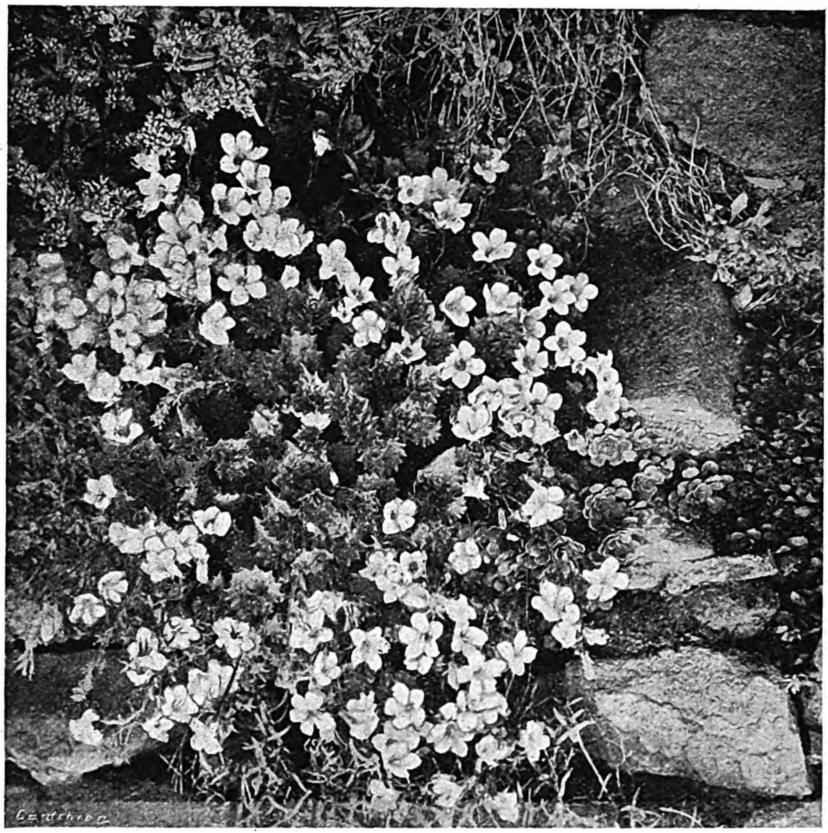

FIG. 194.—CAMPANULA GARGANICA HIRSUTA.

A variety which appeals greatly to the writer is C. garganica hirsuta, which is figured in the accompanying illustration (Fig. 194). It has its foliage and branches thickly covered with white hairs, which harmonise admirably with the light blue flowers, with a white centre, with which the plant is profusely covered for a long time in summer. Several other forms are in existence often under "nursery" names, but in the mind of the writer none surpass C. g. W. H. Paine and C. g. hirsuta. It may be mentioned that in slug-infested gardens the smooth-leaved forms sometimes suffer from the depredations of these pests, while those with hairy leaves are unharmed.

Campanula garganica and its varieties present no cultural difficulties in any light and gritty soil. They are best in sunny crevices of the rock garden, but may be grown on the level if the crown is between stones, and gravel or stones are placed about for the branches to trail over. They also do well in a sunny moraine. Propagation is effected by cuttings or division, and in the case of the type, by seeds. *S. Arnott.*

HELIANTHEMUM LUNULATUM.

NONE of this family of useful and brilliantly coloured alpine shrubs has such an extended season of flowering as this dwarf species, which forms dense, rounded hummocks of much-branched growths about nine inches high, the shoots being closely packed with small—never more than half-an-inch in length—leaves, of a refreshing grey-green shade.

Throughout July, these hummocks remain covered with flowers, each day bringing forth its fresh quota of small, clear yellow blooms, with an orange blotch at the base of each petal; and so late in the season as the present time, the bushlings are still dotted with flowers.

H. lunulatum is especially suited for the small rock garden on account of its confined habit of growth. Like its congeners, it is a sun-lover—no position is too hot for it—and it is sure to survive the winter if planted in a well-drained position, while, like other Helianthemums, it may be increased easily by cuttings. *M. W.*

DRACOCEPHALUM ISABELLAE.

ONE of the most distinct plants in the rock garden from the end of June onwards is Dracocephalum Isabellae, which looks as if it would justify the claim made for it that it is one of the finest hardy plants of recent introduction. I thought highly of it last year, when it flowered here, and the manner in which it came through a trying winter, and its appearance when in bloom makes me confident of its future.

It is about a foot high this season and practically erect; the stems being thickly clad with long, narrow leaves, surmounted by whorls of flowers of a deep purplish-blue. D. Isabellae is grown here on rock-work facing north-west, fully exposed to the wind, and in a mixture of loam, sand and leaf-mould. It has not seeded with me, but increases sufficiently at the root to enable it to be divided. *A.*

INDOOR PLANTS.

CHORIZEMAS.

It is written that we are indebted to Labillardiere, the French botanist, for the discovery of this interesting greenhouse plant, for it was while on an expedition in south-western Australia that his party suddenly came upon it near a spot where, after being without water for some days, they discovered a sparkling stream of drinking water, and were so overcome with emotion that they danced with joy. Therefore they decided that the plant should be called Chorizema, which is a combination of the two words: *choros*, a dance, and *zema*, a drink.

This New Holland genus, of which there are now several species in cultivation, is valuable for furnishing the greenhouse during spring.

The evergreen leaves bear a strong resemblance to those of the Holly, but are much smaller, less prickly and of a more delicate green. Each shoot produces a loose spike of small, Pea-shaped flowers which, in some species, are of a mixture of red and yellow, while in others they are pure yellow. C. cordatum has flowers with reddish standards and purple wings; C. varium (C. Chandleri or C. Laurenceanum, as it it sometimes called), has yellowish-red standards and blood-red wings, and C. illicifolia has yellow, self-coloured flowers. C. Lowii is a large form of C. varium.

Like most small-flowered plants, the Chorizemas show to best advantage when grouped in batches of not fewer than a dozen, and if they have a few small Ferns dotted among them their beauty is considerably enhanced.

To obtain compact, bushy specimens, it is advisable to insert three cuttings in a three-inch pot, which should be filled with sandy peat, and plunged in a warm propagating case in March. When sufficiently rooted, they may be transferred bodily into five-inch pots, using a compost of equal parts of fibrous peat and loam, with the addition of a small quantity of crushed charcoal and silver sand. It is important that the compost be made quite firm with a potting stick, and during the summer months the plants should be plunged in ashes out-of-doors, to mature the flowering shoots. The tips of the shoots should be pinched several times during the growing season, but after August stopping should cease, so that the flowering shoots may have a chance to develop fully by the spring. After flowering, give the plants a few weeks' rest and then prune them hard back; place them in a warmer structure, where new growths should appear quickly, and then shake them out and repot them into slightly larger receptacles, for growing on another season. *G. F. Gardiner.*

ORCHID NOTES AND GLEANINGS.

PLATYCLINIS.

Specimens of the autumn-flowering Platyclinis Cobbiana, that have just passed out of flower, require ample supplies of water at the roots until growth is completed, when a much less quantity will suffice and the plants may be removed to cooler quarters in which to remain dormant for several weeks. P. glumacea and P. filiformis, both summer-flowering species, are now resting and only require water at long intervals. P. uncata, which flowers early in the year, is just commencing to grow and requires a warmer temperature, with an increased supply of water at the roots as growth advances. This species requires all the available light at this period to assist the flower scapes and young growths to develop. Although red spider is not very active at this season, the undersides of the leaves should be carefully examined—a good pocket-lens is useful for this purpose—and if any are detected they should be removed by sponging with a weak insecticide. The robust-growing P. latifolia, which has just completed its growth, does not require such a high temperature as the preceding during the growing season; it should be grown at the cool end of the intermediate house during the summer months. The best time to repot Platyclinis is immediately the flowering period is finished. *G.*

HARDY FLOWER BORDER.

ANAPHALIS TRINERVIS.

Under this name I have here a pleasing plant which has been in bloom for months, and which appears to be an acquisition for the border or the large rock garden, or even a wall garden of some size. It is, I am told, a plant found by Farrer, but in his *English Rock Garden* he does not detail the plants of the genus Anaphalis, and I cannot at present find any reference to A. trinervis.

Here, it grows from a foot to eighteen inches in height, and has white foliage, and white "everlasting" flowers in close heads. It is by no means a showy plant for the border, and its value there and in the rock garden is due to the white foliage and flowers. I grew it in a border last year, but having a large bit of a new wall garden to furnish, and being rather short of suitable subjects at the time, three plants of A. trinervis were planted in the wall, which is a retaining one with a good bank of soil behind. It has really been an acquisition in the wall, and shows well up even from a considerable distance.

It has become rather a favourite with my household, so that in forming a new rock garden on a bank, a good group has been made near the top of it. One would naturally expect that A. trinervis would like a dry soil, but it is evidently quite happy with a considerable amount of moisture. The specific name is warranted by three conspicuous "nerves" on the back of each leaf.

EOMECON CHIONANTHA.

Attractive names, such as the "Poppy of the Dawn," or "Poppy of the Desert" have been given to a Chinese Poppywort which is burdened by the botanical title of Eomecon chionantha, and which is a really fine plant where it survives the winter. Authorities generally tell us that it is hardy, but that is not the universal experience, and, after some time, one is usually forced to revise early beliefs on this point.

The result of experience forces me to the conclusion that E. chionantha may survive some, but not all winters in cold districts, especially where there is a heavy rainfall. This is unfortunate, as it is a distinct plant with its fleshy leaves of cordate form, prettily scalloped. and of a charming glaucous tone. The stems, a foot or so in length, bear bonny, four-petalled flowers of a milk-white shade. Where it is happy, E. chionantha spreads rapidly and may even become troublesome. It is said to like a warm, moist space, but the amount of moisture which it favours in a warm garden may be fatal to it in a cold one in a wet district. It comes from China, its native district being north of Hong Kong.

Plants should be purchased during spring, in pots, and planted out with as little disturbance as possible. *S. Arnott.*

BOG AND WATER GARDEN.

HELONIAS BULLATA.

This is an herbaceous, North American plant of the Liliaceae Order. Although long known to cultivation in this country, it is seldom seen, yet it is perfectly hardy and very easily grown, either in the bog or a moist border. I have had a plant for several years growing practically in the water, and not only does it flower in spring, but nearly always gives a few spikes of blossom in autumn.

H. bullata makes a tuft of smooth, fleshy leaves about the same size as a large Primrose clump. Stout flowering stems rise from the basal rosettes to the height of fifteen inches and terminate in a cone-shaped, crowded cluster of small, rosy-pink flowers. The plant is easily increased by division in autumn or spring. *J.*

CELMISIAS.

When describing the genus Celmisia in the *Handbook of the New Zealand Flora*, Sir J. D. Hooker wrote: "A most beautiful genus, abundant in New Zealand, and as in all large genera of these islands, the species are very variable, difficult to discriminate, and intermediate forms may be expected between those here described. It is very closely allied in characters, but not in habit, to the large northern genus, Erigeron, the minute, obscure tails to the anthers are the only diagnostic mark, the South American Erigerons, indeed, have all the habits of Celmisia; they have, however, the anthers of Erigeron, in which genus Weddell has placed them. From Aster the same characters of the anthers, and the rarely flattened achenes distinguish them. From Olearia and Pleurophyllum they differ only in habit."

Hooker published his *Handbook* in 1864, and therein he enumerated twenty-six species of Celmisia; but when the second edition of Cheeseman's *Manual of the New Zealand Flora* was published in 1925, no fewer than fifty-eight species were described therein. With the exception of two species which are found only in the sub-antarctic Auckland and Campbell Islands, all these Celmisias are endemic to New Zealand. The only other species, C. longifolia, is confined to southern Australia and Tasmania.

Celmisia, which is popularly termed Mountain Daisy, is the dominant genus in the New Zealand mountain flora; although chiefly inhabiting a belt from just above the forest line, *i.e.*, 3,500 feet to 4,000 feet, to about 6,500 feet, a few species descend to the lowlands, and under exceptional circumstances, even to sea-level. The genus has a most interesting distribution; some of the species are very local, being found only in one place, *e.g.*, C. Macaui, from Banks Peninsula, C. cordatifolia from the Dun Mountains in Nelson, etc.; others are found only in a few localities, which may be hundreds of miles apart, *e.g.*, C. Traversii, which is found on the Canterbury Mountains, and also near the sounds of south-western Otago; and a considerable number of the species are found in mountainous regions throughout the South Island, but very few are found on both islands.

The degree of variation in many species, both germinal and environmental, is very great, thereby making classification extremely difficult. This is particularly the case with C. verbascifolium, C. Hookeri and C. petiolata, all of which run into many intermediate forms, and in all probability hybridise freely among each other. This is extremely likely because several good natural hybrids are known.

Celmisias are remarkable for the variety of their foliage; some have leaves over twenty inches long by three inches wide, while others have tiny, needle-like leaves only an eighth-of-an-inch long; some are almost completely glabrous, while others have tomentum in colours ranging from pure white to rich old-gold colour. The flower-heads of the New Zealand species are all Daisy-like, with white ray florets and yellow disc florets, but the sub-Antarctic species have purple flower-heads, in fact, the flowers resemble miniature blooms of Olearia semi-dentata. The plants are all evergreen, and so a collection of them is an attractive feature at all times, and especially so during the flowering season. In their natural habitat, the flowering season of Celmisia, as of some eighty per cent. of New Zealand's mountain flora, is December to February, and during that time, go where you will in alpine or sub-alpine regions, their Daisy-like flowers and striking foliage catch the eye. The graceful flowers may be growing from stately rosettes of dagger-like leaves, often of a silvery hue, or in dense rounded cushions, or in mats trailing along the surface of the ground, while the more sociable species clothe the moist meadows, or dry, stony slopes, with sheets of white—a most welcome change from the monotonous green of the bush-clad valleys.

The following characteristics, with few exceptions, are common to all species.

(a) They are really suffruticose rather than herbaceous, because the stems are all more or less woody, while the leaves always persist throughout the winter.

(b) The leaves are mostly stiff, coriaceous, and crowded into rosettes at the ends of the stems, to which they are attached by broad sheathing bases, the outer enclosing the inner and the whole forming a stem-like mass; or they are arranged spirally along the branches the sheaths tightly overlapping.

(c) The under-surface of the leaf is usually densely tomentose, the colour and texture of which varies in different species. The upper surface of the leaves may be covered with a silvery pellicle.

(d) The sub-Antarctic characteristic, of a plant's dead parts turning into peat while still attached to the living plant, is strongly developed in Celmisia, and doubtless plays an important part in modifying the plant's habitat; the leaf sheaths remain attached to the plant long after the blade has decayed, and as a wet rotting mass enclosing the stem it is usually penetrated by adventitious roots.

There are four distinct varieties of the Celmisia form :—

(i) The leaves are long, in some species up to twenty-four inches in length, the innermost upright, and the outer more or less recurved above, making a semi-erect rosette; the branches of the stem are short, so that the rosettes stand closely together and form a circular mass, *e.g.*, C. coriacea.

(ii) The stems are prostrate, much branched, and put forth adventitious roots at intervals; the leaves are shorter than in the foregoing class, being from three inches to eight inches long at most; the rosettes, if the leaves are sufficiently crowded together to form such, are less erect, and form mats, or trail over rocks, banks, etc., *e.g.*, C. Lindsayi.

(iii) The stems branch so frequently as to bring the rosettes into close proximity; the leaves are quite small, from one-eighth-of-an-inch to one inch long; a cushion may be formed, especially when abundant peat is formed about the plant from its dead parts, *e.g.*, C. argentea and C. Hectori.

(iv) A small section is semi-shrubby, with woody stems, sparingly branched, with erect or semi-erect branches; the leaves are imbricated along the branches, *e.g.*, C. ramulosa.

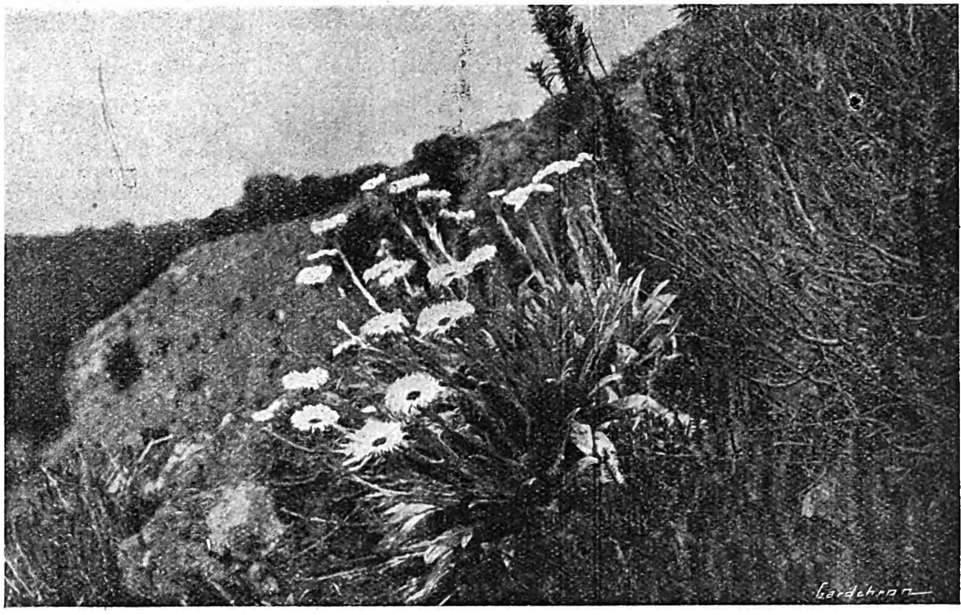

FIG. 195.—CELMISIA CORIACEA IN ITS NATURAL HABITAT.
(Humboldt Mt., Southern Alps, N.Z.; 4,500 feet).

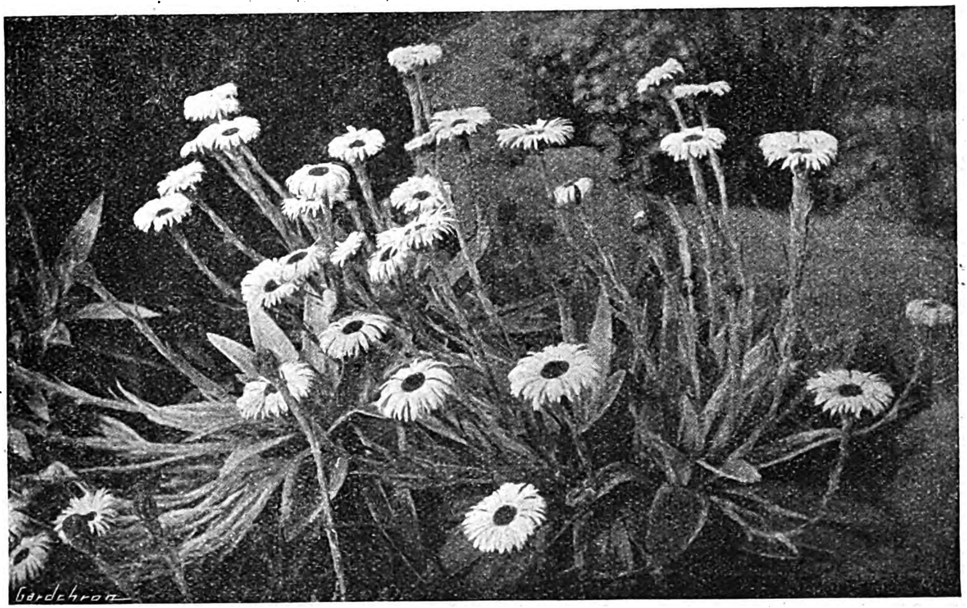

FIG. 196.—CELMISIA CORIACEA IN THE DUNEDIN BOTANIC GARDENS.

The following are some of the most important Celmisias from a horticultural view-point.

CELMISIA ARGENTEA (Fig. 193) forms the densest cushions of all Celmisias, and is a beautiful greenish-grey little plant, often forming extensive carpets so much as six feet across in open spaces, while it is widely distributed at altitudes from 3,000 feet upwards.

C. CORIACEA (Figs. 195 and 196) is without doubt the finest species in the genus. The beautiful sword-like leaves are attractive at all seasons, and when this plant is in full flower, it is a very fine sight indeed. The leaves are stiff and leathery, and will grow up to twenty-four inches long in well-developed specimens; the undersurface is covered with a soft silver-white tomentum, which also occurs on the upper surface of the young leaves. The type of C. coriacea loses this tomentum on the upper surface; as the leaves become older it is replaced by a thin silvery pellicle which lies close to the epidermis. In the variety C. coriacea var. lanigera, the tomentum persists on both surfaces, but while it remains pure white on the under-surface, it develops a rusty-brown tint on the upper surface, making the variety a most attractive plant.

The flower stem is usually from twelve inches to thirty inches long, densely cottony, with numerous woolly bracts. The flower-heads, which may be four inches in diameter, are borne prolifically, having long, narrow ray florets of a pure white with yellow disc florets. C. coriacea usually prefers an exposed position with plenty of sunshine, moisture and drainage.

C. TRAVERSII, although a smaller plant in every way, is a highly decorative subject, because its leaf-margins and flower stems are clothed with a rich old-gold tomentum. The flower-heads, usually about two inches in diameter, are very graceful, and the species should never be omitted from a collection of Celmisias.

C. CORDATIFOLIA is a very rare plant similar to C. Traversii, although the tomentum is darker. It is readily recognised as the only species with truly cordate leaves.

C. VERBASCIFOLIA is similar to C. Hookeri, and a very great deal of confusion exists amongst these two species. Specimens which have been collected in the wild as true C. Hookeri and true C. verbascifolia, if grown side by side for a few years, assume very much the same appearance and become extremely difficult to identify.

C. PETIOLATA is a very conspicuous species because of the distinct purple petiole and midrib, but there are varieties of C. petiolata which seem to approach very closely to other species. The variety C. petiolata var. rigida, has much of the appearance of C. Traversii, while other varieties very closely approach C. Hookeri and C. verbascifolia.

These last three species are all good garden plants, because they usually thrive very well and make a stately and imposing group when in flower.

C. LYALLI, a very distinct species, has no tomentum, although remarkably well adapted to an alpine habitat. The leaf structure is considered to be unique among Dicotyledons. The stiff, narrow, parallel-veined leaves of this Celmisia are very similar to those of the grasses with which it generally associates. Although the flowers are small and rather uninteresting, this is undoubtedly a most interesting botanical plant.

C. HOLOSERICEA is a pleasing plant which lends itself admirably to garden cultivation. The leaves, of a bright shining green, with white tomentum beneath, grow up to twelve inches long, under favourable conditions. The flowers are the most graceful of the whole genus, and being borne on long flexible stems, they are very useful for decorative purposes. It is a free grower, throwing out many offsets. It is a highly desirable plant, preferring to grow in a damp situation in slight shade. *A. W. Anderson, Dunedin Botanic Gardens.*

(To be concluded.)

EDITORIAL NOTICES.

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THE ROYAL HORTICULTURAL SOCIETY.

The Royal Horticultural Society is faced in the near future with heavy expenditure in respect of two rather urgent matters.

The first of these is the question of the housing of students at Wisley. As is well-known, there are in each year between thirty and forty students attending the School of Horticulture, where they receive excellent instruction in theory in the laboratories of the Society, and also take part in an out-of-door course which is essentially practical. It is felt, however, by the Director and by the Wisley Committee, that while the instructional work is excellent, we are not giving these young men their best chances so long as they are denied the advantages of the corporate life which is found at other schools and colleges of horticulture. At Wisley they live in lodgings, and the facilities for games are meagre. The intention of the Council is, so soon as funds permit, to provide a hostel where the students will live, and which will be run on a self-supporting basis, and also cricket and football grounds and hard and grass lawn tennis courts with a suitable pavilion. The playing fields will, of course, be available for everyone employed in any capacity at Wisley.

Various positions have been suggested for the hostel, and possibly the best one is at the top of the trial grounds, near the old plantation of fruit trees. Another site that has been suggested is near Wisley village, on the left-hand side between the village shop and the River Wey. The advantage of the first site is that it could be combined with a refreshment pavilion, open to Fellows and their friends, for which there is an increasing demand; the disadvantages are that this site would be a long way from the playing fields which would be on the farm near the village, or possibly near the Director's house. It seems possible that the whole of this work could be carried out for somewhere in the neighbourhood of £18,000.

The second matter is bound up with the old hall. Apart from the urgent need for redecoration and repainting, a large outlay on constructional work seems inevitable. In the first place, the accommodation for the office staff is wholly inadequate to meet the immense increase in work which has come about within the past few years, and, similarly, the Library is inadequate to cope with the large number of additions in each year, nor does it give convenient accommodation for Fellows and others studying there. Further, if the hall is to continue to be let for exhibitions, dances, etc., the basement will require complete reconstruction; for example, the kitchens are, to say the least of it, out of date. If a new floor is added to the building to accommodate the library, it will be possible then to spread the staff over the whole of the first and second floors. Such a scheme would cost in the neighbourhood of £20,000.

Unfortunately, the new hall does not offer any relief to the offices or Library. The large gallery on the second floor of this hall would not accommodate the Library properly, and the use of the new rooms in this building for office purposes would be exceedingly inconvenient from the point of view of administration, to say nothing of the cost of the heating and caretaking of the building. Possibly, the ideal solution would be to sell the old hall as it stands, but this could only be achieved if a site were available in the immediate proximity of the new hall for the Library and the administration of the Society; up to the present it has not been possible to find a site of this character. Meanwhile, the building of the new hall, apart from the exhibition hall, is of no great use to the Society; it is especially unfortunate that whereas specially lighted committee rooms have been devised for the Committees who consider the new plants submitted to them, when the shows are held in the old hall in the winter months, these Committees have to judge in the old, badly-lighted rooms. I am not at all clear in my own mind as to what are the right solutions of these problems. Some prominent members of the Society have suggested that the School of Horticulture should be given up, but, personally, I think this would be a retrograde step. There are still adherents to the proposal to move the Society to Regent's Park, and such people are quite prepared to sell both halls! I have set out the difficulties shortly in the hope that new solutions may occur to some of your readers. *William Lawrence, Burford, Dorking.*

PLANT HISTORY IN NOMENCLATURE.

(Continued from page 390.)

Narcotic and Other Products.

A lurid sidelight on a dictionary is that which is thrown by the study of those plants which have yielded up their opiates and narcotics, intoxicants, anodynes and other soothing or stimulating properties for the benefit or blighting of human life. A subject so vast cannot here be treated in detail, since volumes would be needed for the purpose. We must content ourselves, therefore, with a selection of the best-known or more important illustrations.

When we state, for example, that Abraham Lincoln fell a prey to the assassin, who, if he were not versed in the history of words, would associate his death with Hemp? A hempen cord has been responsible for the end of many a malefactor, but Lincoln was not one of these. The assassin was originally so named because in eastern lands he was wont to fortify himself by smoking, eating, or drinking an intoxicant made from Hemp, which was known to the Arabs as Hashish. It may be noted that all these Arabic and other foreign terms are variously transliterated, and that we use the form which seems to be most correct.

Let us look carefully into this matter of the Hashish. There was a time when certain fanatics made assassination a religious act; and from the Mediterranean to the Punjab a number of sects have been famous for the Hemp-drinking or smoking to which they were addicted, and the assassinations of which they were guilty in the name of religion. We are informed by reliable authorities that quite recently a few survivors were still to be found in western India, Kerman and the Lebanon near Homs, where they were known to the Crusaders in the twelfth century as the Hashshashin, that is, Hemp-smokers or Hemp-drinkers. They were promised admission to Paradise as the reward of perfect obedience, while among their various duties was that of assassinating anyone who proved obnoxious to their Sheikh, known as the Old Man of the Mountain.

These assassins of Syria resembled the famous Thugs, both being alike renowned or notorious on account of their fearful murders. It has been suggested that even the Templars may have been secretly associated with one or other of these sects, but if so, they did something to redeem their character, so that while the assassin is execrated, the name of Templar is held in high esteem.

At the time of the Crusaders the Assassins are said to have owned ten castles in Syria, and extended their sway as far west as Tortosa. The Italians modified the term Hashshashin into *assassino*, whence the Spanish and Portuguese, French and English forms of the word. It was unknown in Europe until the twelfth century.

Hemp was usually either smoked or made into a drink, besides being used in the manufacture of fibre for cloth or rope-making. The true Hemp (Cannabis sativa) is a well-known member of the Nettle family (Urticaceae), and has for relatives the Figs, Elms and Mulberries, so well as the Hop and Nettles. It is found wild in the Himalayas and other places in the East, is cultivated throughout India and elsewhere, and is among the most useful of fibrous plants. Indeed, as is often the case, the name has come to be applied to a number of inferior plants and products, so that care has to be exercised when the genuine fibre is in request. It is also necessary to adopt different cultural methods when the fibre is required from those which are best adapted for bringing out the resinous and intoxicating secretions. The resinous principle is secreted in the leaves, somewhat as is the case with the Hop. On this account the leaves, as well as the *charas* collected from the young tops of the stem and flowers, are highly esteemed throughout the East, since they supply the exhilarating and intoxicating properties for which Hemp is famous.

It is not necessary to go into details of a botanical nature, since our concern is chiefly with the names and the historical, literary and other associations. In Sanskrit its name was *bhanga*, from *bhanj*, to split or break. Concerning this, we find an instructive note from the pen of Sir Richard F. Burton. He tells us in his fascinating work on Al-Madinah how, together with an Arab doctor, he smoked the forbidden weed Hashish, and adds the following note:—"By the Indians, Hashish is called Bhang, the Persians Bang, the Hottentots Dakha, and the natives of Barbary Fasukh. Even the Siberians we are told, intoxicate themselves by the vapour of this seed thrown upon red-hot stones. Egypt surpasses all other nations in the variety of compounds into which this fascinating drug enters, and will one day probably supply the Western World with Indian Hemp, when its solid merits are duly appreciated. At present in Europe it is chiefly confined, as cognac and opium used to be, to the apothecary's shelves." Its names among the Arabs are numerous, and among them we find such designations as the cementer of friendship and the increaser of pleasure, since it takes the place of the pipe and the cup in the convivial West. Under the familiar name Hashish it finds frequent mention in the works of travellers in Egypt, Arabia and Syria. Dr. Royle, who has always been recognised as a leading authority on the subject, tells us that there is every reason to believe the true Hemp to be originally a native of Asia. It is also well-known to be common in Arabia and Persia, as well as in every part of China and India, Egypt and Turkey, in all of which countries it is chiefly valued for yielding an intoxicating drug commonly called *bhang*.

Having traced the name of the assassin to that of the Hemp as found in the Arabic Hashshashin, let us now see how we have derived the term Hemp, as well as the scientific name, Cannabis, from the East. The story is a long one, but may be condensed as follows. At the end of his delightful *Himalayan Journals*, Dr. Hooker remarks that near Chittagong, "Fields of Poppy and Sun (*Crotalaria juncea*) formed most beautiful crops; the latter grows from four to six feet high, and bears masses of Laburnum-like flowers, while the Poppy fields resemble a carpet of dark green velvet, sprinkled with white stars." The name Sun here given to the Crotalaria, a tall, erect shrub which is commonly cultivated in India for its fibre, is the root from which our words Cannabis and Hemp have sprung. It is variously written San, Sunn, Sana, Sun and represents the Sanskrit Cana, defined as "Bengal San, a plant from which a kind of Hemp is prepared." From this root came the Greek *kannabis*, the Arabic *kinnub*, and the Latin *cannabis*, which has been appropriated as the scientific name for the Hemp.

At a very early period, this Latin form found its way into our own language, undergoing change in the process, and appearing in the Anglo-Saxon plant-lists as *henep* or *haenep*, whence the present Hemp. The Scandinavian and Teutonic languages all have the same word, as Dutch *hennep* and German *hanf*. Dr. Royle states that the San or Sunn is probably the earliest of the distinctly named fibres. In the Institutes of Manu the sacrificial thread of the Rajput is directed to be made of Sana, while Cotton is reserved for the Brahmins. On the Madras side of the country it is named Janapa and Shanapam, which closely resemble Cannabis. It is mentioned in several Sanskrit works under the name Sana or Cana, and is known in most parts of India as Sunn or San. At the close of the eighteenth and the beginning of the nineteenth centuries, this Bengal Hemp attracted much attention, both in India and in England. Dr. Roxburgh frequently mentions it in his various writings, while in 1804 a *Treatise on Hemp and on the Sunn Plant*, by Wisset, was published. The Egyptian Hashish is said to be a preparation from the husks of the Hemp seeds.

Thus we have seen how strangely the names of plants are mixed up with our life and customs, and how their histories affect our dictionaries and nomenclature. Other equally interesting opiates and intoxicants remain to be treated, but for the present we may close with a few lines from Whittier :—

"Of all that Orient lands can vaunt
Of marvels with our own competing,
The strangest is the Hashish plant,
And what will follow on its eating."

The final word is used in a sense familiar to us in connection with Opium. *Hilderic Friend.*

(*To be continued*).

AUTUMN COLOUR IN THE GARDEN.

With regard to the interesting notes by *F.*, in *The Gardeners' Chronicle* for November 17, on "Autumn Tints at Wisley," the following notes may be of interest to him and other lovers of the autumn cloak of Dame Nature.

It was my good fortune to ramble around the Wisley Gardens during the morning of November 18, and what a splendid morning—warm, bright sunshine, tempered by a bracing wind from the north-west. Foliage tints and berries were seen at their best, and it was the more remarkable after the gale of the preceding Friday, that caused such damage and loss of life in many quarters ; it truly seemed as though sun and vegetation alike strove to give us some recompense for the storm's havoc.

By the main entrance of the Laboratory, whither I first made my way, I noticed the clear paper-white of the flowers of Solanum jasminoides, clean and fresh, while radiant colour was near-by in the form of Cotoneaster horizontalis, foliage vieing with berries for pride of place. By the glasshouses a few young trees of Eucryphia pinnatifolia still retained their remarkable colours, while older trees, I noted, were quite bare ; here, too, the first yellow tints of Hamamelis japonica var. Zuccariniana were showing, with promise of a glorious picture. Passing on to the alpine garden, flowers and foliage were still good. There was a mat of purple foliage formed by Saxifraga Stracheyi, while the yellow leaves and crimson hips of Rosa virginiana were very striking. By the lower pond, a cheery group of Sternbergia lutea glistened in the sun, and near-by a few Crocus species were still flowering bravely. Cryptomeria japonica elegans forms a purple cloud, and close to it Colletia spinosa (a plant of many names) was clothed with minute, white flowers, so far untouched by the weather. A fine specimen of Erica arborea made, in contrast, the spiny growth of Colletia even more pronounced. At the top of the rock garden much material of interest was to be seen. Lithospermum prostratum var. Heavenly Blue had a goodly show of late flowers, while Rhododendron obtusum amoenum, with foliage of red and purple, delicate green beneath, made a splendid picture against a background of Euphorbia Wulfenii, the latter's grey-blue foliage providing a charming foil. The grey-blue growths and mauve flowers of Veronica pimeleoides were still good, while purple tints of Ajuga reptans purpurea and Cardamine trifolia were enhanced by the deep brown of the fallen Oak leaves. Primula Winteri, charming as ever, with lavender-blue flowers and mealy rosettes, is unsurpassed by anything in the garden at present, even the scarlet-fruited branches of Cotoneaster horizontalis, near to it, look dull beside the lovely flowers. Gentiana sino-ornata cannot compete with it, and I have never seen the latter plant with its gold-veined, blue trumpets, looking so well and unconcerned after frost, rain or wind, so late in the year.

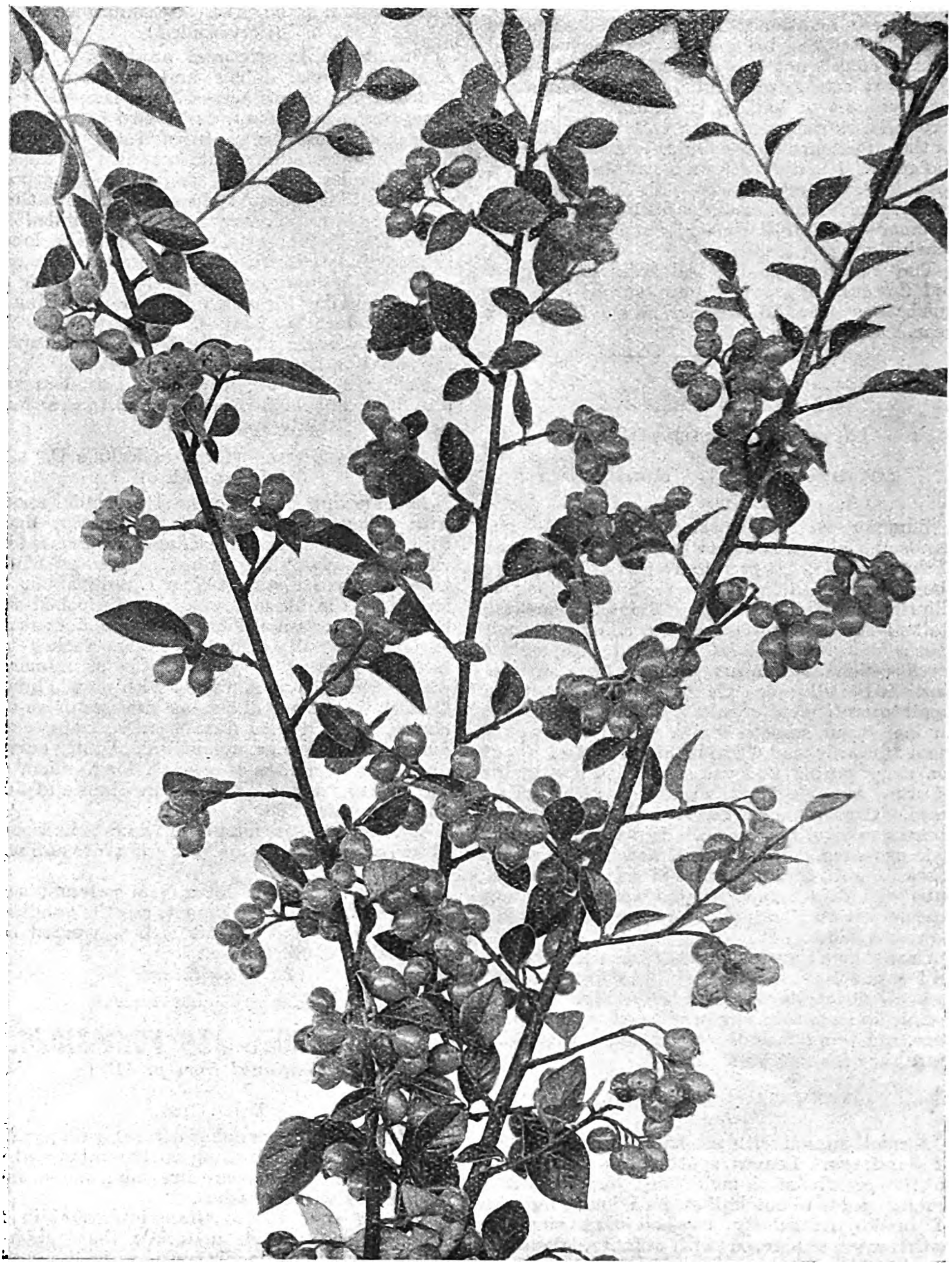

FIG. 197.—COTONEASTER DIELSIANA.
(see p. 426).

On the way to the alpine house a solitary patch of Euphorbia Cyparissias had borrowed rainbow hues from the autumn sun. In the house itself colour was mainly provided by the flowers of Dianthus Bee's Scarlet and D. Freynii —a mass of pink ; Gentiana sino-ornata, Primula Forbesii, Schizostylis coccinea var. Mrs. Heggarty (a great improvement on the type, which was still flowering well in the rock garden), and Zauschneria californica var. mexicana, while the red and gold tints of Sedum Sieboldii variegatum, the purple foliage of Sedum Stahlii, S. spathulifolium purpureum, and Shortia galacifolia, were most attractive, as also were the few advanced, rosy-pink flowers of Saxifraga afghanica.

I found much of interest in the wild garden, pride of place for colour certainly going to Vaccinium virgatum ; the brightness and variety of colour in its leaves beggar description, for the foliage was caught and turned to flame by the November sun. Here also Kalmia latifolia var. myrtifolia and Pernettya mucronata were attractive in foliage and fruit; and Andromeda japonica variegata called attention amid the dull green leaves of tall Rhododendrons. Among the American shrubs, Itea virginica, with red and purple tints, was the only one left with coloured foliage. From this entrance to the seven-acres field the first attraction proved to be Prunus subhirtilla autumnalis, laden with pure white flowers, and being denuded of all foliage, the black bark formed a pleasing contrast.

In the Heath garden a few hillocks of Pachistima Canbyi called attention to its purple and green foliage, red buds and stems. The white growths of Rubus alpestris var. Blume and R. micranthus were prominent—the bloom of the latter does not cover the ends of the shoots, the red tips of which are an added attraction. Salix were mentioned by *F.*, but a standard of S. vitellina britzensis, with vivid red stems, could not be passed without note. The most attractive shrub in the seven-acres, for vividness of foliage, is undoubtedly Pyrus coronaria, scarlet, red and purple being blended on the outside, while the under-leaves are yellow and gold. The Barberries are still full of colour, both in fruits and foliage. Spiraea prunifolia flore pleno, Viburnum tomentosum and Quercus coccineus Knaphill variety, have not suffered much through the gale.

The wealth of colour and richness of fruits and flowers so provided, are surely a fitting finish to a splendid summer and a fast dying year. *J. W.*

THE GENUS PRIMULA.

(*Continued from p.* 412.)

GAMMIEANA (King). Gammie's P.

(Petiolares.)

THIS perennial sub-species of P. Roylei has handsome blossoms somewhat resembling those of the Auricula. It produces a tuft of thin leaves about six inches long, of which the oblong or elliptic, blunt blades occupy about two inches; stalks winged, terminating in a sheath at their base; margins of blade furnished with regular teeth which have horny points; both surfaces furnished with red glands which secrete a small quantity of meal. Flower stem about six inches tall, smooth below, coated with yellow meal upwards and bearing an umbel of about ten deep purple flowers, subtended by bracts of the same colour, sprinkled with yellow meal. Corolla somewhat thick in substance, concave above, flat where it is divided into five flat, egg-shaped or rounded, notched or retuse lobes about three-quarters-of-an-inch across; tube cylindric below, dilated upwards, about three-quarters-of-an-inch long, more or less downy within.

Grows in alpine meadows in eastern Sikkim and south-eastern Tibet, at 11,000 to 15,200 feet above sea-level. Not in cultivation.

Culture: Good, somewhat heavy loam and peat, and abundance of water when in a growing state, are its requirements.

GEMMIFERA (Batal.) Gem P.

(Farinosae).

A small annual with the habit of some species of Saxifraga. Leaves spathulate-oblong, half- to five-eighths-of-an-inch long, on narrowly-winged stalks about half-an-inch long; margins of blades irregularly toothed and sinuous; both surfaces covered with minute, glandular down. Flower stem three-and-a-half to four-and-a-half inches tall, covered with white meal upwards. Flowers in an umbel of three to four, about five-eighths-of-an-inch across, violet-coloured, with a yellow eye. Corolla with broadly oval, deeply notched lobes; tube cylindric, about half-an-inch long.

This little plant is found in damp, cool places on the mountains of Kansu, central China.

Culture: It should succeed under ths same cultural treatment as advised for P. Forbesii.

GENESTIERIANA (Hand.-Mzt.) Genestier's P.

(Farinosae.)

This tiny, loosely-tufted perennial is probably one of the many microforms of P. farinosa. The pale green leaves have egg-shaped, rather pointed blades, gradually tapering to a broadly winged stalk, dilated below and more or less equalling the blade in length, in all a quarter- to three-quarters-of-an-inch long; margins furnished with coarse, rounded, triangular teeth. Flower stem three-eighths to one-and-a-quarter inch tall, bearing an umbel of three to six rose-violet blossoms, with an orange ring in the throat. Corolla flat, a quarter-of-an-inch across, divided into five broadly heart-shaped, bluntly bifid lobes; tube about as long as the calyx, cylindric below, slightly expanded upwards. Flowers in August. Not in cultivation.

Grows in damp, open situations on the mountains of north-western Yunnan, near Schualo and Buschao.

Culture: As for P. farinosa.

GERANIFOLIA (Hook f.). Geranium-leaved P.

(Cortusoides.)

This desirable perennial produces a tuft of rounded, acutely-lobed and toothed leaves, two to three inches across, heart-shaped at the base, borne on downy stalks two to six inches long; both surfaces are covered with short, fine hairs. Flower stems four to twelve inches tall, very slender, bearing single or superposed whorls of lilac-coloured blossoms, half- to three-quarters-of-an-inch across. Corolla divided into five broadly heart-shaped, notched lobes; tube cylindrical, with a ring in the throat.

Grows in damp, half-shady spots in the Chumbi Valley, between Sikkim and Bhutan, in the eastern Himalayas, at about 10,000 feet above sea-level, and is not a common plant in its native habitat. Flowers in May.

Culture: It may succeed if planted in good fibrous loam, leaf-soil and sand, in a fairly damp, half-shady spot.

GIRALDIANA (Pax.) Giraldi's P.

(Muscarioides.)

A somewhat small-flowered perennial species with a tuft or rosette of non-mealy, flacid, thin, sparsely hairy leaves about two inches long, with narrowly-oblong, blunt or pointed blades, tapering to a distinct winged stalk about the length of the blade; margins furnished with blunt teeth or small lobes. Flower stem rather slender, smooth, eight to twelve inches tall, bearing a head or short spike of numerous purple-blue blossoms, mixed with purple bracts. Corolla concave, about a quarter-of-an-inch across, divided into five broadly ovate, entire lobes; tube slender, cylindrical, slightly curved, about three-eighths-of-an-inch long, much exceeding the calyx. Flowers in June and July. Introduced in 1908.

This species is found in damp, half-shady places on the mountains in the province of Shensi, central China.

Culture: Friable loam, leaf-soil and sand, and a half-shady, damp spot, are the conditions which should suit it; it is best treated as a biennial. *A. W. Darnell.*

(*To be continued*).

INSECTICIDES AND FUNGICIDES.

(*Continued from p.* 413.)

TAR OILS.

THE preceding conclusions regarding petroleum have a direct bearing on the value and use of the tar oils which are becoming increasingly popular as winter washes.

It was apparent to those interested in the composition of such materials that much of the value of the tar oils must, as in the case of the petroleum oils, be dependent on the insecticidal value of the higher hydrocarbons. This view has recently received confirmation from the work carried out by Dr. Tutin at the Long Ashton Experimental Station.

The value of the tar oils has been shown to be due to the heavy neutral constituents of the coal tar distillate, and to be independent of the phenolic compounds or tar acids. By using only the heavy neutral fraction boiling above 280°C., a wash is obtained of one hundred per cent. higher efficiency than the original tar oil. It seems certain from this that the petroleum and tar oil emulsions are fundamentally similar, and that no line can really be drawn between the two. Future developments on these lines should be of considerable interest.

FLUORIDES AND FLUOSILICATES.

These substances are taking on considerable importance, and are now coming into extended use as insecticides, largely because of their relatively low toxicity to man and the higher animals. Sodium fluoride has been known for some time both as an excellent insecticide and as a fungicide, and much work is now being done with the silicofluorides of sodium and calcium as substitutes in many cases for the arsenicals. In solution, sodium siliciflouride is only one two-hundredth part as toxic to man as arsenic acid, yet towards many insects it exerts an inhibitory effect of nearly the same order. Both the fluoride and silicofluoride (fluosilicate) of sodium suffer in value from their high density. Their volume per unit weight is very small, and when used unmixed in the form of dusts, they are consequently uneconomical. Endeavours have been made to give them a more flocculent condition and thereby increase their covering power, by bulking them with alumina or silica.

Silicofluoride compounds put on the market in America are mostly of this type. A powdered calcium silicofluoride, obtained as a bye-product in the working up of certain phosphatic rocks, has also been given lengthy trial in California. It is more voluminous than the sodium salt, and is reported to be very effective against biting insects, but whether it is as valuable as sodium silicofluoride is not yet clear.

The fluorides and their derivatives are likely to have an important future as pesticides. They are finding extended application in wood impregnation as a protection against both boring insects and fungi, and magnesium silicofluoride is stated to be one of the most effective forms of protection against dry rot. In general, however, the silicofluorides are only moderately fungicidal in solution and are more useful as insecticides. The report of the American Chemical Warfare Service on the boll weevil investigation which it has been carrying out, indicates sodium silicofluoride as being the most effective material yet used against that pset.

Care must be used in employing these substances, especially in conjunction with other materials. They liberate water-soluble arsenic from calcium arsenate, and precipitate sulphur from the lime-sulphur wash. In general, they should only be used under experienced advice until such time as their action is more widely known.

PLANT INSECTICIDES.

Among the most effective insecticides, certain extracts of vegetable origin are outstanding, and two of them, Nicotine and Pyrethrum, are well-known as of particular importance. It is to be regretted that both are expensive and that so far no effective synthetic substitutes for them have been produced. Chemically, they appear to have nothing in common. Nicotine, the active principle of Tobacco, is a well-known alkaloid of determined structure; the active principles of Pyrethrum, on the other hand, appear to be highly complex oleo-resins of unknown constitution. Both have been the subject of much investigation, and a good deal of useful information is consequently available concerning their use and action. The more recent developments merit consideration.

NICOTINE.—Some discussion has arisen during the last few years as to whether nicotine acts at all as a true contact poison, or whether the action is entirely due to its volatility and the dissemination of vapour. The matter is of practical importance since it bears on the use of non-volatile nicotine salts and the preparation of the most active nicotine dusts. It now appears to be the concensus of opinion that the toxicity curve and the volatility curve are practically identical and that Nicotine is best used in the free condition and not as sulphate or other salt, the activity of any preparation being directly measurable in terms of weight volatility per unit time. As a consequence, Nicotine is probably best used in its old form in conjunction with soap as a spray, since this method ensures the existence of the alkaloid in the uncombined form. *S. J. M. Auld, D.Sc.*

(*To be continued*).

NURSERY NOTES.

MESSRS. STUART LOW AND CO.

Perhaps it is in association with the Carnation that the firm of Messrs. Stuart Low and Co., of Bush Hill Park, Enfield, is best known, for it has been responsible for the introduction of many fine sorts during recent years. The work of raising new and improved varieties is still going on, and we were able to inspect, while on a visit to the nursery recently, a number of novelties of outstanding merit, to be introduced into commerce next year. One of the most striking of these seedlings, at present unnamed, was carrying finely-shaped blooms of royal-purple colouring and strongly-scented; another—a Fancy sort—was pure white, attractively-marked with chocolate, and yet another had blooms of quite a distinct shade of orange-apricot.

Among those which have been named, mention may be made of Kathleen, best described as the old and well-known variety Lady Allington at its best. The blooms are of a grand salmon shade, of good shape, and borne on stiff stems, while, most important, the plant is of excellent habit and constitution, the secondary growths coming away freely.

A good Fancy Carnation was seen in Ann Horton, with white blooms striped with deep pink; while one of the best of these novelties was Thomas Ives (see Fig. 198), remarkable for the size of its petals. These are literally huge, and of rich, bright cerise colouring, and they are so arranged as to make a large and xtremely handsome bloom.

Countess of Harewood, which, so far, is remarkably exempt from the bad habit of calyx-splitting, should soon become popular upon its introduction, for its rich, rosy-cerise, compact blooms are of good shape, while the habit of growth is splendid, being clean and vigorous. Hilary is yet another 1929 novelty of the Fancy type, the petals beautifully shaped, having a deep red ground colour, overlaid with bronzy-red. It is similar to, but much brighter than and a distinct improvement on, the popular variety Velvet.

Beside these Carnations of the future, it was of interest to see some of the outstanding sorts already in commerce, and to note their behaviour with regard to flowering at this season of the year. Dawn, for instance, with heliotrope, cerise-striped blooms, was flowering freely, a point of interest being that it is very prone to sporting, producing flowers of a true, rich cerise shade. This sport has been fixed and named Anthony.

Lady Daresbury, one of the current year's novelties, has bright, flesh-pink flowers, in size and appearance reminiscent of a Malmaison Carnation, but while its habit is good the blooms are carried on rather weak stems. Sir Philip Sassoon, with Clove-scented, crimson blooms of good size and shape, was flowering freely and looked extremely healthy, while among those with flowers in shades of mauve-heliotrope, a splendid trio was formed by Daphne, Melchet Beauty and Zorro, all of them being free both in growth and flowering. Melchet Beauty has cerise stripes, and seemed to be reliable in colouring, while Zorro has a central orange-cerise zone, flushed with mauve.

Ruby Glow, with clean-cut, ruby-crimson flowers, was very healthy in appearance and flowering freely, while two recent introductions from America called for special attention. These were Ivory and Radiolite. The former has rather small blooms of creamy-white, heavily fimbriated petals, produced very freely, while the flowers of Radiolite are rich scarlet; these latter, however, seemed to be inferior to those of Brilliant and R. A. Nicholson, two of Messrs. Stuart Low and Co.'s novelties, which are more reliable for winter flowering, retaining their brilliance well. With regard to the production of flowers at this season of the year, it was worthy of note that the well-known and deservedly popular variety, Mrs. A. J. Cobb, although free both in growth and the production of flowers, was not up to its spring standard, the blooms being lacking in size.

Among other Carnations which made special appeal among the innumerable varieties grown on this establishment, special mention should be made of Margot Holmes, with large blooms of cattleya-mauve colouring; Sybil, an attractive novelty with flowers of a very distinct and not unpleasing shade of violet-purple; the well-known salmon-pink coloured Eileen Low; White Pearl and Happidais, with flowers of distinct apricot colouring, and one of the best for cutting, the blooms when cut lasting two or three weeks, even in midsummer.

But while it is Carnations which are the source of chief interest at the Bush Hill Nursery, many houses being devoted to their culture and thousands of plants being raised and disposed of annually, other classes of plants are also grown extensively. For instance, the several houses devoted to Heaths were, on the occasion of our visit, gay with colour provided by thousands of specimen plants of various sizes, while the Cyclamens (some twenty thousand plants in full bloom) constituted a selection of all the best varieties, outstanding among them being Pink Pearl, Bush Hill Pink, of a rich shade of rose-pink; Cherryripe, almost scarlet; and Fragrance and Fragrant Gem, two sweetly-scented sorts. There were houses devoted solely to Cytisuses in pots; others contained many specimen plants of such choice subjects as Daphne indica rubra, famous for its scent, and Boronia megastigma, also sweetly-scented.

The winter-flowering Begonias, notably the varieties, Rosalind, Elatior, Emita and Mrs. Clibran, provided a very attractive spectacle, while the many huge specimens of various Acacias, in large pots and tubs, were also worthy of special comment.

Beside flowering subjects, fruit trees in pots are also grown extensively by Messrs. Stuart Low and Co.—pyramidal and fan-trained Peaches and Nectarines, Grape vines and Figs, eighteen varieties of the latter being grown.

Throughout the extensive ranges of glass-houses a high standard of cleanliness and efficiency was observed, and the quality of the plants in all sections was highly commendable.

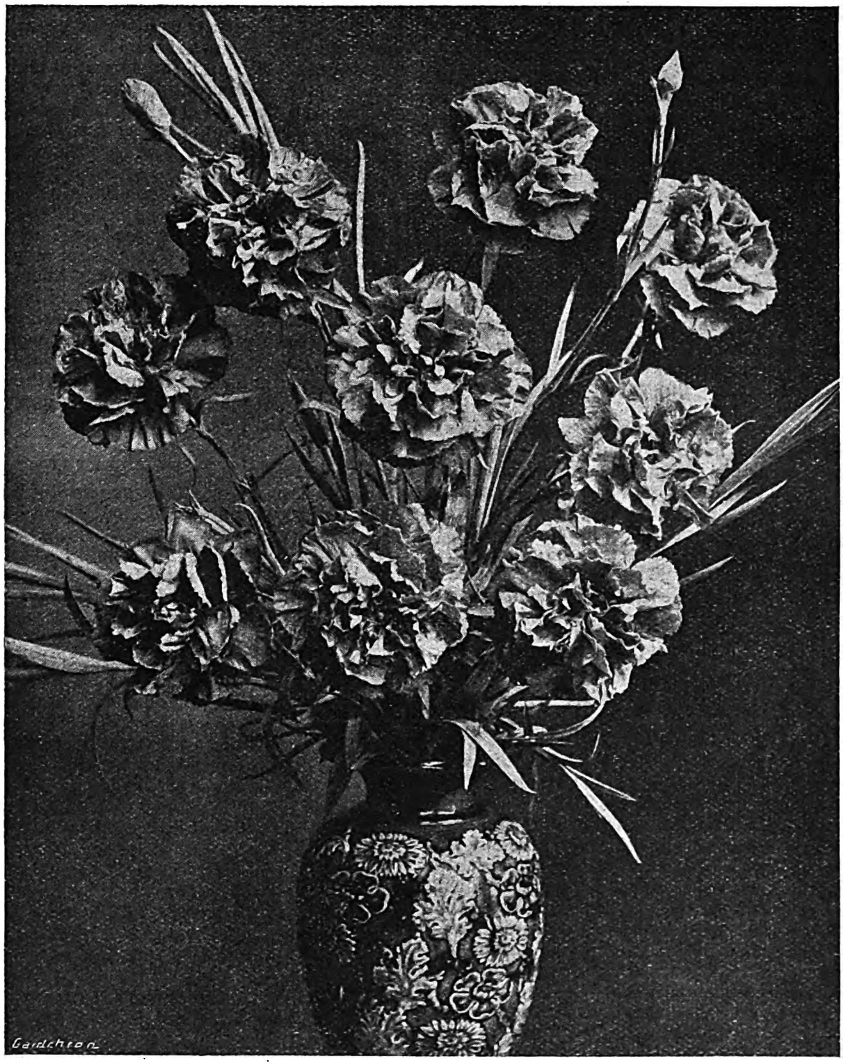

FIG. 198.—CARNATION THOMAS IVES.

HOME CORRESPONDENCE.

Pink Chrysanthemums.—I noticed a short time ago that the subject of a correspondent's letter was Pink Chrysanthemums. He mentioned their scarceness and how badly they sold. I also have noted this, and much regret the fact, because, as stated by your correspondent, pink is a most delightful colour, and at the present time there are many excellent pink Chrysanthemums, or with shades of pink, to be had. Even a few of the older varieties are worth reviving and using as cut blooms. Among the list of those that I now have in cultivation are Thora, Florrie King, Mrs. W. Buckingham and Ruffescue. Thora is a lovely Anemone-flowered variety of a lavender-pink shade, and if grown in pots it produces an abundance of blooms. Florrie King and Mrs. W. Buckingham are both richly-coloured pinks, but are better left to form sprays, while Ruffescue is undoubtedly a first-class double, and does well either disbudded or otherwise. Other excellent pink varieties are Mrs. H. J. Batty, Miss Ada Ellis, Balcombe Pink, Exmouth

Pink and Uxbridge Pink. It was with much pleasure that I noticed two new pink varieties have been awarded First Class Certificates at the recent National Show, namely, William Haslehurst and Captain John Dalgety. *Jack Hardy, West Cemetery, Darlington.*

Commelina coelestis.—Alphose Karr, in his book entitled *A Voyage Around my Garden*, states that the rich, deep blue colour of the flowers of Commelina coelestis deserves to be known as commelina-blue, since, according to him, it is an unique shade. However that may be, there is no doubt that this flower should be better known. Commelina is the typical genus of the Commelinaceae, or Spiderworts, an Order named in honour of the Dutch botanists, J. and G. Commelin. C. coelestis is a half-hardy plant. If its seeds are sown under glass in April and May, the seedlings may be transplanted into the open ground so soon as all fear of frost is over. They will then flower from July to September. Seeds sown in July will produce plants which may be wintered in a gently-heated place. This Commelina has flowers of three petals, which soon drop. They are in groups. Its leaves are long and lanceolate and the sheaths are ciliated. Dr. Lindley states that the fleshy rhizomes of C. coelestis 'contain a good deal of starch mixed with mucilage, and are therefore fit for food when cooked." The rhizomes of C. medica are used in China as a remedy for chest complaints. Spiderworts are natives of the East and West Indies, New Holland and Africa; a few are found in North America, but none in Europe or North Asia. A friend of mine, who has lived in India for twenty-five years, tells me that Commelina coelestis grows in quantities in some of the Himalayan valleys. *V. Slade.*

Apple Crimson Cox's Orange Pippin.—I was much interested in Mr. Murray Thomson's article on this Apple in your issue for November 3, p. 356. Two years ago I obtained one tree from Mr. John Harris. This summer the tree carried a good crop, and the colour of the fruits quite maintains all Mr. Harris claims for them. In size they were rather larger than those of Cox's Orange Pippin, and they were rich crimson in colour. The habit of growth is similar to that of Cox's Orange Pippin. I believe that when better known, Crimson Cox's Orange Pippin will become one of the most popular exhibition and dessert Apples. *F. Roberts, The Gardens, Stoke Edith Park, Hereford.*

Colours of Flowers.—I endorse Mr. Warner's description of the Colour Chart issued with catalogue by the firm of Ernst Benary, Erfurt. Neat and compact—the whole chart of 728 colours does not exceed eighteen inches by twelve inches, it is a boon to all dealing with a firm that has shown a more progressive spirit and a great appreciation of the needs of the public than our own great horticultural businesses. That it is not perfect is no detriment to the effort of Mr. Benary. One cannot expect high-class chromo-lithography and a combination of *all* tones and shades in a chart given away free of charge. On receipt of it, through the agency of *The Gardeners' Chronicle*, I picked several flowers at random as a test, these being Cyclamen Bath Beauty, Schizostylis coccinea, and Lobelia fulgens. I failed to match any of them, which clearly shows that the ideal standard colour chart will have to contain a much greater number of tints than the one under discussion. Nevertheless, the effort by Mr. Benary is an excellent one, and one that could be adopted advantageously by our own horticultural firms, and which would be of much greater value if all adopted the same design of chart which, besides reducing the cost of production considerably, would also give the desired unanimity of colour description. It is true we have to wait until the 1930 International Horticultural Congress in London for more information regarding the International Colour Standard, and as then only the views of various countries on this subject will be submitted to the Congress, it is only reasonable to suppose that at least a decade must pass before an International Chart is an actual fact. As it does not seem likely that the R.H.S. will take any very great interest in this subject, I do seriously suggest the adoption of a horticultural colour chart, on the lines of that issued by Mr. Benary, by all our horticultural firms, and if, as suggested above, each firm used identically the same chart and nomenclature, most of the present trouble in colour description would disappear. I see no reason why such a chart should not be accepted as a standard chart (at least in this country) until such time as the International Horticultural Congress produces its own. Apart from the brief report on the International Horticultural Congress, Vienna, 1927, reported in this journal, October 10, 1927, p. 308, can any reader inform me where a full account of the proceedings —in English—may be obtained? *Percy E. Chappell, Major.*

Alicante and Gros Colmar Grapes.—I should much like to have the opinion of experts on the merits of Alicante and Gros Colmar Grapes, when both are put up as rivals in the same class, and assuming them both to be well-grown (the former at 3½lbs. and the latter at 2½lbs. each bunch, or thereabouts), and both of good colour and finish. One often sees these two varieties at autumn shows, and the merits of each form a subject for discussion, and the decisions of judges are often criticised when awards go in favour of one or the other of these two varieties. What positions do they occupy when quality and flavour are considered? With market growers, Gros Colmar seems first favourite, being the best seller. Alicante seems to be favoured by private growers for the table. But when it comes to exhibiting either of these in classes for black Grapes, after having heard the opinions of good growers both for and against both varieties, I should much like the opinions of other experts, and to know where they really stand as rivals. *Puzzled.*

The late Mr. John Cypher, V.M.H.—In your issue of November 24, you invite expression of views in respect to a John Cypher Memorial. I imagine that the suggestion will meet with universal approval. Mr. John Cypher was possessed of a personality which made him generally popular, and he was always ready to frankly discuss horticultural problems with his brother horticulturists, whether they happened to be clients of his firm or not. I am one of those who can remember the days when he was held to be the pioneer of effective arrangement of groups, and when he would break off the arrangement of his own group to give a helping hand to amateurs who had not his experience. Such traits deserve recognition; I hesitate to express an opinion as to what form it should take. I would suggest that it should be left to one or two well-wishers. The disadvantage of the suggestion you make is that it helps only one for the time being of the many who are incapacitated; and I suggest that it may be worth consideration whether the "greatest good of the greatest number" would not be better secured by using the income or capital by way of assistance to those requiring immediate help. *Jeremiah Colman, Gatton Park, Reigate.*

Vita Glass.—I agree with Mr. Bush (p. 356) that it would be interesting to know the results and experience of those who are experimenting with Vita glass, and some time ago I asked through the medium of *The Gardeners' Chronicle*, for information on the same subject, but did not get one reply, although I know there are several private and public places using it for experimental purposes. We have tried it here for one season, and my experience is that the Vita glass benefits seedlings and quick-growing plants in the early spring; here, Tomato seedlings grown under Vita glass grew faster and stronger than seedlings under ordinary glass in a house with a higher temperature, but from midsummer onwards, the foliage under the Vita glass had not the healthy, dark green colour which is desirable, and I formed the opinion that the rays were too fierce for the plants. I do not think that slow-growing plants, like Odontoglossums, will derive much benefit from the new glass, and certainly to permanently shade the glass would stop the invisible rays from penetrating to the plants; a temporary shade, such as a blind, would be better, as this could be drawn up when the sky is overcast, for, I understand, these rays penetrate through a grey sky. I do not think it possible for the plants on the opposite side to the Vita glass to get more benefit from the rays than plants immediately under the Vita glass, but I shall have to leave it to a scientist to explain in what way these rays are given off from the the sun, and to what extent they are reflected to objects not in the direct rays. *O. Maddock, The Gardens, Ham House, Richmond, Surrey.*

Cultivation of Willows.—With reference to your note on p. 360, your correspondent may be interested to hear of Ellmore's *Cultivation of Osiers and Willows*, published by Messrs. Dent. *E. T. Ellis, Sheffield.*

Large Chrysanthemum Plants.—Two large Chrysanthemum plants were exhibited at the Bradford-on-Avon show recently. One of Blanche Poitevine, shown by Mrs. Moulton, The Hall, Bradford (gr. Mr. A. Keen), carried one-hundred-and-ten blooms, and the other, exhibited by Mr. Alfred Young, florist, of Bradford, bore one-hundred-and-three blooms. *G. A. Gunstone, Ham Green.*

Rock Gardens at Chelsea Show.—As you are aware, for some years the majority of the rock gardens exhibited at the R.H.S. Great Spring Show at Chelsea have been executed in mountain limestone, but my Council feel sure you will agree that, beautiful as mountain limestone is, it is not to be recommended for universal use in the construction of rock gardens. Apart from the generally accepted principle that the ideal course is to use a local stone, the heavy cost of carriage makes it impossible for all except the wealthy to use mountain limestone in gardens remote from a limestone formation. It is believed that many who would like to construct a rock garden, and who seek at Chelsea information as to methods of rock laying and cost, are deterred from doing so by the high, although perhaps reasonable, quotations for gardens built of Westmoreland or Cheddar stone. In the circumstances, it is suggested that the exhibits at Chelsea Show would be much more effective in encouraging the development of rock gardening if more exhibitors used stone other than mountain limestone. *F. R. Durham, Secretary, Royal Horticultural Society.*

Original Ribston Pippin Apple Tree.—It may interest some of your readers to know that the original Ribston Pippin Apple, raised in 1709, was blown down and destroyed by a squall of wind on Monday night, November 19. *John W. Dent, Major, Ribston Hall, Wetherby, Yorkshire.*

GARDEN MANURES FOR DECEMBER.

AMONG winter operations in the garden, the manuring of lawns is one of paramount importance, and the practice of giving lawns an annual top-dressing is a sound one. It is too frequently assumed that mowing and rolling are the chief operations necessary for maintaining turf in a healthy condition, but feeding is equally necessary, and while applications of artificials may be made advantageously during the summer months, it is only during the dormant season that top-dressings of organic manure may be applied. As a top-dressing, there is no better material than rotten farmyard manure, if it can be obtained, but failing this, well-decayed vegetable manure which can be passed through a coarse sieve, is equally suitable. The application of a liberal dressing of such material is valuable on all soils, but particularly so on those of a sandy nature, which are generally lacking in humus. Guano, preparations of bone, calcium cyanamide, or lime, may also be mixed with this material, thus ensuring an easy and uniform distribution. Lawns which have a tendency to sourness should be dressed with five or six hundredweights per acre of ground limestone. If the sourness is due to stagnancy caused by insufficient drainage, however, liming will not ameliorate the conditions until the drainage is put right.

The necessity of applying such slow-acting manures as kainit, basic slag, phosphatic rock and calcium cyanamide so early as practicable in the winter season has been previously referred to, and every advantage should be taken of favourable conditions for their application during the next month, where such is contemplated. For permanent crops it is frequently more convenient to apply these manures during the winter than it would be to apply the quicker-acting forms containing the same element during the growing season.

Although lack of potash generally causes less trouble than lack of phosphate or nitrogen, it is no less serious when it does occur, and this is not unlikely on light, sandy soils. On such soils a dressing of about five hundredweights per acre of kainit at this season gives good results and guards against a deficiency of potash during the next growing season. As a means of applying phosphate to fruit plantations in winter, basic slag and ground phosphatic rock are valuable manures as, owing to their extremely fine state of division, they are readily carried down to the roots of the trees to become available during the next period of growth. High-grade slags are not so easily obtainable now as formerly, hence heavier dressings are needed to give the same results; ground rock phosphate contains so much as fifty-eight per cent. of phosphate. The merits of calcium cyanamide for winter application have been referred to recently, its relatively high nitrogen content making it a highly valuable nitrogenous manure. It will thus be seen that a system of complete manuring can be arranged for winter application.

Winter is the best season for adding lime to the soil, and, generally speaking, the coarser the grade the earlier it should be applied. The use of lime has increased greatly during recent years, but there are still large areas where lime is needed; moreover, the increased use of artificial fertilisers in modern cultivation tends to increase the normal loss of calcium carbonate in the soil, hence, greater applications are necessary to cover this loss. In whatever form it is applied it is ultimately converted to carbonate of lime in the soil for the use of the plant. Carted chalk is sometimes applied as a convenient way of adding lime to the soil, but it is very slow in action because it comes into contact with such a small proportion of the bulk of soil. Ground chalk or ground limestone is much quicker in action because it immediately comes into contact with a large number of particles of soil. Chemically precipitated lime is still quicker in action, if thoroughly incorporated with the soil. Quicklime is very caustic and cannot be used with growing crops. It combines with water with so much energy that tremendous heat is evolved, and it becomes slaked lime. This, in turn, combines with the carbon-dioxide of the soil in two stages, finally forming carbonate of lime. By its caustic action, quicklime destroys organic matter; it is thus not wise to apply it to soils of low organic content. It is the most effective agent in combating finger-and-toe disease in Brassicas, its effectiveness being probably due to its causticity, but it may be noted that this disease is practically unknown on soils naturally containing a high percentage of calcium, and it appears to become virulent only in acid soils.

It should be borne in mind that the rapidity of action of all these relatively insoluble manures is largely controlled by their state of division. A very fine powder presents a much greater surface to the solvent action of the soil water than an equal weight of the same material in a coarser condition. Basic slags and rock phosphates are obtainable in a very fine state of division, and thus come into contact with a very large number of particles of soil. The state of division of limes and limestones is equally important, for with coarse grades very little result can be hoped for in the first year. There is a danger in applying very fine powders to wet surfaces, however, as they tend to run together and are then very difficult to mix with the soil. Applications should therefore be made, so far as possible, under dry weather-conditions. *W. Auton, Woking.*

FRUIT GARDEN.

LATE GRAFTING.

In this country, "grafting" is usually understood to be limited to the insertion of woody shoots or portions thereof with more than one eye, while the term "budding" is used when but a single eye is inserted, commonly without any woody material; our ancestors formerly, and our continental neighbours still, call the latter a form of grafting—to wit, "shield grafting."

Grafting, as above defined, is usually carried out during the months of March and April, and any desired propagation later than this is deferred until July, August, or even into September, when "budding" is practised. A writer in *La Pomologie Francaise* has recently advocated the autumn grafting of Cherries.

It would seem from a number of trials that the grafting of woody scions may be performed successfully in almost any month of the year, excepting times of drought and probably also of impending frost.

My first trial was, so to say, born of necessity; it was desired to propagate Malus theifera, Rehd., but when going to cut the necessary grafts in February, 1926, it was found that young leaves were already showing—evidently it was too late to cut them with promise of success. The diameters of the available shoots were less than one-eighth-of-an-inch, indeed only about three-thirty-seconds, not much more than two millimetres. To carry out "budding" with this slender material appeared rather a delicate procedure. Hence, arose the idea: Why not try grafting? Accordingly, a couple of side branches of a ten-years-old Apple tree, some way up (about four feet), were defoliated over the greater part of their length, as also were the intended grafts themselves, on May 28, only the few terminal leaves being left. The idea was to slacken the sap flow, in case the grafts should be "drowned." One of these grafts, put on June 1 promptly started to produce leaves and is now quite a sturdy branch; the other, perhaps, from deficient waxing (L'Homme Lefort wax), failed. A further insertion of, and on the same materials and also on some free-stock seedling stocks, was done on July 7 (Fig. 199), the same precaution of defoliation a few days before being observed. All of these succeeded perfectly, and are now stout and hearty.

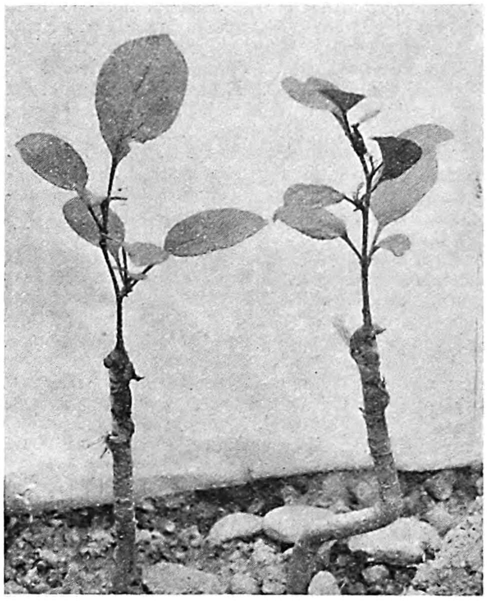

FIG. 199.—MALUS THEIFERA.
Grafted, July 7, 1926; photographed, October 1, 1926.

Using the same procedure, a Plum (Black Diamond) was the next venture, on July 28, 1926, and out of four insertions only one succeeded, but that has made good growth.

The next trial (August 5, 1927) was made on a Pear; it was desired to get material for further propagating, and two grafts were put on a side branch on the stem of an oldish (nearly thirty years) standard Pear tree. Owing to circumstances, no preliminary defoliation could be carried out, and it was thought that at this period of the year, when the sap flow slackens, it might not be at all necessary. The result was that from the two grafts no fewer than seven shoots of thirty inches in length were obtained; an ample provision for the budding required.

The latest endeavour, made on September 18, last year, has to be classed as a failure. The material was from a very old Foxwhelp Apple tree, reputed to be two hundred years old; the grafts were looked at early in April and all appeared well—buds plump and commencing to move. Unfortunately, they were not inspected again soon enough, for it was found that the waxing had cracked, one part had withered hopelessly—and the other, well, rewaxing did not save it.

It appears, then, that the thesis "grafts may be put on successfully at almost any time in the season," receives a good deal of support. From a limited amount of material, the product may be greater than can be obtained by budding, and probably more than would result from grafting in the following spring. When the insertions are made in June or August, a good development of leafy shoots occurs, so that by the next spring all things are ready for a vigorous start. During the strong sap flow, as in June, I think that the defoliation scheme is probably a wise one; for I did not mention that at the first trial, two thus unprepared grafts were put on unprepared shoots and both failed.

Another precaution taken was to utilise the actual ends of the shoots so that there was not any cut surface exposed; in other cases, careful waxing and renewal thereof, was given to all cut ends of the scions. If leafage has been well developed during the current season, probably union is so good that there is no need to rewax at the onset of growth in the following spring; but this little attention should not be forgotten in cases where the lateness in the season has made immediate leaf production impossible. *H. E. Durham.*

MORELLO CHERRIES.

Now that the trees are devoid of foliage a start may be made with the work of pruning and training Morello Cherry trees growing on walls.

This work can only be performed expeditiously and well during mild weather, therefore an endeavour should be made to complete it while such conditions prevail. Unlike the Sweet Cherry, which bears its best fruits on spurs formed on the older branches, the Morello fruits on the young wood made during the preceding summer. So much of the old wood which has borne fruit, and is not required for extension, may be cut out and the young shoots trained in to replace it at four or five inches apart, evenly over the area covered by the tree. Young shoots which extend above the top wire, or beyond the space allotted to the tree, may be cut back to a length of two or three inches according to their strength.

After pruning and tying, the trees should be sprayed with one of the tar-distillate washes at the strength advised for Plum and Cherry trees. This is especially advisable in the case of trees which have suffered from an attack of black fly during the past season.

If the soil of the border in which Morello Cherry trees are growing is showing signs of exhaustion, the uppermost layer should be carefully removed down to the first fibrous roots, a small border fork being used for the purpose, and an equal quantity of fresh loam, to which some mortar-rubble and a sprinkling of bone-meal has been added, should be applied, the whole being made firm about the roots again. If the border is in fairly good condition, a sprinkling of bone-meal, using two ounces to the square yard, lightly forked into the surface, will suffice for the present, but the Morello Cherry takes heavy toll of the soil, and for mature trees carrying heavy crops annually, a yearly dressing of farmyard manure is necessary, and should be applied immediately after the fruits have set. *T. E. T.*

SOCIETIES.

ROYAL HORTICULTURAL.

November 27.—Probably owing to there being several other important meetings fixed for the above date, the customary fortnightly show of the R.H.S. was distinctly larger and brighter than usual at the end of November, and there was an increased attendance. Orchids were freely shown and of particularly good quality. The Orchid Committee recommended three First Class Certificates and seven Awards of Merit to novelties. Chrysanthemums, greenhouse Cyclamens, Carnations and hardy shrubs were the chief floral features. The Floral Committee recommended twelve Awards of Merit to novelties, and of these ten were to new Chrysanthemums. Beyond an excellent collection of Grapes, the Fruit and Vegetable Committee had little business to transact. There were interesting exhibits of garden sundries and many collections of paintings of garden plants and scenes.

Orchid Committee.

Present : Sir Jeremiah Colman, Bart. (in the chair), Mr. Gurney Wilson (Hon. Secretary) Mr. Lionel de Rothschild, Mr. Fred J. Hanbury, Mr. Richard G. Thwaites, Mr. Wilson Potter, Mr. T. Armstrong, Mr. J. McBean, Mr. H. H. Smith, Mr. Charles H. Curtis, Mr. J. E. Shill, Mr. A. Dye, Mr. Fred K. Sander, Mr. Robert Paterson and Mr. S. Flory.

FIRST CLASS CERTIFICATES.

Potinara Dorothy (*Sophro-Laelio-Cattleya Prince Hirohito × Brasso-Laelio-Cattleya maculata*).—An exquisitely beautiful Orchid, with dazzling, golden-orange sepals and petals, and a deep cerise, frilled, gold-veined lip. Shown by Baron Bruno Schröder (gr. Mr. Shill), Dell Park, Englefield Green.

Cypripedium Chardmoore, Orchidhurst var. (*C. Zena × C. Christopher var. Grand Duke Nicholas*).—This hybrid has a very large dorsal sepal, white, with a green base and lines of dark purple dots running into the white portion; petals green, with darker lines; lip green. Shown by Messrs. Armstrong and Brown.

Sophro-Laelio-Cattleya Meulange var. ignea (*L.-C. Soulange × S.-L.-C. Meuse.*).—A fine hybrid of excellent form and substance; sepals and petals deep rich purple; lips ruby-crimson with purple edge. Shown by Messrs. J. and A. McBean.

AWARDS OF MERIT.

Brasso-Laelio-Cattleya Salta (*Cattleya Suzanne Hye × Brasso-Laelio-Cattleya The Baroness*).—Another fine Orchid with light golden-yellow sepals and petals and a pale yellow, fawn-tinted, frilled lip. Shown by Baron Bruno Schröder.

Cypripedium H. W. Moore, Stonehurst var. (*C. Leeanum nitens × C. Beryl × C. Monarch × C. Pyramus the Great*).—A bold hybrid of green colouring, with yellow-green on the lower lateral halves of the wide petals. The dorsal sepal has numerous black-purple spots, and there are smaller, paler spots on the lower part of the petals. Shown by Robert Paterson, Esq.

Odontioda Marie Antoinette (*Oda. Colinge × Odm. President Poincaré*).—A very handsome Odontioda with flowers of Odontoglossum size. The colouring is rich red, with paler and rosier tips to the sepals and petals. Lip white, with red base and spots, and a golden disk. Shown by Robert Paterson, Esq.

Brasso-Cattleya Vivian Simon (*Cattleya General Pultenay × Brasso-Cattleya Rosita*).—In this pretty hybrid the sepals and petals are white and the wide lip has a white margin and a large, gold-veined central area shaded at the edge with pale mauve. Shown by Robert Paterson, Esq.

Sophro-Laelio-Cattleya His Majesty (*Cattleya Trianae Backhousiana × Sophro-Laelio-Cattleya Marathon*).—A showy Orchid with pale cerise, purple-tinted sepals and petals, and a big, flattened lip of bright ruby colour, shading to cerise, with a yellow base. Shown by Robert Paterson, Esq., Stonehurst, Ardingly.

Odontoglossum Cumbe, Brockhurst var. (*O. crispum xanthotes × O. Phillipsiana*).—A beautiful variety with white ground and plentiful spots and blotches of yellow. Shown by Fred J. Hanbury, Esq.

Brasso-Cattleya Ursula, Brockhurst var. (*Brassavola Digbyana × L.-C. Sargon*).—A gorgeous and enormous flower, with mauve sepals and petals, and a huge, frilled lip, purple with soft yellow around the brown-veined throat. Shown by Fred J. Hanbury, Esq.

GROUPS.

For late November—indeed, for any season—the group of Orchids so tastefully arranged by Robert Paterson, Esq. (gr. Mr. Merry), Stonehurst, Ardingly, was a splendid effort. With Moss and Maidenhair Ferns, and a few Palms as a background, this fine collection was displayed in tasteful and elegant fashion. In the centre there was a bold grouping of Cattleya Minucia, Laelio-Cattleya Schröderae var. Alpha (one plant carrying fifteen large and beautiful flowers), Brasso-Cattleya Simon and Potinara Rosita, with a few Odontiodas and Odontoglossums. Between this and the ends were excellent examples of Cattleya Annette, Vanda coerulea, Sophro-Laelio-Cattleya His Majesty, the pure white Calanthe Harrisii, Dendrobium Phalaenopsis, Coelogyne Mooreana, Odontoglossum Norvic, O. crispum xanthotes, O. Thyades, O. Réve d'Or, O. scintillans, Oncidium crispum, and the striking Masdevallia macrura, while between all these a host of fine Cypripediums was placed. These last included C. insigne Sanderae, C. Boltonii, C. Redstart, C. Monialis var. rubella, C. F. M. Ogilvie, Chardwar var., C. Magna, C. Germain Opoix, C. King Alfred and the bold C. H. W. Moore. Botanical Orchids were represented in the foreground by Coelogyne speciosa albens, C. lentiginosa, Cochlioda vulcanica and Ornithidium Sophronitis.

Frederick J. Hanbury, Esq. (gr. Mr. Farnes), Brockhurst, East Grinstead, had a very pretty exhibit in which the principal subjects were Zygopetalum Mackayi, with four spikes; Odontoglossum Cumbe, Brockhurst var., Cattleya Portia, C. Thomasii, both very finely grown; Laelio-Cattleya Golden Beauty, several beautiful coloured Odontoglossums, Cypripedium Juliet, C. Madame Albert Fevrier, C. Virgil, C. Lucifer and C. Cappa Magna var. Dorothy Sharp.

Messrs. Sanders' display contained a fine lot of Vanda coerulea, Phalaenopsis amabilis, in fine form, the old and quaint Bulbophyllum Medusae, a bold central specimen of Cymbidium Edward Marshall, Brasso-Cattleya Crofutiana, with very big blooms; Laelio-Cattleya Walter Gott, Cattleya ardentissima, Restrepia striata and Rodriguezia secunda.

Vanda coerulea and Oncidium varicosum Rogersii formed a bright background in Messrs Stuart Low and Co.'s group of Orchids; other good things were Laelio-Cattleya Crowborough, L.-C. Nella, L.-C. Linda, L.-C. Modasa, L.-C. Radina, Brasso-Laelio-Cattleya Everest, Odontoglossum Olivia, Cymbidium Atlantic, Vanda Amesiana and a number of goodly Cypripediums.

Messrs. Charlesworth and Co.'s bright display contained fine examples of Odontoglossum crispum, O. c. xanthotes, O. Omega, O. Aphrodite, O. muralis, O. Minatour, Brasso-Cattleya British Queen var. Olympic, the charming Cattleya Maggie Raphael, Laelio-Cattleya Renown, Miltonia Lucia with three elegant spikes, Masdevallia Schlimii, M. macrura, M. Hinckiana, several good Cypripediums and Oncidium Papilio.

Messrs. Cowan and Co. had their plants staged well apart in a setting of moss. They showed Cattleya Priscilla, C. labiata autumnale, C. Mrs. Gratrix, C. Snowdon, C. Ypres (very fine), C. Bertii alba, Masdevallia macrura, and Cypripedium Ponticus, C. Boltonii, C. Lucifer, C. Priam, C. Papyrus and the sweetly-scented Maxillaria picta.

Messrs. J. and A. McBean submitted Sophronitis Veitchii, Cattleya O'Brieniana, C. Annette, C. Maggie Raphael alba, the handsome Sophro-Laelio-Cattleya Meulange and some good Cypripediums. Mr. J. Evans showed Cypripedium Madame Jules Hye, C. Golden Wren, Brasso-Cattleya Thompsoni and a few other Orchids.

Floral Committee.

Section A.—*Present :* Mr. H. B. May (in the chair), Mr. J. F. McLeod, Mr. Arthur Turner, Mrs. Ethel M. Wightman, Mr. C. F. Langdon, Mr. Wm. Howe, Mr. J. M. Bridgeford Mr. David Ingamells, Mr. Donald Allan, Mr. Courtney Page, Mr. M. C. Allwood, Mr. A. E. Vasey, Mr. R. Findlay, Mr. J. T. West, Mr. W. B. Gingell, Mr. James B. Riding, Mr. D. B. Crane, Mrs. Helen Lindsay Smith, Mr. Charles E. Pearson, Mr. G. W. Leak and Mr. W. D. Cartwright, Secretary.

Section B.—Mr. Gerald W. E. Loder (in the chair), Mr. L. R. Russell, Mr. T. Hay, Mr. Amos Perry, Mr. G. Reuthe, Mr. Charles T. Musgrave, Mr. E. A. Bowles, Lady Beatrix Stanley, Mr. W. J. Bean, Sir William Lawrence, Bart., Mr. A. Bedford, Mr. E. H. Wilding, Mr. R. C. Notcutt, Mr. Reginald Cory, Mr. W. B. Cranfield, Mr. G. Yeld, Mr. C. Williams, Mr. F. G. Preston and Mr. N. K. Gould, Secretary.

AWARDS OF MERIT.

Chrysanthemum Aurora.—An attractive Japanese variety of market size and somewhat incurving habit. The broad florets are of golden-bronze colour. This and the five following varieties were shown by Messrs. Keith Luxford and Co.

Chrysanthemum Garnet King. — Another Japanese variety of the size and type valued for marketing. It is a well-formed bloom of deep crimson icolouring.

Chrysanthemum Hilda Canning.—A very charming little Pompon variety of perfect roundness, and made up of fluted, golden-bronze florets. The central unexposed florets are a dull ruby colour.

Chrysanthemum Soni.—A substantial Single variety of rather more than average size. There are several rows of straight ray florets which are heavily stippled with pink. There is a small disk and a narrow zone.

Chrysanthemum Triumph.—A very uncommon Anemone-centred Single. The flowers are unusually large and very substantial. The broad ray florets are of burnished terra-cotta colour; the long quills are rather paler and have golden tips.

Chrysanthemum Hugh Mitchell.—A valuable exhibition Japanese variety. The long, narrow florets, which are of bright velvety-crimson colour recurve at the tip, showing the duller reverse. Shown by Mr. H. Woolman.

Chrysanthemum John Higgs.—An especially good Incurved variety of large size. The flowers are pure white. Shown by Mr. J. W. Higgs.

Chrysanthemum Splendour.—A good Single of more than average size. The broad, straight ray florets are of crimson-scarlet colour. The disk is small and there is a narrow golden zone Shown by Mr. H. Shoesmith, Junr.

Chrysanthemum Gwen Rodda.—A large, substantial, white Single variety. The broad, stout ray florets incurve at the tips, giving a distinct, saucer-like shape to the flower. Shown by Mr. J. Rodda, Oaklands, Oxshott, Surrey.

Chrysanthemum Mrs. O'Neill.—The splendid plant which was shown illustrated the great decorative value of this white Single variety. The plant was dwarf, bushy, shapely and carried a large number of blooms. The flowers are of good size and have stout, straight, pointed ray florets. Shown by the Mental Hospital (gr. Mr. W. J. Jennings), Napsbury.

Carnation Wivelsfield Buttercup.—This is a desirable perpetual-flowering variety. The plants are dwarf and free-flowering. The flowers are of medium size and well filled with stout, slightly serrated, deep yellow petals. Shown by Messrs. Allwood Bros.

Dipladenia Sanderii.—This Brazilian species appears to be very near Dipladenia ellipticus var. glabra, but is not so highly coloured, and the markings around the tube are less pronounced. As D. Sanderii seems to flower in a quite small pot, it is a desirable plant for those whose glasshouse accommodation is limited. The species is of twining habit, the small leaves are stout and leathery, ovate and pointed.

The flowers are flesh-coloured, lightly marked with purplish-cerise at the golden tube. Shown by Sir William Lawrence, Bart. (gr. Mr. Everatt), Burford, Dorking.

Groups.

Chrysanthemums were shown in pleasant variety and of very commendable quality. Just inside the entrance, Messrs. Keith Luxford and Co. set up a very attractive collection. Their large Japanese varieties included Mrs. Keith Luxford, Louisa Pockett and Margaret Sargent. The Singles were represented by Challenger, Royal Red, Soni and Ruby Ray. There were also good decorative sorts, and a large vase of the fascinating little Pompon varieties.

Good Single Chrysanthemums were shown by Mr. A. G. Vinten, who had Absolute, Golden Absolute, Portwinia, Exmouth Pink, Golden Seal, Crimson Conquest, Grenadier and other desirable varieties associated with useful Decorative sorts. Mr. H. Clarke included some graceful Anemone-flowered varieties in a well set up collection of Chrysanthemums. The chief were Caleb Cox, Heloise and Mary Godfrey. His Singles included Susan, Red Godfrey, Red Molly and Cleopatra.

A splendid group of pot plants of Chrysanthemum Mrs. O'Neill, the Single which received an Award of Merit, was arranged by Mr. W. J. Jennings, of the Mental Hospital, Napsbury.

A very effective group of greenhouse Cyclamen, set off by graceful Palms and well-grown Nephrolepis. The Cyclamens, which illustrated a desirable strain and first-rate cultivation, were arranged in groups which bore names illustrative of their particular shades of colour. It is evident that Messrs. Sutton and Sons value the true Cyclamen form of the flower which has so much charm for many. On the tabling, greenhouse Cyclamens of considerable merit were shown by Messrs. Blackmore and Langdon, whose varieties included Salmon King, Brilliant, of deep ruby colour, Giant White, Pink Daybreak and Bath Pink.

C. R. Scrase-Dickens, Esq., Coolhurst, Horsley, showed many excellent flowers of Christmas Roses arranged with brightly-coloured sprays of Berberis aquifolium. The Hellebores were mostly of the long-stemmed variety and the round flowers were splendidly clean and white. Percy Mortimer, Esq. (gr. Mr. R. S. Barnett), Ricardo Lodge, Wimbledon, staged a number of plants of a brightly-coloured variety of Primula obconica of excellent culture. Sweet Violets were shown by Mr. J. J. Kettle, Mr. Baldwin Pinney and Mr. G. Zambra.

In their collection of well-grown Carnations, Messrs. Stuart Low and Co. included vases of several of their recent novelties with standard varieties. Messrs. C. Engelmann, Ltd., had good vases of Laddie, Red Laddie, Master Michael Stoop, Topsy and other sorts. Prominence was given to Spectrum, Red Laddie, Topsy and the new Wivelsfield Buttercup by Messrs. Allwood Bros., in their collection of Carnations.

Skimmias, dwarf Conifers, Veronicas, and a few alpines were shown by Mr. George E. P. Wood. Messrs. Wood and Sons had highly coloured little bushes of Berberis Thunbergii atropurpurea, Cotoneasters, Jasminum nudiflorum, and alpines. The Misses Hopkins showed Blue Primroses, and Messrs. Seaman and Sons had pot plants of Lobelia Wedgewood.

An attractively arranged collection of hardy shrubs was contributed by Messrs. L. R. Russell Ltd. Mr. Stephen Sims showed shrubby Veronicas, small Conifers and Polyanthus Barrowby Gem; and Mr. John Klinkert had good Topiary specimens fashioned in evergreen Box.

Pictures of flowers and gardens were shown extensively at this meeting, an exceptionally fine collection of water-colour paintings of uncommon and choice plants being staged by Sir Herbert Maxwell, Monreith; other exhibitors of paintings were Miss Ellen Warrington, Miss Edith A. Andrews, Miss Eva Savory, Miss Eva Kirkpatrick, Miss Winifred M. A. Brooke, Miss Alice F. Wilkinson, Miss Winifred Walker, Miss Margaret Linnell, Miss Marion Broom, Mrs. Henry Spencer, Miss Maude Angell, Mrs. M. Townsend, Miss Norah M. Skinner Miss Julia Fielding and Miss Adelaide L. Spark. Garden designs were staged by Mr. Percy S. Cane and Messrs. S. and G. Paris.

Garden tools and sundries were exhibited by Messrs. John Pincher, Messrs. Richard Melhuish, Ltd., Colas Products, Ltd., Women Traders, Ltd., Mr. C. A. Jardine, Messrs. F. Davidson and Co., Mr. B. J. Walker (Rolcut Secateurs) and several others. Jams and preserves were also shown at this meeting.

Fruit and Vegetable Committee.

Present: Mr. C. G. A. Nix (in the chair), Mr. Jos. Cheal, Mr. H. S. Rivers, Mr. R. H. Hall, Mr. W. F. Giles, Mr. J. Wilson, Mr. E. Neal, Mr. E. Beckett, Mr. A. Poupart, Mr. E. A. Laxton, Mr. H. Prince, Mr. H. Markham, Mr. F. Jordan, Mr. W. H. Divers, Mr. E. A. Bunyard and Mr. A. N. Rawes, Secretary.

A seedling Apple was exhibited before this Committee, but was thought to be no improvement on existing varieties.

Groups.

A magnificent collection of Grapes, in splendid condition, was exhibited by the Hon Vicary Gibbs (gr. Mr. Edwin Beckett), Aldenham House, Aldenham. There were three good bunches of Lady Hutt, and four of Muscat of Alexandria, while the black-fruited varieties represented were Alnwick Seedling, two grand bunches; Cooper's Black, three bunches of perfect fruits; Gros Maroc, Madresfield Court Alicante, Appley Towers, Prince of Wales and Lady Downe's. A splendid display.

BIRMINGHAM CHRYSANTHEMUM.

November 20, 21 and 22.—Notwithstanding the lateness of this Society's annual show, held in Bingley Hall, near the centre of the city of Birmingham, it is gratifying to record that this year's display was the biggest and best seen in the midland metropolis for many years, and rarely has the Chrysanthemum been shown in greater variety or better quality than on this occasion. Although Japanese varieties predominated, the Incurved, Decorative, Anemone-centred and Single forms were well represented. Competition in the special class for thirty-six Japanese blooms was particularly good. Decorated dinner tables were a feature, and friendly rivalry in the fruit and vegetable classes was very pronounced, particularly so in the allotment holders' sections. Honorary exhibits were numerous and added pleasing variety to a thoroughly good show, which was favoured by mild weather and a big attendance of visitors.

Open Classes (Plants).

There was only one entry—against three last year—in the class for a group of Chrysanthemums arranged, as grown, on a ground space of fifteen feet by six feet. The first prize was awarded to last year's winner—Viscount Cobham, Hagley Hall, Stourbridge (gr. Mr. J. H. Roberts), for a representative display which included the various sections into which the Chrysanthemum is divided. Among Japanese varieties, pink-coloured forms predominated, while yellow, pink and white Decorative and Single varieties were freely interspersed. The group was effectively edged with dwarf, bushy, profusely-flowered plants of Blanche Poitevine.

Cut Blooms.

Single-flowered Chrysanthemums are generally well shown at Birmingham, and the principal class provided for these popular varieties to which cut foliage and foliage plants are admissible, brought four very fine entries, which were shown on separate tables, ten feet by five feet; First, Mr. H. Woolman, Shirley, who had remarkably effective bunches of Mr. A. Robertson (pink), Elegant (apricot), Sportsman, Sandown Radiance, Mrs. Harry Woolman, Susan, Golden Seal, Fantasy and Reginald Godfrey; second, King's Acre Nurseries, Ltd., Hereford, who showed splendid examples of Bronze Molly, Golden Seal, Gorgeous, Bridgwater, Absolute and Mrs. J. Palmer; third, Mrs. Guthrie, Northampton (gr. Mr. P. Burr).

The principal class required thirty-six Japanese blooms in not fewer than eighteen varieties and not more than three blooms of any variety, one bloom in a vase; each of the seven exhibits occupied a separate table, twelve feet by four feet. The first prize, which included a Silver Challenge Shield and £15, was won by Colonel Gretton, M.P., Melton Mowbray (gr. Mr. A. Graham), who exhibited large blooms of Mrs. A. Holden, Mrs. A. Brown, Mrs. B. Carpenter (premier bloom in the show), Mrs. G. Drabble, Cissie Brunton, Red Majestic, Yellow Majestic, W. Turner, Prince Albert, Tom Abbott, Julia Louisa Pockett and Princess Mary; second, Lord Daresbury, Warrington (gr. Mr. C. E. Groves), whose big flowers included Yellow Majestic, Red Majestic, Mr. T. W. Pockett, Mrs. A. Brown, Tom Abbott, Louisa Pockett, Mrs. B. Carpenter and W. T. Turner; third, Captain R. B. Brassey, Northampton (gr. Mr. J. G. Quinn), for a nice lot of even-sized fresh flowers. His best specimens were W. Rigby, Queen Mary, Mrs. E. H. Pearce, Victory, Princess Mary and Yellow Majestic; fourth, The Dowager Lady Annaly, Holdenby House, Northampton (gr. Mr. D. Cameron), with a handsome set of young, fresh flowers.

The class for nine vases of Japanese Chrysanthemums in three varieties was well filled, there being eight first-rate exhibits. The last-named exhibitor was placed first, with magnificent specimens of the three Majestics; second, the Earl of Plymouth, Hewell Grange, Redditch (gr. Mr. F. Molyneux), who showed beautiful flowers of Mrs. R. C. Pulling, Louisa Pockett and Majestic; third, G. L. Waller, Esq., Finstall Park, Bromsgrove (gr. Mr. E. Avery), whose vase of Louisa Pockett was strikingly handsome.

There were eight entries in the class for twelve vases of Japanese Chrysanthemums in not fewer than nine varieties, arranged on separate tables of six feet by three feet. Cut foliage and foliage plants were allowed to be introduced for effect. The first prize was well won by Mrs. Rees Mogg, Stratford-on-Avon (gr. Mr. C. Kebborn), whose flowers were unusually large, beautifully fresh and well finished. Her varieties included Queen Mary, Majestic, Mrs. G. Drabble, Julia, Red Majestic, Sir Edward Letchworth and R. C. Pulling arranged over a bed of amber-shaded Chestnut leaves Ferns and Cotoneaster sprays; second, G. L. Waller, Esq. (gr. Mr. E. Avery), whose best flowers were Yellow Majestic, Red Majestic, Louisa Pockett, Mrs. A. Holden, Cissie Brunton and R. C. Pulling; third, Colonel Gretton, M.P.

Of the nine entries in the class for three vases of a pink-coloured Japanese Chrysanthemum, The Dowager Lady Annaly (gr. Mr. D. Cameron), excelled, with shapely blooms of General Petain; second, R. L. V. Sherwood, Esq., Newmarket (gr. Mr. J. Heath), with large, well-coloured specimens of Thomas W. Pockett; third, Major Harcourt Webb, Spring Grove, Bewdley (gr. Mr. W. Gaiger), with Stirling Stent. The best three blooms of a crimson Japanese Chrysanthemum came from G. L. Waller, Esq. (gr. Mr. E. Avery), who had intensely coloured flowers of Mrs. A. Holden; second, The Dowager Lady Annaly, with Thalia; third, Colonel Gretton, M.P., also with Thalia. There were nine grand entries in the class for three vases of a white Japanese Chrysanthemum. The successful exhibitor was the Earl of Plymouth (gr. Mr. F. Molyneaux), with beautifully fresh flowers of Louisa Pockett; second, the Earl of Lichfield, Stafford (gr. Mr. G. Smith), with Mrs. G. Drabble; third, Mrs. F. L. Wade, Kenilworth (gr. Mr. R. H. Rogers), with Louisa Pockett; fourth, Colonal Gretton, M.P., with Mrs. G. Drabble. The last-named exhibitor was placed first in the class for three vases of a yellow Japanese Chrysanthemum with very big, well-finished blooms of W. Rigby; second, Mr. T. Blower, Perry Barr, with huge specimens of Shirley Golden; third, the Earl of Plymouth, with R. C. Pulling. The winning exhibit in a class for three vases of any colour not mentioned above came from the Dowager Lady Annaly, whose flowers of Majestic were of great size; second, Colonel Gretton, M.P., with Red Majestic; third, Mrs. F. L. Wade, also with Majestic.

The best set of six varieties of Single Chrysanthemums was contributed by Mr. H. Woolman, who had beautifully set-up vases of Reginald Godfrey, Susan, Sportsman, E. Dimond and Mrs. W. J. Godfrey; second, Mr. J. G. Jenkins, Berkswell, whose flowers of Bronze Molly, Mrs. W. J. Godfrey, Reginald Godfrey, Robert Collins and Mrs. J. Palmer, were extremely good; third, the Dowager Lady Annaly. In a class for six vases of Decorative Chrysanthemums, six blooms in a vase, the first prize was won by Mr. H. Woolman, with superb specimens of W. Renshaw, Ruddigore, Monument, R.A., Sheba and Sungold; second, Mrs. Guthrie, who had very fine vases of December Gold and In Memoriam; third, Mr. E. J. Keeling, Small Heath.

The eight excellent exhibits of nine Single Chrysanthemums, arranged in vases for effect, were greatly admired. First, Colonel Gretton, M.P., who relied upon bronze-shaded flowers and sprays of Cotoneaster; second, Mr. J. G. Jenkins, Berkswell.

LOCAL CLASSES (OPEN).

Competition was satisfactory in most of the classes reserved for local growers. First prize in the class for twelve Japanese varieties was secured by Miss Harrold, Edgbaston (gr. Mr. A. Jones), with beautiful blooms of Majestic, Marjorie Woolman, W. Rigby, Queen Mary and Red Majestic; second, Major F. Cresswell Hughes, Sutton Coldfield (gr. Mr. C. Knowles); third, Councillor F. W. Daniels, Edgbaston (gr. Mr. W. G. Prosser).

In the corresponding class to the above, but restricted to growers residing within five miles of Birmingham, Miss Harrold was again successful, with flowers of the same high standard of culture; second, Councillor F. W. Daniels, who had Majestic and Mrs. B. Carpenter, in first-rate condition; third, Mr. F. G. Lucas, Bearwood.

The leading exhibit of two vases of Japanese Chrysanthemums, three blooms of each, were shown by Mr. T. Blower, Perry Barr, who and surprisingly good specimens of Shirley Golden and Mrs. G. Drabble; second, Major Cresswell Hughes; third Councillor F. W. Daniels, Miss Harrold (gr. Mr. A. Jones) who won first prize in a similar class for two vases of Japanese Chrysanthemums, was the only exhibitor in another class for twelve Incurved Chrysanthemums, and she was deservedly awarded first prize for shapely specimens of Boccace, Miss Thelma Hartman, Frank Tristian and Romance. Mr. J. G. Jenkins, Berkswell, was successful in a class for three vases of Single Chrysanthemums in three varieties, six stems in a vase. He exhibited handsome flowers of Reginald Godfrey, Mrs. H. Woolman and Edith Dimond; second, Miss Harrold; third, Mr. E. Powell, Bearwood. Mr. E. J. Keeling had no opposition in a class for three vases of disbudded Decorative Chrysanthemums in three varieties, but was placed second to Mr. J. G. Jenkins in a class for six varieties of Single Chrysanthemums.

TABLE DECORATIONS.

The two classes for decorated tables are always a feature at Birmingham. In one class, Chrysanthemum flowers only may be used, but in the other any kind of variety of flowers is admissible. The tables are six feet by four feet and arranged to seat six persons. The first of the two classes appealed to the greater number of exhibitors, there being thirteen entries; first, Mrs. A. A. Yates, Warwick, who had rustic silver ware decorated with yellow and crimson Single Chrysanthemums, relieved with delicate sprays of Ampelopsis Veitchii and Selaginella; second, Mr. S. A. Warren, Handsworth, who adopted the same general lines of arrangement and colour scheme; third, Mr. W. H. Hall, Northfield; fourth, Mr. J. Bostock, Moseley.

In the second class in which miscellaneous flowers were admissible, Mr. W. H. Hall won first prize with a delightfully arranged centre bowl of pink Carnations; second, Mrs. A. A. Yates, with pink Rose buds, Ampelopsis Veitchii, amber-tinted Strawberry leaves and sprays of Selaginella; third, Mr. S. A. Warren, who depended upon yellow- and bronze-shaded Single Chrysanthemums; fourth Sir William Bass, Burton-on-Trent (gr. Mr. H. E. House).

SPECIAL PRIZES FOR CHRYSANTHEMUMS.

All prizes in the three following classes were provided by Mr. H. Woolman, Shirley. The best of two exhibits of nine Japanese Chrysanthemums was contributed by Mr. J. G. Jenkins, whose set contained large shapely specimens of R. C. Pulling, Majestic and Mrs. B. Carpenter; second, Mr. F. Hudson, Selly Oak. Mr. A. Grove, Cradley, won first prize for six Japanese Chrysanthemums shown on boards; and the Dowager Lady Annaly beat three contestants n a class for a dozen Japanese Chrysanthemums; second, G. L. Waller, Esq.; third, Mrs. Guthrie

Mr. Woolman also offered a guinea for the best Japanese Chrysanthemum in the show (trade excluded), which was won by Colonel Gretton, M.P., with Mrs. B. Carpenter.

MISCELLANEOUS PLANTS.

The Earl of Plymouth won first prize for a dozen big, bushy, well-flowered plants of Begonia Gloire de Lorraine; second Neville Chamberlain, Esq., M.P., Edgbaston (gr. Mr. P. G. Catt). The same exhibitors were placed as named in a class for six Gloire de Lorraine Begonias. Neville Chamberlain, Esq., M.P., led in a class for six winter-flowering Begonias other than the Gloire de Lorraine type; Mrs. Guthrie was second.

In classes for (1) twelve Cyclamens, and (2) six Cyclamens, G. L. Waller, Esq., and the Earl of Plymouth were placed in the order named. All plants were of compact habit and profusely-flowered. J. W. Moore, Esq., King's Norton (gr. Mr. G. Moorman), won first prize for six scarlet Salvias. The best of four exhibits of six Primula sinensis came from G. L. Waller, Esq; Mrs. Guthrie was second, and Miss Harrold, third. G. L. Waller, Esq., was awarded first prize for a good set of six plants of Primula obconica. The Dowager Lady Annaly and T. Andrews, Esq., Lichfield (gr. Mr. W. A. Wait), won first and second prizes, respectively, for six table plants

FRUITS.

The three exhibits of British-grown fruits, each arranged on a table space of fourteen feet by four feet, made a good show. The first prize was won by the Studley Horticultural College, Warwickshire, with a handsome collection, which included good-sized bunches of well-finished Grapes, and large, beautifully-coloured Apples and Pears; second, Mr. Charles Gregory, Chilwell; third, Mr. C. W. Powell, Wareham, Hereford.

Miss E. M. Powell, Boughrood, won first prizes in classes for single dishes of Apples Annie Elizabeth, Blenheim Pippin, Bramley's Seedling, Charles Ross, Gascoigne's Scarlet, James Grieve, and a dessert variety not mentioned in the schedule, with Ellison's Orange; also second prizes for Cox's Pomona, Lane's Prince Albert and Newton Wonder. Mr. C. W. Powell had the winning dishes of Cox's Orange Pippin, Cox's Pomona, King of the Pippins, Peasgood's Nonesuch, The Queen and Rival. Mr. C. Gregory showed the best dish of Allington Pippin, and the Bishop of Worcester, Hartlebury Castle, had the choicest specimens of Bismarck. Mr. T. Bird, Roughley, excelled with Lord Derby; and Mr. H. Wallhead, Leamington, beat ten contestants in the class for Lane's Prince Albert. Canon Lea, Droitwich (gr. Mr. A. Ackrill) won first place Newton Wonder. H. G. Bois, Esq., Alcester (gr. Mr. A. E. Moss), had the best Warner's King; and Viscount Cobham (gr. Mr. J. H. Roberts) sent the best dish of culinary Apples not named in the schedule. The variety shown was Mere de Ménage.

The most successful exhibitors in the Pear classes were Lady Palmer, Wrexham (Beurré Diel), Captain R. B. Brassey, Northampton (Durondeau and Doyenné du Comice); the Bishop of Lichfield, Stafford (Pitmaston Duchess), and Mr. F. Anderson, Shirley, with Beurré Superfin.

Grapes were more numerous than for many years and of better quality. The Bishop of Lichfield, Stafford (gr. Mr. G. Smith), won first prize for three bunches of black Grapes; second, the Dowager Lady Annaly, Northampton; third, Lady Palmer, Wrexham (gr. Mr. S. J. Robbins). Alicante was the variety exhibited by each of the above competitors.

In the class for white Muscats, the Dowager Lady Bird, Solihull (gr. Mr. L. Perrett), took the lead; Colonel Heywood Lonsdale, Market Drayton (gr. Mr. H. Mills), was second, and G. L. Waller, Esq., was third. Mr. C. W. Powell, Wareham, showed the winning set of three dishes of culinary Apples, and three dishes of dessert Apples. Mr. H. Wallhead, Leamington, was second in the culinary class, and Mr. Guthrie (gr. Mr. P. Burr), second in the dessert class. First prize in the local class for two dishes of culinary Apples was won by Mr. R. Fowler, Bournville, and the best two dishes of dessert Apples—very good specimens of Cox's Orange Pippin and Charles Ross—came from Mr. H. W. Miller, Handsworth.

VEGETABLES.

Potatos were well shown, and competition in the class for six varieties proved to be very close. First, Major Harcourt Webb, Bewdley, with shapely tubers of Renown, King Edward, Majestic, Arran Comrade, Catriona and Abundance; second, H. G. Bois, Esq., Alcester (gr. Mr. A. E. Moss); third, Mrs. Guthrie, Northampton. Major Harcourt Webb was awarded first prizes in single dish classes for (1) Long Beet; (2) Carrots, and (3) Parsnips. Mr. W. Robinson, Garston, had the best Onions; and Mr. C. T. Bradley, Cannock Hill, showed the winning dishes of round and kidney Potatos. Mr. A. H. Hickman, Cookley, Kidderminster, won with Celery and Savoys; and Mr. C. Nix, Bournville, led with Round Beet. Lady Palmer (gr. Mr. S. J. Robbins) was first with Cauliflowers; and Mr. E. J. Keeling excelled with red Cabbages. Mr. F. Cartwright, Kidderminster, won first prize for Brussels Sprouts; and Colonel Heywood Lonsdale exhibited the best Leeks.

Nineteen classes were reserved for allotment holders and the prizes were provided through Mr. J. A. Duller. The two leading classes were for (1) six kinds of vegetables, and (2) four dishes of Potatos. Mr. W. Keeley, Nuneaton, and Mr. W. P. Orrill, Hinckley were leading prize-winners. Included in the single dish classes were many exhibits of high cultural skill.

Messrs. Sutton and Sons offered prizes for nine kinds of vegetables; first, Mr. A. H. Hickman, Cookley, Kidderminster, who had uncommonly good Leeks, Parsnips, Carrots and Celery; second, Mr. W. Hall, Burcot; third, Mr. W. Keeley, Nuneaton.

Messrs. Webb and Sons' prizes were offered for six kinds of vegetables; first, Mr. A. H. Hickman; second, Mr. W. Keeley; third, Canon Lea, Droitwich (gr. Mr. A. Ackrill).

Messrs. Dickson and Robinson offered prizes for nine specimens of their Premier Onion. First, Mr. W. Robinson; second, Colonel Heywood Lonsdale.

The first and second prizes offered by Messrs. Clibrans for six pots of Cyclamen were won by G. L. Waller, Esq. and Lord Plymouth in the order named.

HONORARY EXHIBITS.

Large Gold Medals were awarded to Messrs. Sutton and Sons, for fifty-two dishes of Potatos; Messrs. Gunn and Sons, for berried shrubs and cut Roses; Mr. H. Woolman, for Chrysanthemums and Floral Designs—a special commendation accompanied the Gold Medal to Mr. Woolman; Messrs. Waterer, Sons and Crisp, for hardy shrubs; Messrs. Blackmore and Langdon, for Cyclamen; Messrs. Hewitts, for model Japanese gardens and floral designs; King's Acre Nurseries, Ltd., for Chrysanthemums; King's Acre Nurseries, Ltd., for Apples and Pears; Messrs. Bakers, for hardy shrubs and floral designs; Messrs. Laxton Bros., for Apples and Pears; and Messrs. Clement Dally and Co., for Chrysanthemums, fruits and vegetables.

AWARDS.

Small Gold Medals were awarded to Messrs. D. Stewart and Son, for choice shrubs and rock garden plants; Messrs. W. Hopwood and Son, for Apples, Pears and Chrysanthemums; The Forest Orchard Nurseries, for hardy fruits and fruit trees; Mr. W. Leslie Carter, for cut flowers; Messrs. P. and F. Smith, for a rock and water garden; and Messrs. P. J. Harvey and Co., for vegetables, etc.

Silver-gilt Medals were awarded to Miss S. S. Thompson, for Cacti; Mr. F. Rich, for plants and flowers; and Mr. R. Scott, for hardy shrubs.

Silver Medals were awarded to Messrs. Kent and Brydon, for Potatos; and Mrs. S. Johnstone, for Cyclamen.

THE IRIS.

The annual meeting of this Society was held at the Grosvenor Hotel on Thursday, November 15. The meeting was followed by a dinner to which some thirty members and friends sat down; Sir William Lawrence, Bart., presided.

The Secretary, in presenting his report for the year, stated that since the previous annual meeting sixty new members had joined the Society. This is very encouraging, but before the Society can fulfil the career of usefulness it ought to serve, the membership list must be increased by at least another 250 names. He pointed out that the publications of the Society during the past year practically exhausted the annual receipts, and that as these were by no means all the advantages members received for their subscriptions, there was no question of not getting value for money. If another 250 names could be added these benefits could be substantially increased. The trials at Wisley were proceeding under satisfactory conditions, and the thanks of the Society were due to Mr. F. C. Brown, who, working under the direction of Mr. F. Chittenden, was undoubtedly responsible in large measure for the success. By arrangement, and in conjunction with the Royal Horticultural Society, it has now been decided to extend the trials to all forms of Iris sibirica, English, Spanish and Dutch Irises. With regard to the sibirica section, it has been decided to take the list that appears in Dykes' *Genus Iris* under this heading as the authority. There are at present 1,043 varieties of Bearded Irises on trial, and it is expected that there will be a considerable increase in this number during the coming year. The Royal Horticultural Society has now agreed that senders of new Irises for trial may, at the end of three years, claim the return of any surplus stock. One of the recent additions to the trials is a collection of thirty-four varieties of Caparne's "Intermediate" Irises, and Mr. Caparne has promised to complete this collection next spring.

The Iris show in 1929 is to be held in the New Hall (R.H.S.) on Thursday and Friday, June 6 and 7. A Challenge Cup, presented by Lady Gordon-Lennox will be offered in a new class. This class is to demonstrate the decorative value of Irises, and is open to all amateurs or professionals, members or non-members, and it is hoped florists will compete. Another Challenge Cup presented by Mr. W. Christie-Miller, is to be offered for the best collection of Iris species; this will also be open to all.

With regard to the work of the Nomenclature Committee, no formal report can be presented at present, as the work is still incomplete. Mr. P. R. Barr, the Chairman of the Committee, stated that over 1,800 names had been examined in detail, with particulars of origin and date of introduction where obtainable, but much remains to be done. So soon as practicable the list will be printed and submitted to all interested for their consideration, additions or revisions. The members of the French Committee are being approached for their co-operation, while the American Society is co-operating so far as is practicable. For the moment, any members who have new varieties to register should send their names to Mr. P. R. Barr, ar 12, King Street, Covent Garden, W.C., who will in turn pass them on to the American Society. This is important, as no new name is recognised in America if it is a duplicate of any name previously used.

The Treasurer, Major George Churcher, presented the accounts for the year, showing a balance of nearly £30 in hand, and mentioned that this balance would have been much less had it not been for the generosity of the Hon. Secretary who wished to bear a proportion of the expense of producing Bulletin No. 6. Both reports were adopted.

The following Officers and Committee were elected for the ensuing year:—President, Sir William Lawrence, Bart.; Hon. Secretary, Mr. G. L. Pilkington; Hon. Treasurer, Major George Churcher; Hon. Editor, Mr. George Dillistone; Hon. Auditor, Mr. L. Caldicott. Executive Committee:—Messrs. George Yeld, G. P. Baker, G. N. Bunyard, R. W. Wallace, P. B. Murrell, A. Perry, P. R. Barr and B. R. Long. Committee on Nomenclature:—Messrs. P. R. Barr, A. Perry, G. P. Baker and G. L. Pilkington.

A discussion on judging new seedling Irises and the difficulty of selecting a "best" amongst widely differing forms, resulted in the matter being referred to the Schedule Committee for consideration, together with the revision of the Schedule. The same course was taken with reference to the Dykes' Medal Award.

The President then asked Mr. George Dillistone to explain to the meeting the position with regard to the writings of the late Mr. W. R. Dykes. The Hon. Editor reminded the meeting that some time ago the wish was expressed that all articles that had appeared in various journals should be collected with a view to reprinting, if possible. Since that date he had been able to get together most of the articles, and was astonished at the amount of interesting information they contained. They were in such a condition, however, that no course that would render them available for perusal by the many members and others that wanted them, other than reprinting, was possible. He had therefore applied to the journals concerned, and had in every case received from the owners of the copyright permission to reprint in book form. Mrs. Dykes was also prepared to waive any rights she had in the matter. Now it was for the Society to decide what course should be taken. It was too costly an undertaking for the Society to meet out of its ordinary finances. Two methods were practicable. The first was to obtain a list of subscribers who would take one or more copies at the cost of production. The second to get guarantors for a fund adequate for the purpose of production and sell the book to all who wished for it. The members present signified their enthusiastic approval of the scheme for reprinting, and Mr. G. P. Baker undertook to raise the guarantee fund. The Hon. Editor was instructed to proceed forthwith in the preparation of the book for the press, and the matter was left in the hands of Messrs. G. P. Baker, G. L. Pilkington and George Dillistone to make such progress as was found possible towards early production.

NATIONAL CHRYSANTHEMUM.

The Floral Committee met at the Royal Horticultural Society's Hall, Vincent Square, on Monday, November 26, when eighteen novelties were submitted and the following awards made:—

First Class Certificates.

Aurora. II. 1.b.—A golden-bronze Decorative variety of fine substance; the florets are roundly pointed and have a slight upward turn.

Soni. V. 2.a.—A rich pink Single of particularly graceful and regular form, with a narrow white zone round the pale yellow disk.

Garnet King. II. 1.b.—An American-raised Decorative Chrysanthemum of regular reflexing form and intense blood-crimson colour.

Hilda Canning. IV. b.—A beautiful free-flowering Pompon variety, with dainty, evenly-formed, golden-bronze flowers borne in large sprays.

Triumph. III. a.—An extraordinary flower of large size and great decorative value. It is an Anemone variety, but the disk is flat and unusually widespread. The colour of the ray florets is terra-cotta, and the disk florets are of similar colour, but gold-tipped. All the foregoing were shown by Messrs. Keith Luxford and Co.

Splendour. V. 2.a.—A large and handsome Single variety of brilliant crimson-scarlet colour. The florets are wide and bluntly pointed Shown by Mr. H. Shoesmith, Junr.

Mrs. E. J. Keeling. III. a.—This is an attractive Anemone variety of fair size; the elegant flowers are wholly white and the disk is of good form.

Somerset. II. 1.b.—A reflexing Decorative variety of fine form and substance; the colour is golden-fawn. These two last varieties were shown by Mr. H. Woolman.

Gwen Rodda. V. 2.a.—This large variety was classed as a Decorative Single, to distinguish it from varieties of exhibition form. The flowers are large and the florets broad, their ends incurving prettily. Pure white, with deep yellow disk. Shown by Mr. J. Rodda, Oaklands, Oxshott.

BARROW-IN-FURNESS CHRYSANTHEMUM.

November 15.—The eighth annual show of the Barrow Chrysanthemum Society was held in the Old Town Hall, there being over four hundred entries. Although the season in north Lancashire is rather late, there was a very fine show. In the open classes the principal winners were:—Cut blooms—Mr. W. H. Christian (Gold Medal), Captain Fisher, Messrs. A. W. Thompson, M. Alahan and F. Sandford. Pot Plants—Messrs. A. W. Thompson, J. Clark, J. F. Smith and A. Nicholls. Decorative: Mrs. A. H. Benson (Bowl), and J. H. Farnham. Vegetables in the open classes were good, the competition keen, and the prizes well distributed.

In the amateur section, Mr. E. Oxley secured the Cup and Gold Medal for cut blooms, and Messrs. R. G. Coles, A. Nichols, J. Clark and J. R. Wright were prize-winners. Messrs. G. Oxley and McPherson won prizes for pot plants. In this section, vegetables were also good. In the novices' section, Mr. J. McPherson secured the Gold Medal.

Obituary.

Simon Campbell.—Northern Scottish gardeners, by whom he was highly esteemed, will learn with sincere regret of the death of Mr. Simon Campbell, gardener to Lady Forbes-Leith, Fyvie Castle, Aberdeenshire, which took place at his home, Oldwood Cottage, on Sunday, November 18. His illness was of short duration, a chill, with complications supervening, bringing about the end very suddenly. Born at Teanassie, Kilmorack, Inverness-shire, seventy-four years ago, Mr. Campbell entered upon his life work in the gardens at Beaufort Castle, the chief Scottish seat of Lord Lovat. His apprenticeship over, he engaged with the Earl of Wemyss, at Gosford House, Haddingtonshire, where he remained five years. Thence he transferred his services to the Duke of Atholl, at Blair Castle, Perthshire, where he had charge for nine years. Realising his lack of knowledge in forestry, he made this good by entering the forestry department of Messrs. Dickson and Co., Edinburgh, where he received a fine training. Then, in 1890, Lord Leith of Fyvie (then Mr. A. J. Forbes-Leith) appointed him to succeed Mr. Robert Farquhar as gardener at Fyvie Castle. Never was an appointment more thoroughly justified. In 1900, Mr. Campbell took up the combine duties of forester and gardener, and carried out much valuable work on the large estate. Apart from the forestry skill he showed in forming the now beautiful drives and avenues up to and around Fyvie Castle, he carried out extensive afforestation work in the woods of Fyvie. At the Braes o' Slack o' Causey and on Rothie Moor one has only to look around to see his monument. His title of "Overseer" was no empty one, for he had practically the guiding of all around outside the Castle walls, and right well did he perform his task. A man of deeply religious views, he took a prominent part in the affairs of Fyvie Parish Church, of which he was a leading elder. He was also representative elder to the Presbytery of Turriff, and on several occasions represented that body on the General Assemblies of the Church of Scotland, in Edinburgh. His sole survivor is an unmarried daughter, Mrs. Campbell having died fourteen years ago.

MARKETS.

COVENT GARDEN, Tuesday, November 27th, 1928.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz.	10 0–12 0
—elegans	10 0–12 0
Aralia Sieboldi	8 0—9 0
Araucarias, per doz.	30 0–40 0
Asparagus plumosus	12 0–18 0
—Sprengeri	12 0–18 0
Aspidistras, green	16 0–60 0
Aspleniums, doz.	12 0–18 0
—32's	24 0–30 0
—nidus	12 0–15 0
Cacti, per tray, 12's, 15's	5 0—7 0
Chrysanthemums per doz.	15 0–24 0
—white, per doz.	15 0–24 0
—yellow ,,	18 0–24 0
—pink ,,	21 0–24 0
—bronze ,,	12 0–18 0
Crotons, per doz.	30 0–45 0
Cyclamen, per doz.	24 0–36 0

	s. d. s. d.
Cyrtomiums	10 0–12 0
Erica gracilis, per doz.	24 0–30 0
— — 60's, per doz.	12 0–15 0
— — 72's, per doz.	6 0—8 0
—nivalis, per doz.	24 0–36 0
— — 60's, per doz.	12 0–15 0
— — 72's, per doz.	6 0—8 0
Nephrolepis in variety	12 0–18 0
—32's	24 0–36 0
Palms, Kentia,	30 0–48 0
—60's	15 0–18 0
Pteris in variety	10 0–15 0
—large 60's	5 0—6 0
—small	4 0—5 0
—72's, per tray of 15	2 6—3 0
Solanums, per doz.	15 0–18 0
— 60's, per doz.	8 0—9 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	10 0–12 0
—cuneatum, per doz. bun.	9 0–10 0
Anemone, St. Brigid, per doz.	5 0—8 0
Arums (Richardias), per doz. blooms	4 0—6 0
Asparagus, plumosus, per bun., long trails	2 6—3 0
—med. sprays	2 0—2 6
short ,,	— 1 0
—Sprengeri, bun. long sprays	2 0—2 6
med. ,,	1 0—1 6
short ,,	0 6—1 9
Autumn foliage, various, per doz. bun.	6 0–12 0
Camellias, white, per doz. blooms	2 0—2 6
Carnations, per doz. blooms	2 6—4 6
Chrysanthemums—	
—white, per doz. blooms	3 6—7 0
—yellow, per doz. blooms	3 6—6 0
—bronze, per doz. bunches	12 0–18 0
bronze, per doz. blooms	3 6—7 0
—pink, per doz. bunches	15 0–24 0
—pink, per doz. blooms	4 0—7 0
—single varieties, disbudded, per doz.	3 0—4 0
—single varieties, spray, per doz. bun.	12 0–18 0
Cornflowers, blue, per doz. bun.	3 0—3 6
Croton leaves, per doz.	1 9—2 6
Fern, French, per doz. bun.	10 0–12 0
Forget-me-nots, per doz. bun.	10 0–12 0
Gardenias, per doz. blooms	6 0—9 0
Heather, white, per doz. bun.	9 0–12 0
Lilac, white, per doz. sprays	5 0—6 0

	s. d. s. d
Lily-of-the-Valley, per doz. bun.	18 0–30 0
Lilium longiflorum, long, per bun.	2 6—3 0
— — short, per doz. blooms	2 6—3 0
—speciosum rubrum, long, per doz.	3 6—4 0
— — — short, per doz.	2 0—2 6
Marigolds, per doz. bun.	4 0—6 0
Myrtle, green, per doz. bun.	1 6—2 6
Narcissus, Paper White, per doz. bun.	6 0—8 0
Orchids, per doz.	
—Cattleyas	18 0–30 0
—Cypripediums	6 0—8 0
Roses, per doz. blooms—	
—Mme. Butterfly	3 0—5 0
—Columbia	3 6—5 0
—Golden Ophelia	3 0—4 6
—Richmond	3 6—5 0
—Roselandia	3 0—5 0
—Hoosier Beauty	5 0—6 0
—Molly Crawford	2 6—4 0
Smilax, per doz. trails	4 6—5 0
Violets, Prince of Wales, per doz. bun.	2 6—4 0
French Flowers—	
—Acacia (Mimosa), per doz. bun.	15 0–18 0
—Chilies, loose, per pad	4 0—5 0
—Eucalyptus foliage, per pad	5 0—6 0
—Marigolds, per pad	6 0—7 0
—Narcissus, Paper White, per doz. bun.	4 0—4 6
—Roses, Safrano, per pkt. 24's	2 0—2 6
—Ruscus foliage, per pad	5 0—6 0
—Solanum berries, loose, per pad	6 0—8 0
—Violets, Parma, large, per bun.	4 0—5 0

REMARKS.—The unfavourable weather conditions during the past week caused a general depression throughout this department, therefore supplies were amply sufficient to meet requirements. Roses advanced slightly in price towards the week-end, but other subjects show practically no alteration. The latest arrivals are Freesias and blue Irises from Guernsey, also a few Christmas Roses from a few growers. There is a prospect that white blooms will become more valuable during the next few days. Small consignments of Mistleto from Cornwall are already to hand, and also several boxes of green and variegated Holly. English Christmas trees are now available in various sizes, also some cellulose-painted trees which are very attractive in silver, gold and blue. French supplies are increasing daily; Paper White Narcissi are becoming much lower in price, while Marguerites and Marigolds are much finer in quality. A few pads of yellow Narcissi, Soliel d'Or, arrived on Friday—the first consignment in good condition. Parma Violets are also improving in quality, but the single sorts are not recommendable owing to the mild weather conditions, which also affected the Carnations and Roses. Solanum berries are selling more freely for decorative purposes.

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Asparagus, English	8 0–12 0
—French	14 0–15 0
—Italian	5 0—6 0
Beans—	
—Worthing, per lb.	1 0—1 6
—Guernsey, per lb.	1 0—2 0
—Madeira	2 6—4 0
Beet, per bag	5 0—6 0
Brussels Sprouts, ½-bag.	2 6—4 0
Cabbage, per doz.	0 9—1 3
Carrots, ½-bag	2 3—2 6
Cauliflowers, English—	
—Cornish, crates, 18's, 24's	5 0—8 0
Kent, 15's	4 0—5 0
French— St Malo	5 0—6 6
Celery, washed, per doz.	18 0 24 0
Cucumbers, doz.	15 0 18 0
Lettuce, Cabbage, English, doz.	0 6—1 0
—Indoor, crate	— 6 0
—Outdoor, crate	6 0—8 0

	s. d. s. d.
Mint, per doz. bun.	6 0—8 0
Mushrooms—	
—cups, per lb.	2 0—3 0
—broilers ,,	1 8—2 0
—" field "	1 0—1 3
Parsnips, cwt.	6 0—7 0
Peas, French, per boat	4 0—6 0
—hothouse, per lb.	4 0—6 0
Potatos—	
—English, cwt.	3 6—7 0
—Algerian new per box	7 0—8 0
—Azores, new per case	15 0–20 0
—new hothouse, per lb.	1 0—1 9
Savoys, per doz.	2 6—3 0
Seakale, punnet	2 6—3 0
Tomatos, English, New Crop—	
—pink	6 0—7 0
—pink and white	5 0—6 0
—white	4 0—4 6
—blue	3 6—4 0
—Guernsey	2 0—4 0
—Canary Island, per bundle	12 0–16 0

REMARKS.—The slight improvement recorded last week has been maintained throughout most sections of the market. Home-grown hothouse Grapes are selling at better levels, and supplies from Belgium are also showing values slightly in advance of recent figures. English Apples are not plentiful and better grade cooking Apples are inquired for. There is also a firmer tone for Cox's Orange Pippin, which have not been doing too well lately. Doyenné du Comice Pears continue to sell well at the recently improved prices. English Tomatos are not selling freely, except the highest grade new crop. Some consignments of old crop Tomatos are unsaleable. Cucumbers are scarce, with prices comparatively high. Hothouse Beans are selling freely and the few forced Peas available are soon disposed of. New Potatos from Guernsey are easier in price, increased quantities being marketed. Cauliflowers from St. Malo and the west of England sell fairly well, although there is room for improvement and colder weather will probably improve values in that section. Mushrooms have been arriving in larger quantities but prices remain steady at a satisfactory level. The first English forced Asparagus of the season has been available and was in good condition. There is also Asparagus on the market from France and Italy, all prices being comparatively high. We can record little or no improvement in the demand for green vegetables and the market would probably welcome a spell of harder weather as a tonic to values in that section. Forced Seakale is selling fairly well. Business in the Potato market remains stable, with a fair demand for best sorts.

GLASGOW.

The stormy and almost incessant wet weather of the past week had a restricting influence on business in the cut flower market, and as the daily supplies exceeded the demand, prices experienced a sharp set back. Chrysanthemum sprays varied from 2d. to 4d. per bunch, and disbudded blooms sold at the following prices:—Ada Brooker and Exmouth Crimson, 1s. to 1s. 6d. for 6's; Phyllis Cooper, 1s. to 1s. 3d.; white and lemon Thorpe, 6d. to 1s, 3d.; La Pactole, 9d. to 1s.; Almirante, 8d. to 1s.; Blanche de Poitou, 4d. to 10d.; and Rose Maid, 6d. to 9d. Pink Roses (Madame Butterfly and J. C. Mensing) were worth 2s. to 3s. 6d. per dozen; red and white Roses, 1s. 6d. to 2s.; Carnations, 2s. 6d. to 3s.; Richardias, 2s. 3d. to 2s. 9d. per bunch; English Violets, 1s. per dozen bunches; Lily-of-the-Valley, 1s. 3d. per bunch; Smilax, 6d. to 9d.; and Acacia (Mimosa), 7s. 6d. to 8s. 6d. per cane.

There was no improvement to report in the conditions prevailing in the fruit market. The first cargo of new season's Jaffa Oranges arrived in the Clyde early in the week, and contrary to expectation, they were slow to move at the very low price of 10s. per case. The fruits were quite sound, but somewhat light in colour. American and Canadian Apples continue cheap. Jonathans were worth from 7s. to 9s. per case; Delicious, 8s. to 10s.; McIntosh Red, 9s. to 9s. 6d. for fancy grade; Newtown Pippins, 10s. 6d. to 12s.; Blue Diamond brand, 14s.; York Imperial, best grades, 22s. to 28s. per barrel; ordinary, 22s. to 24s.; Winesap, ordinary, 12s. to 20s.; first grade, 27s. to 30s.; and Greenings (scarce), 30s. to 34s. Pineapples made 3s. to 4s. each; English Grapes, 2s. 3d. to 3s. 3d. per lb; English Muscats, 5s.; Kippen Grapes, 3s. 6d.; Block's Pears, 13s. per half-case, and 24s. per full case; English cooking Apples, 3s. 6d. per sieve; Grape Fruits, 20s. to 25s. per case; and home-grown Tomatos, 7d. per lb.

Vegetable prices were steady, Cucumbers selling at 12s. to 14s. per dozen; Lettuce, 2s. 6d. per dozen; Cauliflowers, 10s. per crate of 42; French Beans, 1s. to 1s. 3d. per lb.; Brussels Sprouts, 5s. per bag or net; and Mushrooms, 2s. 6d. per lb.

CATALOQUES RECEIVED.

AUSTIN AND MCASLAN, 91 to 95, Mitchell Street, Glasgow.—Alpine, Herbaceous and other Hardy Plants; Conifers, Ornamental Trees and Shrubs, Rhododendrons, Hedge Plants and Fruit Trees.

BRADSHAWS (LEICESTER), LTD., 10-20, Evington Road, Leicester.—Roses, Fruit trees, Trees and Shrubs.

Foreign.

CAV. UFF. MARTINO BIANCHI, Pistoia, Italy.—Fruit trees.

GARDENING APPOINTMENTS.

Mr. L. L. M. Dean, for the past two-and-a-half years Foreman at Rangemore Hall, Burton-on-Trent, and previously at Aldenham House, Elstree, as gardener to A. J. WOODROFFE, Esq., J.P., Rhode Hill, Lyme Regis. [Thanks for 2/6 for R.G.O.F. Box.—EDS.]

Mr. J. H. Nicholas, formerly gardener to A. C. HEXT, Esq., of Tredethy, Bodmin, Cornwall, has been appointed gardener to Mrs. HEXT, The Lodge, Tipton St. Johns, near Sidmouth, Devon.

Mr. F. Snell, for nearly twelve years gardener to C. T. PARKER, Esq., Quorn Lodge, Loughborough, Leicestershire, as gardener to T. STANLEY ADAMS, Esq., Ingledene, Swithland Lane, Rothley, Leicestershire.

ANSWERS TO CORRESPONDENTS.

CORDON APPLES.—*G. E. P.* Cox's Orange Pippin and Beauty of Bath Apples may be grown successfully as cordons on the Paradise or Douchin stock. They are about forty per cent. self-fertile. A good Apple to plant with them to ensure a good set of fruits would be Ellison's Orange, but if Stirling Castle is near at hand, no other variety need be included.

DISQUALIFICATION AFTER AWARDS HAVE BEEN MADE.—*P. C.* As we have so little evidence, it is difficult to determine the point raised in your letter, but if the Committee found that some special regulation had been overlooked by the judges, they would have a right to disqualify the exhibitor who had offended against such regulation.

CYCLAMENS FAILING.—*J. P.* The grubs in the soil you have used for Cyclamens are those of an Otiorhynchus, and have probably been imported in the leaf-mould used. The soil should be carefully washed from the roots and burnt. A new soil should be used in which the leaf-mould has been sterilised, so as to kill the grubs.

FIBRE PLANT AND HUMMING BIRDS.—*E. G. F.* Efforts are being made to determine the plant referred to, but, so far, without definite results.

LILY-OF-THE-VALLEY.—*G. Y. C.* The number of plants required to plant a bed twelve feet square will depend on whether you intend to plant single crowns or clumps. If single crowns, the lines should be six inches apart, and the plants three inches apart in the lines; at that distance, 1,152 crowns would be required. On the other hand, if you intend to plant in clumps, these may be six inches apart each way, taking 576 clumps.

NAMES OF PLANTS.—*T. S. D.* 1, Tibouchina semidecandra; 2, Cotoneaster frigida; 3, Jasminum sp., send when in flower.—*F. D. D.* We cannot undertake to name florists' flowers.

Communications Received.—F. R. D.—G. H. P.—S. W.—J. C.—F. W. B.—S. A.—A. C. B.—H. J.—W. H. J.—H. S. R.—F. H. W.—A. P.—H. S.—H. F. R.—G. S. T.—E. H. C.—G. H. F.

THE
Gardeners' Chronicle

No. 2189.—*SATURDAY, DECEMBER* 8, 1928

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COLOURED SUPPLEMENT PLATE.
Rhododendron oreotrephes.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 40·5°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, December 5, 10 a.m. Bar. 30·4. Temp. 46°. Weather, Dull.

The Eradication of Bracken.

THE aesthetic appeal of the Bracken Fern is great; in a shady wood, or mingled with Heather on a hillside, it has a charm which extends even to the picturesque name given it by Linnaeus, Pteris aquilina. But when it invades pasture land it becomes a serious pest, one which appears to have become more widespread in recent years, judging, at any rate, by the number of experiments that have been made to determine the best means of eradication. In a paper recently communicated to the Botanical Society of Edinburgh (*Trans.* Vol. XXX, pt. 1), Dr. W. G. Smith gives an account of investigations that have been going on for some years on the experimental farm of the East of Scotland Agricultural College with a view to finding a means of destroying the plant when it has become a pest. It appears that the Bracken has a remarkable root-system, there being a double set of rhizomes; one set deep-seated, with thick stems, and an upper set from which the fronds spring directly. The experiments proceeded on the assumption that regular cutting of the stems will exhaust the store of reserve material in the lower rhizomes, and Dr. Smith gives an account of what happened, but it is disappointing to learn that, even after three years of treatment, the Bracken has been reduced by eighty per cent. only. Before treatment, the average number of fronds was fifty per square yard; after the first cutting the number was reduced by one-half, but in the fourth year there were still eleven fronds per yard. On the other hand, the density was so reduced that the growth of grass had increased and the whole plot was open to stock. An examination of the rhizomes disclosed that the lower layer was practically gone, and that the plant was subsisting on the upper. It may be noted here that a similar experiment which was undertaken at Bangor some years ago resulted in a more complete destruction of the Fern; nevertheless, it is fairly obvious that unless cutting is practised annually, infestation will take place again. The experience of a farmer in the west of Scotland, narrated in *Farm Notes*, a journal issued by Messrs. Nitram, Ltd., suggests another line of attack. There can be little doubt that Bracken flourishes in a nitrogen-starved soil. In the *Kew Bulletin*, p. 4, 1921, will be found analyses of two Bracken-infested soils. In both there was no nitrogen as " nitrate," and only a trace as "ammonia." Anyhow, this farmer found that an application of sulphate of ammonia to a patch of Bracken produced such a luscious growth of grass that sheep penetrated the plot, and whether their hooves destroyed the Fern, or, as some might say, the ammonia acted as a poison (as it does to common lawn weeds) the result was the disappearance of the Bracken.

His Majesty The King.— The continued illness of His Majesty The King is causing deep concern among his people everywhere. The esteem and affection in which he is held is nowhere greater than among horticulturists, all of whom pray for His Majesty's speedy restoration to health, and offer their deepest sympathy to Her Majesty Queen Mary, H.R.H. The Prince of Wales, and all other members of the Royal family, in this time of great personal and national anxiety.

Our Coloured Supplement Plate.—With our current issue we have much pleasure in presenting a coloured illustration of the beautiful Rhododendron oreotrephes, prepared from specimens supplied by Lady Aberconway and the Hon. H. D. McLaren, from their beautiful garden at Bodnant, Taly-cafn, North Wales. The beauty of the flowers of this species, which is a member of the Triflorum series, is admirably depicted, but it is also very handsome in foliage, in fact, the whole plant is one of extreme beauty. It was discovered by Mr. George Forrest in 1906, on the Lichiang mountains, at an altitude of 11,500 feet, where it attains a height of twenty feet, so that the chances of it being hardy in the colder parts of this country are not too remote; it flourishes at Bodnant,

Fruit Grading and Marketing in Northern Ireland. — The Minister of Agriculture of Northern Ireland has announced that the Ministry is prepared, so soon as suitable opportunity offers, to introduce into the Parliament of Northern Ireland, legislation dealing with the grading and marketing of fruits. It is stated, however, that facilities for so doing will not be available until some time in the coming year.

Brockwell Park. — Endorsing the report of its Parks Committee, the London County Council has decided not to allow mixed bathing in the lake at Brockwell Park, because of the unsuitability of the site and the fact that cubicles for women bathers would destroy the ornamental character of the lake.

Afforestation in Wales.—In reply to a question in the House of Commons concerning complaints that the Forestry Commission was ignoring the possibilities of afforestation in Wales, Sir L. Forester-Walker—representing the Forestry Commission—stated that enquiries for afforestable land in Wales had met, on the whole, with success, but the causes militating against the acquisition of land for this purpose in the highlands of central Wales were: (1) The extensive areas subject to common rights; and (2) the high value for sporting purposes placed on land otherwise suitable for afforestation.

The Statue of Eros.—The beautiful statue of Eros, so well-known to Londoners when it occupied a position in the centre of Piccadilly Circus, may ere long return to its old site. For several years it has been in exile in the Embankment Gardens, near Charing Cross, and its position there is a charming one; nevertheless, Londoners generally will be glad to see Eros back again in Piccadilly now that the works connected with the new underground railway station have been completed.

War Graves of the Empire.—As a result of the huge demand for copies of *The Times* War Graves Number, which was issued on the eve of the Armistice anniversary, it will be republished next week in book form under the title of *The War Graves of the Empire*. The volume (ten inches by seven-and-a-half inches) consists of one-hundred pages, including nine full-page illustrations. The ordinary edition will be published at 2s. 6d. net, and a special edition at 7s. 6d. net. As announced in a previous issue of *The Gardeners' Chronicle*, this publication pays great tribute to the labour and devotion of the Imperial War Graves Commission.

Association of Parks and Botanic Gardens Superintendents.—On the occasion of the meeting of the London and District Branch of the above Association, to be held in the Royal Horticultural Society's Hall, Westminster, at 6.30 p.m., on Tuesday, December 11, Mr. Charles H. Curtis, F.L.S., will give a lantern lecture entitled, " Kew: Its History and Attractions." The chair will be taken by Mr. A. J. Ashmore.

North Lonsdale Rose Society.—Many readers will learn with regret that the above Society has ceased to function and that the " properties " it possessed have been advertised for sale. In pre-war times the Society held very fine exhibitions of Roses and Sweet Peas at Ulverston, when the late Mr. G. H. Mackereth was the popular Secretary. On one occasion the National Sweet Pea Society held a provincial show at Ulverston in conjunction with the North Lonsdale Society's exhibition—that was a great occasion.

Diseased Roses on Graf Zeppelin.— It is suggested in an American contemporary, in anticipation, that the development of trans-Atlantic air services will necessitate the expansion of the plant-quarantining work of the Department of Agriculture. Great alarm was caused among Washington officials when it was discovered by a Government inspector that a bouquet of Roses in one of the passenger's cabins of the Graf Zeppelin which visited the United States recently, was infested with anthracnose disease. The Roses were sent to the Horticultural Board and from thence to the Bureau of Plant Industry for identification of the disease, which had, apparently, already been discovered in New York State during the past summer. Already extensive investigations are being carried out by the Bureau of Plant Industry to determine the cause and cure of the disease.

Breeding and Distributing Parasites of Insect Pests.—In a recent letter to *The Times*, Mr. Walter Elliot, Chairman of the Research Grants Committee of the Empire Marketing Board, gave a brief but interesting account of the work that has been carried out by the laboratory in the breeding of beneficent parasites, which was established by the Empire Marketing Board, and is under the control of the Imperial Bureau of Entomology. Work has now been going on actively just over a year, and large consignments of these parasites have already been distributed in response to requests from Canada, New Zealand, Australia, South Africa, Kenya, the Falkland Islands and different parts of the British Isles. Between 20,000 and 30,000 larvae of the Pine Tortrix, ninety per cent. of which were parasite infested, were recently collected, chiefly from Brandon, in Suffolk, for despatch to Ontario. 20,000 parasites of the greenhouse White Fly have also been sent to Ontario; the parasites, in this instance, were exported on Tomato sprays, sent over in cold storage. Adult parasites of a fruit tree attacking scale insect were sent to Vancouver in small test-tubes and fed with Raisins on the journey. Three hundred larvae of a fly which is parasitic to the Wood Wasp (Sirex) were collected in Devonshire and despatched to the Cawthron Institute in New Zealand, in which country the ravages of the Wood Wasps are causing great alarm. 30,000 larvae of the Pear slug, infected with three species of parasites, which were collected mainly in the north of France, have also been sent to Australia and New Zealand. Hundreds of thousands of parasites of the sheep blow-fly have been exported to Australia, South Africa and the Falkland Islands. Other recent exports include parasites of Woolly Aphis of the Apple, sent to India and Kenya Colony, and of the Earwig, despatched to New Zealand and Canada, The services of three Australian scientists, from the Commonwealth Department of Entomology, have been enlisted, and they are at present carrying out various researches at the laboratory. Dr. Myers, a member of the staff at Farnham Royal, has gone to the West Indies to deal with tropical parasites, and to organise the distribution of them between the various islands and British Guiana. The possibilities of conveying a parasite of the Pink Boll Weevil from the Sudan to the Barbados, are also receiving consideration.

International Yearbook of Agricultural Statistics, 1927-28.—The International Institute of Agriculture at Rome has recently published its *International Yearbook of Agricultural Statistics* 1927-28. This *Yearbook* has from the first been a special feature among the publications of the Institute, the first volume being issued in 1910 and others following in regular succession despite the special difficulties of the war period. The present *Yearbook*, as usual, contains a mass of agricultural and horticultural data. An idea of its comprehensive nature may be gained by a glance at the subjects of the nine chapters into which this stout volume of nearly 600 pages is divided. These are as follow :—(a) Territorial area and population as in 1913 and in 1927 for 220 countries ; (b) Apportionment of areas, agricultural production and numbers of livestock in 1926 and 1927, for 47 countries ; (c) Area, production and yield per hectare for 35 agricultural products for all countries (averages for 1909-1913 and 1924-1927 respectively) ; (d) Numbers of the nine principal species of livestock for various countries ; (e) Data of imports and exports relating to 40 vegetable and five animal products for various countries ; (f) Prices for all the chief agricultural products ; (g) Ocean freight rates for cereals and Cotton ; (h) Production, trade and consumption of chemical fertilisers ; (i) Rates of exchange. The statistical tables are summarized and explained in the introductory chapter, and the work as a whole will be found to be not only of great practical interest to persons directly occupied in agriculture, trade and finance, but also of very real assistance to all students of world economic problems as they present themselves to-day.

Restoration of the Leningrad Botanic Garden.—We are glad to learn that the Botanic Garden at Leningrad is now fast recovering from the damage sustained during and after the war, due to lack of labour, shortage of heating and other materials, and generally difficult circumstances. The large Palm-house, practically all the plants in which were destroyed by the cold, was replenished during the years 1924-26, so that this house is now again in good order. The Palms are watered from above by a new system worked by an electric motor placed in the house ; by means of a single switch, the whole house can be watered as by a gentle rain. Next summer the Fern-house is to be entirely rebuilt and enlarged, as the great stems of Dicksonia antarctica are pressing their crowns of fronds against the roof of the house, which is, besides, too narrow. The ancient specimen of Todea barbara has been replanted, and is now in full frondage ; this Todea is the great admiration of visitors on account of its great age. The Cacti, which have been very much neglected, have been overhauled and greatly increased, chiefly by seedlings ; there are now about twelve hundred kinds, represented by over four thousand specimens. Some of those raised in 1925-6 are now in bloom. Other important improvements include the formation of a permanent way to the temperate houses, whose inmates are placed in the open during the summer months ; even the largest plants in tubs can now be moved easily and quickly.

Mr. John Oliver.—A few months hence, Mr. John Oliver, of Underwood House Gardens, Kilmarnock, Ayrshire, will, we hope, reach his eightieth birthday, but notwithstanding his advanced age, he is still able to carry out his duties as gardener to the Kennedy family, a family he has served during three generations, and for a total period of fifty years. He recently completed his jubilee of service at Underwood, and this interesting event was remembered by those he has served so long, when the members of the Kennedy family presented him with a suitably engraved silver bowl and a handsome wallet well-filled with treasury notes, while Mrs. Oliver received a gold wristlet watch. Mr. Oliver was apprenticed at Oxenford Castle, where he spent five years under the late Mr. Anderson ; a further period of five years was spent at Dunira in Perthshire. He then became gardener at Bassindean, in Berwickshire, and eighteen months later took charge of the gardens at Ormiston Hall, Haddingtonshire, where he remained until appointed gardener at Underwood, in 1878. Mr. Oliver holds a fine record of able and loyal service, and has won the respect and esteem of his employers and of a wide circle of friends.

MR. JOHN OLIVER.

Control of Club Root of Brassicas.—A series of experiments have been conducted by the Staffordshire Farm Institute during the past year with a view to establishing control methods of this widespread and troublesome disease, and very satisfactory results have been obtained. Treatment with mercuric chloride solutions has proved most effective in the prevention and control of the disease. At one centre, 30,000 Cauliflower plants were treated with mercuric chloride. In the first place, the seed drills were watered with a solution (one ounce of mercuric chloride to six gallons of water), and so soon as the seedlings appeared they were watered with a similar solution on two occasions, at an interval of a fortnight. Previous to being planted, the roots were placed in the solution for about one minute. The cost of the mercuric chloride is given at 1s. 4d. per ounce, and it is stated that three ounces is sufficient to treat plants on two acres. The crop so treated matured and was practically free from disease, yet in an adjoining field, also devoted to Cauliflowers, the disease was rampant. Root maggot and black leg were also controlled effectively by this treatment. At another centre, where last year the land was so badly infested that the crops—Brussels Sprouts, Cabbages and Broccoli—were a complete failure; after treatment, as prescribed above, this year's Cauliflower crop matured to perfection and the disease was checked, while there has also been a decided improvement in the Savoy crop. It is recommended that the seedlings be watered overhead ten days after germination with a solution of one ounce in ten gallons of water. This should be repeated seven days later, and again a few days before planting out. Among the precautions to be adopted when employing this treatment are (1) only finely-powdered material should be used ; (2) mercuric chloride or corrosive sublimate must not be confused with the insoluble calomel, or " mild mercuric chloride " as it is sometimes termed by dealers—to avoid this possibility the purchaser should always specify corrosive sublimate rather than mercuric chloride ; (3) use enough solution to moisten the soil thoroughly about the bases of the seedlings ; (4) do not water the seedlings as they are germinating, but allow about ten days to elapse ; (5) in the case of uneven germination, or on extremely sandy soil, a dilution of one ounce in fifteen gallons should be used to insure greater safety to the young plants, and (6) corrosive sublimate is a deadly poison, and should be treated as such. However, it is no more dangerous than many other poisons in common use, and the mere fact that it is a poison should not deter growers from using it.

Dover's Hill Purchased.—We learn that the Committee of the National Trust has been able to complete the purchase of Dover's Hill, a property of great natural beauty and of considerable historical value, situated near Chipping Campden, Gloucestershire, and so has secured it for the public. An appeal was made in *The Times* some two years ago for the sum of £4,400 in order to save this beautiful spur of the Cotswolds, and the response by the residents in the neighbourhood was very encouraging, due largely to the activities of Mr. F. L. Griggs, of Chipping Campden. However, a considerable sum was still required, when Professor G. M. Trevelyan generously made himself responsible for the amount needed, some £1,650, and so made it possible for the National Trust to carry the scheme through and complete the purchase.

Stanmore Common.—Yet another beautiful stretch of woodland and open spaces has been acquired for the use and enjoyment of the public in Stanmore Common, which is situated near Hendon, and comprises, in all, about one-hundred-and-fifty acres. This has been secured by the purchase of the manorial rights by the Hendon Rural District Council.

A New "Pharmacopoeia."—We understand that the General Medical Council has appointed a commission to prepare the text of a new *Pharmacopoeia* for submission to the Council. The Commissioners appointed are :—Dr. A. P. Beddard, M.D., of Guy's Hospital (Chairman) ; Mr. R. R. Bennett, B.Sc., Chairman of the British Pharmaceutical Conference and Technical Director of British Drug Houses, Ltd. ; Dr. J. H. Burn, M.D., Director of the Pharmacological Laboratory of the Pharmaceutical Society of Great Britain ; Professor F. R. Fraser, M.D. of the University of London ; Dr. H. G. Greenish, D.Sc., Pharmaceutical Editor of the *British Pharmacopoeia*, 1914, and Professor of Pharmaceutics in the University of London ; Dr. J. A. Gunn, M.D., Professor of Pharmacology in the University of Oxford ; and Mr. T. Tickle, B.Sc., Public Analyst to the County of Devon.

Potato Manuring Tests.—A series of Potato-manuring tests were laid down in various counties in Scotland last spring, and the acreage results from ten centres were published recently in the *Glasgow Herald*. On land that was first given a dressing of farmyard manure, the crops resulting from the various applications of artificial manures were as follows :—(1) no artificials, 7 tons 11 cwts. ; (2) 2 cwts. each of sulphate of ammonia and potash, and 3 cwts. of superphosphate per acre, 10 tons 17 cwts. ; and (3) 3 cwts. each of these fertilisers, 11 tons 17 cwts. On land which received no farmyard manure, the results were :—(1) no artificials, 5 tons 8 cwts. ; (2) 3 cwts. each of sulphate of ammonia and potash and 4 cwts. superphosphate, 11 tons 9 cwts. ; and (3) 3 cwts. of sulphate of ammonia and 4 cwts. superphosphate, 7 tons 17 cwts. The complete artificial dressing, it will be seen, increased the crop by 6 tons 1 cwt., but when potash was left out the increase was only 2 tons 9 cwts. Summarising the above results it may be stated that :—(a) good crops of Potatos may be grown without the application of farmyard manure, provided the artificials are balanced and adequate ; (b) the important manurial factors are nitrogen and potash, phosphates being of less importance ; (c) fairly large quantities of ammonia, even up to 4 cwts. per acre, may be used, provided an equal quantity of potash is given ; (d) the highly concentrated forms of potash, *i.e.*, sulphate and muriate, are best for Potato growing ; and (e) a Potato compound manure should contain at least ten per cent. pure potash—many leading Potato growers in Scotland are using up to sixteen per cent.

Co-operation on the Riviera.—As from November 18, some forty of the largest exporters of fresh flowers on the Riviera have formed themselves into a syndicate with the object of facilitating their business of packing and despatching the flowers for which the Antibes-Nice-Cannes district is so famous. The trade mark of the new combination will be "Radiaflor," and the members anticipate that close co-operation will lead to considerable speeding up of the despatch of flowers, a point of the utmost importance in this particular trade. Incidentally, it may also lead to a slight decrease in prices, due to economy in management.

Gifts to Bath Parks.—Evidence of the interest taken in the parks and gardens of Bath, both by visitors and citizens, is shown in gifts to the Parks Committee during the past week or two of many thousands of Daffodils and other bulbs, as well as choice Rose bushes sufficient to stock an entire bed in a new Rose garden which is about to be laid out near the Botanic Gardens.

Legacies to Gardeners.—The late Mrs. Rose Charlotte Vicary, of The Knoll, Newton Abbott, who died on August 12, left £50 to her gardener, Mr. Henry Everitt.—The Rev. Ernest Austin Chattock, of Salt Vicarage, Stafford, who died on September 21, left £50 to his gardener, Mr. John Turnpenny.—The late Mr. Duncan William Hume Skrine, of Horsley Court, near Stroud, who died on July 27, left £100 to his gardener, Mr. Edwin Slade.—The late Mr. James Hinchliffe Fielding, of Maxwell Road, Northwood, who died on August 8, left £50 to his gardener, Mr. Herbert Lewis.

A Watsonia Society.—Our American friends have many floricultural societies, and have now added another to the list, viz., a Watsonia Society for the purpose of encouraging the raising and cultivation of Watsonias, and of bigeneric hybrids between Watsonia and Gladiolus.

Washing Spray Residues off Fruits.—After experiments with commercial fruit-washing machines for the removal of the spray residue from Apples and Pears, conducted over a period of two years at the Oregon Experimental Station, it has, according to the *Canadian Horticulturist*, been fairly definitely established that washing of the fruits is superior to mechanical cleaning or brushing. The fruits are washed and cleansed in a weak solution of hydrochloric acid—one to two gallons of acid to one hundred gallons of water,—and from the acid bath the fruits pass through a rinsing tank of water and then through a pressure spray of cold water. If the spray residue on the fruits is so concentrated as to necessitate the use of a strong acid solution, the addition of neutralising reagents such as baking soda or finely ground limestone to the water in the rinsing tank is advised. It is stated that no injury to the fruits results from proper washing, and the cost is about one to five cents per box. Owing to the waxy layer being formed on Apples after they have reached maturity, it is advised that the fruits be washed so soon as they are ripe, otherwise the wax may prevent the removal of the spray residue.

Retirement of Mr. McIver.—On the occasion of his retirement after thirty-three years' service as Superintendent of Queen's Park, Glasgow, Mr. McIver was entertained to dinner by his colleagues in the City Parks Department, on November 26, and presented with a wallet of Treasury notes. Mr. W. Besant, Director of the Glasgow Parks, presided, and in making the presentation testified to the thorough manner in which Mr. McIver had discharged his duties to the Corporation and the public. Although he was strict with his employees, he was not a hard task-master. He appreciated the services of the man who looked after his charge and did his duty, but woe betide him if he neglected his work. In his reply, Mr. McIver made interesting reference to the changes that had taken place in the conditions of service. When he was appointed there were no bowling greens, no tennis courts, no football pitches, etc. Later in the evening, Mr. Besant presented Mr. George Horscroft, Curator of Glasgow Green, with a gold watch on the occasion of his appointment as Superintendent of Parks at Belfast.

Appointments for the Ensuing Week.—MONDAY, DECEMBER 10 : Birmingham and Midland Gardeners' Association's lecture ; United Horticultural, Benefit and Provident Society meets. TUESDAY, DECEMBER 11 : Royal Horticultural Society's Committees meet ; East Anglian Institute of Agriculture lecture. WEDNESDAY, DECEMBER 12 : Sheffield Chrysanthemum Society meets ; Wimbledon Gardeners' Society meets. FRIDAY, DECEMBER 14 : Royal Horticultural Society of Ireland meets. SATURDAY, DECEMBER 15 : Leeds Paxton Society meets.

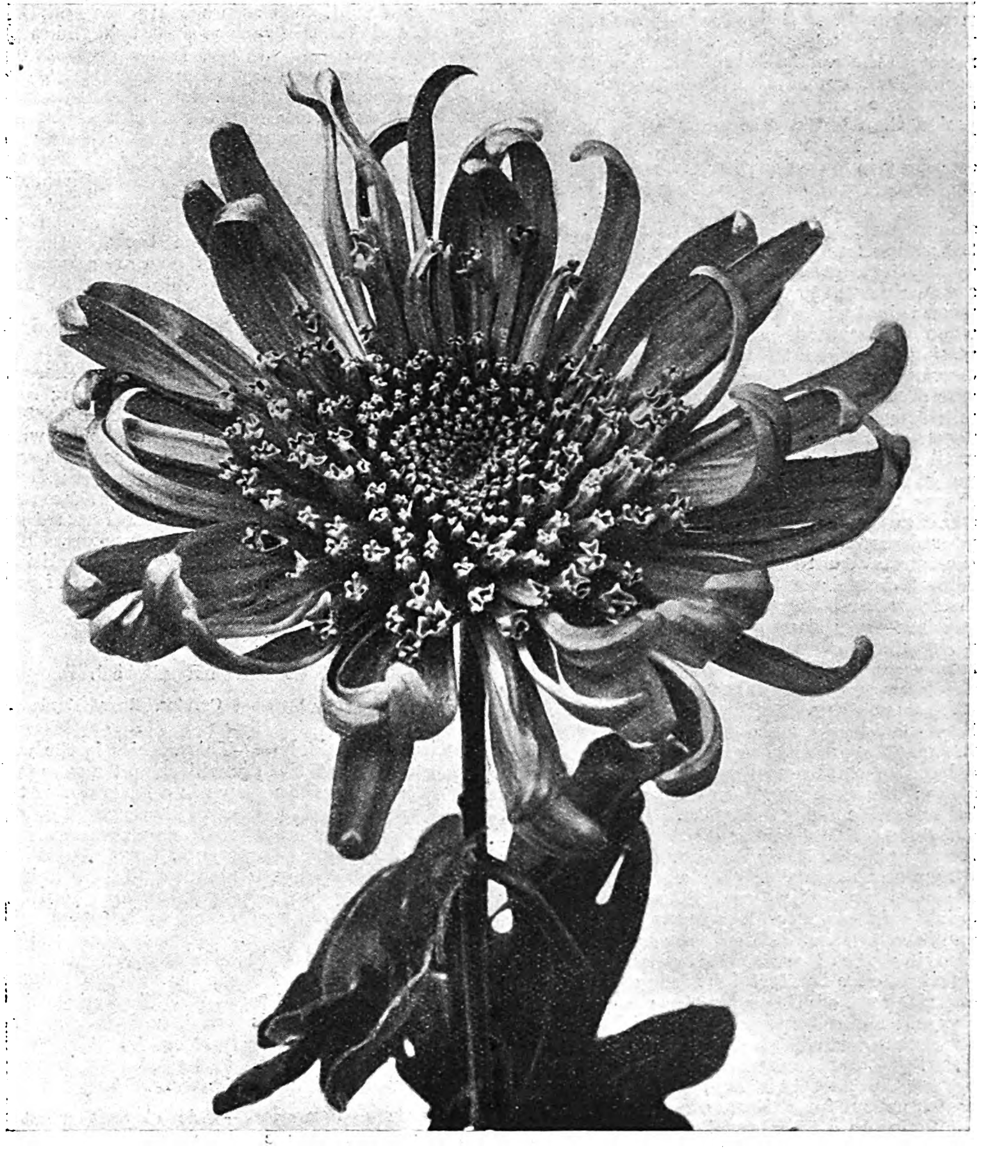

FIG. 200.—CHRYSANTHEMUM TRIUMPH.

N.C.S. First Class Certificate, November 26 ; R.H.S. Award of Merit, November 27. Flowers terra-cotta, with golden tips to the disk florets. Shown by Messrs. Keith Luxford and Co.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Abutilon striatum.*—It may be interesting to learn that this, planted at the foot of a wall with a western exposure, stood last winter, with a slight protection of Spruce branches, and flowered, though not profusely, this summer. I may also mention that the white variety of Salvia patens grows and flowers very freely when planted out in the open border, and both last year and this I have gathered well ripened seeds. Indeed, I have raised a number of seedlings from seeds thus saved. *Morningside, Edinburgh. Gard. Chron., December* 3, 1853.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

The Cool House.—Specimens of Odontoglossum in the cool house are in various stages of growth, and the mild weather which prevailed during the greater part of November was beneficial to the growth of these plants, as ample fresh air could be admitted without any risk of unduly lowering the temperature or causing strong draughts. So long as the weather remains mild, very little fire-heat will be needed to maintain the required temperature and keep the atmosphere buoyant, and under present conditions the compost remains moist for a longer period than is the case when more fire-heat is used. Also, less damping down is required, especially in low-lying districts, where the necessary watering of the plants often causes sufficient atmospheric moisture on mild days. Water should be afforded to the roots with care, allowing the compost to become fairly dry between each application, although long periods of dryness are detrimental to Odontoglossums. The period when Odontoglossums require the most water is when well-rooted specimens are just completing their growth and the flower-spikes are developing. Ample supplies should then be given each time the compost becomes dry, until the flowers are fully expanded. After the flower-spikes have been removed, less will suffice until growth is again well advanced, although no general resting period should be allowed. Plants that were potted recently only require small quantities of water, just sufficient being poured around the edge of the pots to moisten the compost, until the roots are growing freely. Allow a free circulation of air, but avoid strong draughts and fluctuations of temperature; any necessary damping-down should be done when the temperature is rising. The plants require all the light possible, and the roof-glass should be cleaned both inside and out whenever it becomes dirty. As the flower-spikes appear, they should be protected from slugs by placing the plant over a saucer of water, or wrapping a band of cotton-wool around the base of the spike; the wool should be renewed occasionally to ensure a rough surface. Lettuce leaves, cut Potatos, or a saucer of bran may be used for trapping slugs, which should be sought for with a lamp at night. The small yellow thrips are very partial to cool house Orchids and quickly do considerable damage to the foliage and flower scapes. If dry, clear days are chosen, spraying the plants with a weak nicotine solution once a fortnight should prove an effective method of keeping these pests in check, carrying out the operation early in the day to allow the moisture to dry off the foliage before night. Should unfavourable weather set in before the foliage is dry, more heat should be turned on for a time, otherwise fumigating the house on a quiet evening is a safer method during inclement weather, but not so effective. The varieties of Odontoglossum crispum xanthotes are rather more delicate than the typical forms, and should be grown at the warm end of the house, where closer conditions may be afforded them. These albino forms are very free-flowering, but unless the plants are in robust health, the flower-spikes should not be allowed to develop fully, and even on strong plants the expanded flower spikes should be removed if there is any sign of the leading bulbs shrivelling.

THE KITCHEN GARDEN.

By Allan Falconer, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Preparations for Seed-Sowing.—At the time of writing, exceptionally wet and stormy weather is prevailing all over the country, and on many days it is not desirable, or practicable, to work on the land. On these occasions much useful work may be done in preparing the soils and materials for early seed-sowing, thereby saving much valuable time when fine weather prevails. A stock of the various types of soil should be put under cover in a shed. All seed-boxes should be repaired and sterilised, and if new ones are required they may be made. Pots should be washed, a small amount of common soda being added to the water to prevent, in some measure, the pots becoming slimy when in use. Large labels for kitchen garden crops may be prepared; but it is, perhaps, more economical to buy the smaller ones by the thousand. All houses, pits, and frames should be washed down with soapy water to which has been added a little petroleum emulsion, before being used for new crops; and as a preventive against mildew attacks they should be vaporised with sulphur. In sheds and outhouses many tasks may be found, such as preparing Pea and Bean sticks and stakes of various sizes, tying mats and whitewashing—to mention but a few. It is a good plan at this season to inspect the tool shed, executing any necessary repairs and replacing any worn-out tools. All machinery should be overhauled and made ready for use when required. In all gardens the tool shed should be the pride of the foreman, and he should see that all breakages are made good, and everything kept clean and tidy. Every workman should have a set of tools, of the best make and suitable to his own requirements, and there should be suitable racks to hang them on. They should be cleaned and oiled after use, reasonable time being allowed for this purpose.

Root Stores.—These should undergo a thorough inspection, and have all bad or decaying roots removed. All seed Potatos should be set up in trays and stood on an open bench, where light and air may reach them, as it is very desirable that strong and sturdy growth should be made from the commencement. Where room exists in cold houses, some of the forward sets may be planted, either in pots or boxes. They should be grown under very cool conditions, so that the tubers make an abundance of roots before top growth advances.

PLANTS UNDER GLASS.

By J. Coutts, Assistant Curator, Royal Gardens, Kew.

Camellia reticulata.—This species is the most beautiful of all the Camellias, and although it may be successfully grown in a large pot or tub, it is most effective when planted out in a well-drained border in a cool conservatory, in a compost of equal parts good fibrous peat and loam. This species is rather scarce for it is by no means easy to propagate, an operation best effected by side-grafting on to a free-growing stock of C. japonica. Success with grafting depends largely on the use of the right sort of wood; the base of the scion, at the point of union, should be of two-year-old wood; scions of the current year's wood, unless very well matured, generally give poor results. The grafted plants should be stood in a close case, in a cool house, until union takes place.

Nandina domestica.—This elegant plant is easily raised from cuttings or seeds, and well-grown plants in five-inch pots are very effective for general decorative purposes. This plant also succeeds very well when planted out in a bed or border in a cool conservatory; it only requires cool house treatment, being practically hardy in the warmer parts of this country. The young growths are tinted rosy-red, while with full exposure to sun and air, the mature foliage assumes varying attractive shades of red.

Lomatia ferruginea.—Well-grown specimens of L. ferruginea, in five- or six-inch pots, are very elegant, while they are also very effective when planted out in a cool house or grown in large pots or tubs. Like many other members of the Natural Order Proteaceae, this subject is by no means easy to propagate, cuttings of ripened wood, however, forming the best method. Choose the small, lateral shoots and insert the cuttings singly in small pots, in a compost of sandy peat, standing them under a bell-glass in a cool house. Good drainage and careful watering are essentials to success, while a suitable potting medium consists of about equal parts good fibrous loam and peat, with enough sand to keep the whole open and porous.

Lomatia silaifolia.—This species is a much smaller-growing plant than the preceding, seldom exceeding two feet in height, but with its finely-divided foliage it forms a very attractive plant for the stage, or for planting out in a well-drained border in the conservatory. It is propagated by means of cuttings of the smaller shoots, inserted in pots of sandy peat and stood under a bell-glass in a cool house; in my experience this plant is much easier of propagation than L. ferruginea. Generally, Lomatias require cool greenhouse treatment; both these species are practically hardy in favoured parts of the British Isles.

Pernettya mucronata.—This subject, together with Aucuba japonica vera and Skimmia japonica, although all hardy plants, are very useful for conservatory and general decorative purposes. Where small specimens are required, well-berried plants may usually be purchased, and they give a welcome variety at a period when flowers are by no means plentiful. If not pot-grown, they should be placed in receptacles of suitable size so soon as they are received, afterwards watering them in well.

HARDY FRUIT GARDEN.

By T. E. Tomalin, Gardener to the Earl of Bessborough, Stansted Park, Emsworth, Sussex.

Bush Fruits. — Planting and transplanting has been greatly delayed by the incessant rain experienced during October and November, therefore every fair period during the present month should be utilised until this work is completed. When replanting a permanent plantation it is often advisable to find a temporary home for the best of the old bushes in some out-of-the-way corner, where they will continue to provide a supply of fruits while the young bushes are becoming established. If these old bushes are carefully moved to their new position before Christmas, they may be expected to fruit quite well the following season, but transplanting should be carried out carefully to obtain this result.

Pruning.—The work of pruning bush fruits may be taken in hand now. The Gooseberries may be grouped with the Red and White Currants, all three requiring similar treatment in this respect. To build up shapely bushes, the best placed new growths should be selected to form the branches, and pruned back to a length of six inches; too many should not be selected, and they should be evenly disposed over the bush. The remainder of the young growths should be pruned back to within an inch of their base, to form fruiting spurs. When dealing with older bushes, all dead branches and dead spurs should first be cut out, and a sufficient number of strong young shoots springing from the base should be retained to replace worn-out or unfruitful branches.

Black Currants.—These bear their fruits on the shoots made during the previous season, which should therefore be retained intact. Young bushes require very little pruning for the first two or three years, but after this a certain amount of thinning is necessary annually, the extent varying, of course, with the amount of growth made. Old, worn-out branches, and those which cross others, should first be removed and the remainder thinned sufficiently to allow the accession of air and sunlight to all parts of the bush.

Insect Pests and Fungus Diseases. — Where insect pests have been troublesome during the past season, or where the presence of American Gooseberry mildew is suspected, the precaution should be taken to burn all prunings immediately. In the cramped condition under which bush fruits have to be grown in many kitchen gardens of small area, much good with regard to pest and disease control will often accrue from the removal of a few inches of the surface soil and its replacement with fresh material, such as is often available from inside borders of vineries or Peach-houses, when replanting is being done. Before the fresh soil is spread, the area under the bushes should be well sprinkled with fresh lime.

THE FLOWER GARDEN.

By J. G. Weston, Gardener to the Duke of Devonshire, Chatsworth, Bakewell, Derbyshire.

Violets in Frames.—These should be kept scrupulously clean and have the surface soil stirred occasionally. If water is required, choose a bright, drying day, and give the plants a thorough watering, remembering that healthy Violet plants require plenty of moisture at the roots. Afford free ventilation during the warmest part of the day, but reduce it before the temperature falls too low in the afternoon. Arrange for plenty of covering with mats or canvas covers during frosty weather, avoiding fire-heat so much as possible, and using it only as a last resource during spells of exceptionally severe weather.

Rhododendrons.—These are often associated with Azaleas, as they thrive under similar cultural conditions, but being evergreen and generally of much more robust growth, Rhododendrons are more suitable for bold grouping in large spaces. Where they thrive naturally, they may well be substituted for Laurel as wind-breaks or screens. When selecting a site for either Rhododendrons or Azaleas, a situation in partial shade should be chosen, especially in the warmer parts of the country, as the flowers last much longer in semi-shade than when exposed to the full glare of the mid-day sun. They are, therefore, of great value for planting under, or in the vicinity of, large deciduous trees. Good clumps of sorts of one colour, or shades of a colour, look better than indiscriminate mixtures, and well-grown standards of the better varieties are magnificent in well-chosen positions. Rhododendrons that may be recommended are: Britannia, Pink Pearl, Mrs. Holford, Doncaster, Cynthia, Mrs. John Waterer, fastuosum, Everestianum, roseum superbum and Marchioness of Lansdowne.

Montbretias.—On heavy and retentive soils, experience has proved that the newer and finer varieties of Montbretias cannot be relied upon to come through the winter safely if left in open and exposed positions. The corms should be lifted and stored in cold frames for the winter. A convenient method is to place them closely together in boxes, packing a little fine leaf-soil around the corms so that they remain under natural conditions, *i.e.*, not too dry. If space is limited, they may usually be wintered fairly well if laid in coal ashes on the warm side of a wall or hedge. In the spring the corms may be separated and replanted in good soil.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener at Jordanhill Training Centre, Glasgow.

Seakale.—This vegetable is, perhaps, not so much grown in private gardens as formerly, but where it is required early, the crowns should be dug up without further delay and, after securing suitable planting roots or portions of roots for next season, a selection of the best crowns may be placed under similar conditions as advised for Rhubarb. The remainder of the crowns should be heeled in in a convenient place, where they may be at hand as required for forcing. The younger portions of the roots should be cut into four- or five-inch lengths, with a straight cut across the top end and a sloping cut at the bottom to ensure that at planting time the proper end is kept uppermost, and stored in boxes of sandy soil in any frost-proof shed or cellar.

Chrysanthemums.—The main display of large-flowered Chrysanthemums will now be passing, but owing to the vagaries of the season, many are still at their best, and the display of bush grown plants may be expected to carry on until well into the New Year. Cuttings of some varieties are often very scarce and to encourage the production of cuttings, the plants should be treated in a somewhat similar manner to that recommended for early-flowering sorts, by not cutting the stems down too closely, and after giving them a top-dressing of good soil, placing them for a few weeks in a kindly temperature. By these methods, stock may be raised, but cool and naturally-grown cuttings make the most satisfactory plants. The time to insert cuttings is a more or less debatable point, and no hard and fast rule can be laid down, but it is generally agreed that plants which require to be stopped early next season, in order to get them to produce their buds at the proper time, should be inserted first, and those which naturally produce their best buds about the end of August may be dealt with afterwards. Where only bush plants are grown in order to produce quantities of cut flowers, the cuttings may quite safely be inserted during January or February.

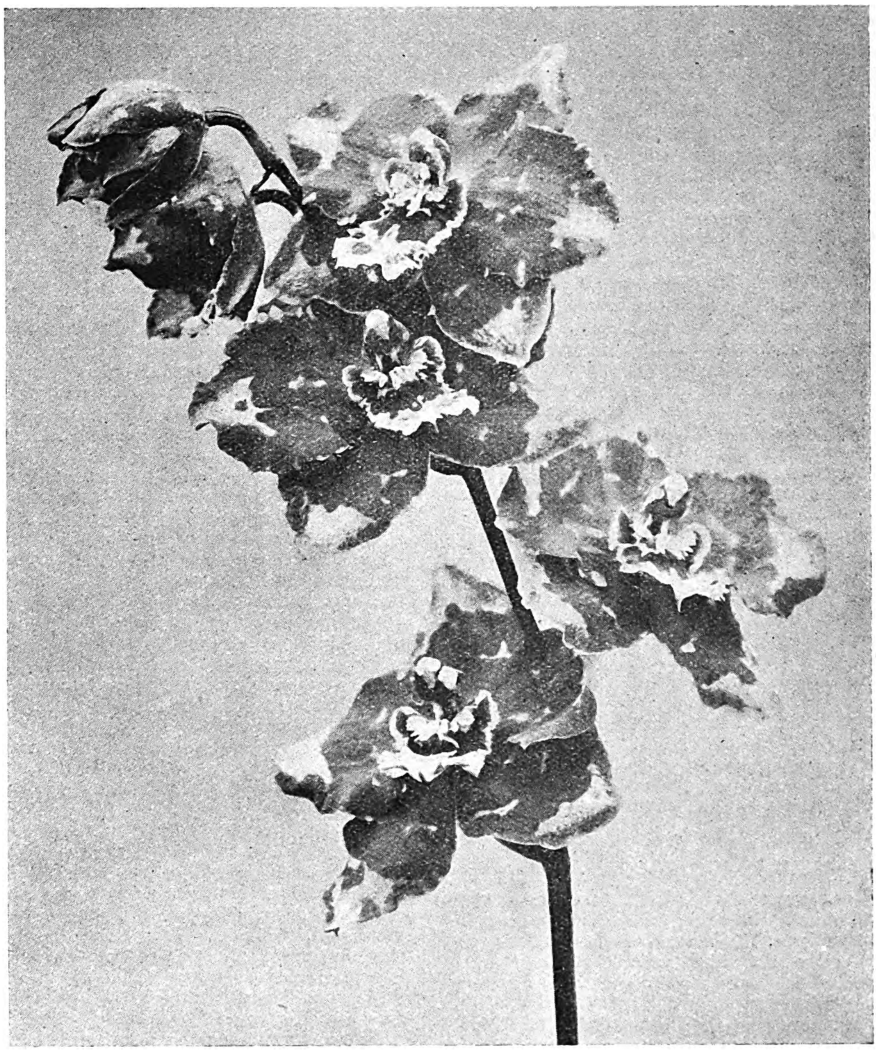

FIG. 201.—ODONTIODA MARIE ANTOINETTE.

R.H.S. Award of Merit, November 27. Flowers red and rose. Shown by Robert Paterson, Esq. (gr. Mr. Merry), Stonehurst, Ardingly.

Carnations.—December is probably the most trying month for Perpetual-flowering Carnations, and unless the young plants have been stopped at the proper time, and plenty of side-shoots have since developed to carry a fair crop of flowers, there is always a scarcity at this season. Some varieties require six months from their final stopping, while many of the freer-growing sorts need a minimum of five months, so that to produce flowers in December, all stopping of Carnations should cease about July, and the side-shoots which afterwards develop should be preserved. During the short, dull days, feeding should be done very carefully, and if the plants are healthy and vigorous it may be dispensed with until the days begin to lengthen. If manurial assistance is required, small doses of potassic manures should be given in preference to nitrogenous stimulants at this season, as the latter have a weakening effect on the growths during dull periods.

Basic Slag.—This slow-acting manure is of inestimable value to the fruit-grower on certain soils, and the results obtained by its use in conjunction with kainit or other potassic manures, are exceptionally good. Basic slag should be applied now to the surface at the rate of four ounces to the square yard around fruit trees and bushes, followed by half that quantity of potash in some form, kainit being, perhaps, the cheapest form, although its potassic content is lower than that of sulphate of potash, or muriate of potash, both of which may be used in this way. If applied now, this slow-acting manure should materially assist next season's crops, and if continued for a year or two, the difference in quality as compared with fruits produced previously will be very marked. Where colour in fruits is desired, a light dressing of sulphate of iron, at the rate of one ounce to the square yard, may be added, and as this is also a slow-acting agent, it may be applied along with the others. Some soils have a certain amount of these chemicals in them, which may solve the problem of why some growers produce better coloured and better flavoured fruits than others. This probably accounts for *Market Grower's* poor opinion of Apple Ellison's Orange, which is evidently not a success with him.

INDOOR PLANTS.

SANSEVIERIA ZEYLANICA AND S. LAURENTII.

THESE two Sansevierias are much grown and sold as florists' plants in the United States, and for this purpose they are admirably adapted, being easily grown, easily transported, and capable of enduring much hard usage as house plants. They certainly make a welcome change from the inevitable Aspidistra of the English front window, and they are worthy of more attention from British gardeners.

Sansevieria zeylanica produces stiffly erect, sword-shaped leaves, from one to three feet in length, and about three inches in width, in clusters, from a horizontal rhizome. These leaves are flat and thick, and the deep green ground colour is relieved by zig-zag bars of transverse variegation of a greyish-white hue.

S. Laurentii is similar to S. zeylanica in every way except for the presence of a creamy-yellow, marginal band to the leaf, about one-third- to one-half-of-an-inch broad, and is usually recognised as a variety of S. zeylanica. It is so treated by Bailey in his *Standard Cyclopaedia of Horticulture*, but in the *Manual of Cultivated Plants*, by the same author, it is stated that the plant known as S. Laurentii is probably a variety of S. trifasciata. Be that as it may, there is no doubt that both are subjects of merit, and the latter is, perhaps, the more decorative.

Sansevierias succeed either in a cool greenhouse or under tropical conditions, in heavy shade or in full sun, and they do not readily fall prey to pests. Good examples may be seen at Kew, I believe, both in the hot humid Palm House and in the cool and arid Succulent House. Firm potting is essential, and a rather loamy compost rendered porous by the admixture of a proportion of broken bricks or crocks, provides a suitable rooting medium, while they seem to succeed best when allowed to become somewhat pot-bound. Propagation may be effected by division, but leaf-cuttings afford a more rapid means of increase. These should be made a few inches in length and inserted slantwise in a bed where bottom-heat is available. From the base of each cutting one or more long, stolon-like buds are formed, which quickly result in a like number of young plants. Although the primary interest in these plants is occasioned by their attractive foliage and habit, the flowers are also beautiful in a more modest way. They are pale greenish-white in colour and are borne on a long, erect raceme, usually appearing in autumn or early winter. *T. H. Everett, New York.*

PLUMBAGO ROSEA.

IT is a source of wonder to me that this beautiful winter-flowering plant is not grown more extensively. It is a stove plant, perennial, and not over fastidious with regard to soil, perhaps the best compost being a mixture of equal parts loam, peat and sand, with the addition of some mortar rubble and crushed charcoal. It is essential to maintain warm conditions if this plant is to be grown successfully, and the temperature should never be allowed to fall below 55°.

It is very easy to propagate P. rosea by means of cuttings. The young side-shoots, which soon form after the old plants have been cut back when they have finished flowering, may be removed and inserted in light, sandy soil, three in a thumb-pot, afterwards plunging them in a propagating pit. Basal cuttings are often procurable with roots attached, while leaf cuttings may also be taken.

After the cuttings have struck and have filled their small pots with roots, they should be repotted into four-inch pots, and in due course into six-inch size, in which they may be allowed to flower for the first season. If larger specimens are required, these plants may be potted into larger pots, and if they have the leading shoots pinched out three times during the growing season to induce them to make bushy specimens, an abundant display of flowers will be assured.

In the case of plants raised from cuttings inserted in the month of February, which I find is the best time to root them, two stoppings should suffice. It is essential that the plants receive the maximum amount of light, while they should be syringed at least three times a day, the house being closed early to retain so much solar heat as possible. When they have filled their final pots with roots, they should have periodical applications of Clay's fertiliser, in small quantities, and also be watered with diluted soot-water.

Plumbago rosea produces very beautiful flowers of a rose colour, as its varietal name implies; and when cut is very desirable for table decoration, being very light and elegant. The crimson flowered P. coccinea only differs from P. rosea in the coloration of the blossoms, but I think the latter is more floriferous. Its natural habitat is the East Indies. *A. Pike, Reigate.*

THE DELPHINIUM.

IN common with many other races of herbaceous plants, the Delphinium has been greatly improved in recent years, and although further developments are quite within the range of possibility, the plant, as we know it to-day, appears to have reached the acme of graceful stateliness of which it is capable, and it is certainly among the most useful and attractive of our hardy herbaceous perennials.

The stately, tapering spikes of our modern varieties are generally well-furnished with flowers of substance, yet not so thickly disposed as to destroy their individual beauty, and when it is remembered that the actual flowering part of many of the spikes is quite three feet long it can be understood that such plants make their presence felt in the herbaceous border. In some varieties also, these spikes are furnished with long, elegant branches which develop after the main spike has finished flowering, and thus materially prolong the period of display. In the matter of colour, it may be stated that there is perhaps not a superabundance of varieties of a really good blue, but the combination of blue, purple and rose that one so frequently sees in varieties is nearly always pleasing, and there is room, in a large garden, at any rate, for Delphiniums of almost every shade of colour. That a rosy-purple variety will clash when planted alongside a clear blue variety is inevitable, but segregated and arranged in different colonies, each becomes attractive and displays its charms in the most delightful way.

It is when grown in large colonies that the real decorative value of the Delphinium is most appreciated. Probably because of the stateliness of the plant, its use in gardens is generally confined to clumps or masses in the herbaceous border and, while its value for this purpose needs no emphasis, its extended planting in informal masses in bays of the shrubbery, or even in open glades of the wild garden, should be more widely practised. The ease with which Delphiniums may be raised from seeds facilitates this mode of planting, and I have known garden-lovers, who looked on the Delphinium as suitable for the herbaceous border only, gaze in astonished admiration on a mass of several hundred plants informally arranged in a large bay of a shrubbery.

The Delphinium, if it is to attain perfection, must have good cultivation. Like all quick-growing plants, it is a gross feeder, and it should be given a rich, deeply-worked soil. Many lovers of this noble plant regret its relatively short period of flowering, ending in July, but plants in full health and vigour grow away again quickly if the first flower spikes are removed immediately they are over, and make a fair secondary display in the autumn. It is obvious that such intensive culture is exhausting to the plant, and can only succeed when good cultivation and feeding are practised. To maintain vigour in the plants, the clumps should be divided fairly frequently, while the crowns may be separated without undue injury, and firm planting should be practised. The facility with which the Delphiniums are raised from seeds has been referred to, but it is, perhaps, not sufficiently appreciated that quite a large proportion of seedling plants flower in the first year of growth, under good conditions. That is, from seeds sown in the spring, plants may be grown to flower in the autumn, thus enabling the would-be large-scale planter to select the shades of colour for mass effects.

The Delphinium is not without its enemies, and in some gardens slugs are very destructive by eating the young shoots as they appear in the spring, leading to a serious weakening or even the death of the plant. The habit of the slug is to feed by night and shelter by day, hence, providing them with shelter forms a ready means of trapping. By laying large boards, turves, bark or Orange peel in their haunts, and collecting from them daily, their numbers can be reduced considerably. Baits of bran, oatmeal and brewers' grains, poisoned with Paris green, may also be laid, if they can be used under complete control. A mixture of equal parts of lime, soot and salt scattered around the plants acts as a deterrent.

The plant is also very susceptible to mildew, and the best preventives of this insidious disease are good cultivation to maintain the constitution of the plant, a well-drained soil ensuring equality of moisture at the roots, and the avoidance of draughty corners when planting. When attacks appear they may only be effectively combated by acting immediately the fungus shows itself, and there is no better remedy than flowers of sulphur, care being taken to thoroughly dust the underside of the foliage. *W. A.*

HARDY FLOWER BORDER.

PANSY ULLSWATER.

THOSE who were fortunate enough to include this Pansy among their trials of novelties, are likely to repeat the order or even increase it. Having grown it during the past season, I can strongly recommend others to try it. The habit of the plant is rather tufted, with short-jointed stems; the flowers are large and well-formed, and the colour is a dazzling true blue, exactly as figured in Messrs. Sutton and Sons' catalogue. The intensity of the blue-black blotch in the centre is enhanced by a minute eye of white and yellow. Individual plants show a slight variation in the depth of colour and the size of the blotch, but only two "rogues" have appeared among over one hundred plants.

It is quite possible to have it in flower during summer and throughout the autumn, from seedlings raised in spring; but Pansies never succeed so well as when sown late in July or early in August, transplanted to nursery beds, and later planted into their permanent quarters in September or October. Treated in this manner, plants become well established, withstand drought, and produce flowers of good substance in profusion during May and June. By that time most of the spring bulbs are over, and a good bed of Pansy Ullswater would help to fill the void which too often occurs. *J. Comber.*

ASTER SUBCOERULEUS.

FOR flowering during the summer near the front of the border, Aster subcoeruleus will be found to be a plant which deserves the favourable consideration of cultivators of the choicest of hardy herbaceous plants. It is sometimes substituted for A. diplostephioides, and, however disappointing it may be to obtain a plant under a wrong name, A. subcoeruleus is a much more satisfactory subject than A. diplostephioides. It lives longer and blooms more profusely, while its numerous flowers, borne on slender stems, are, if possible, even more pleasing than those of the plant for which it has done duty in nurseries. Its height is about fifteen inches, and the flowers are a pleasing shade of blue with a golden centre.

A few varieties, differing slightly in shade of colour, are offered on the Continent, but do not appear to have found their way into any but a few British gardens. A subcoeruleus is readily increased by division or by seeds, when the latter are obtainable, and it thrives in any good garden loam, either in sun or shade. July is its nominal flowering time, but it lasts in bloom for several months. *S. Arnott.*

ALPINE GARDEN.

VERONICA CANESCENS.

As a companionable ground covering for choice dwarf plants, or for growing alone in a close-up position, the subject of this note may be warmly recommended. V. canescens comes from New Zealand, where, in both islands, it is said to grow on the margins of water at considerable altitudes. It is a perfectly prostrate little plant, closely hugging the ground with a fine network of its hair-like stems which root as they proceed. The oval leaves are very minute and of so dull a green that they and the entire plant might easily be overlooked. But when the flowers appear, which is soon after midsummer, and from that time onwards, V. canescens is dappled all over with delightful little blossoms in a clear Speedwell blue.

Although V. canescens is quite reasonably hardy, last winter destroyed every plant here, not even one of the many seedlings, which it usually produces with such commendable thought for the future, surviving in one of those sheltered nooks they generally manage to discover. But then, that was an extremely severe test, and the plant may be tried with confidence in most gardens, provided the drainage is good and the soil sandy or gritty. At any rate, it is always a simple matter to lift a small piece and give it winter protection in a cold frame. V. canescens appears to enjoy rather a cool bed, and it does not object to light shade. It is one of the most distinctive of the Speedwells, and thoroughly deserves the best attention that the enthusiastic rock gardener has to give.

GERANIUM ENDRESSII.

THIS Pyrenean species is a useful plant and one of the most distinct of the hardy Geraniums. It is about eighteen inches tall when in flower but spreads by means of its creeping root-stalk, into a mass two or three feet across. The prettily-lobed and interlobed leaves are a pale green and slightly downy and the flowers, about an inch across, are a bright raspberry-red. There is just a sufficient touch of chalkiness in these blooms to soften the colour, and the plant continues to blossom from midsummer to late autumn. Any free loam suits this very accommodating Geranium. It will thrive in sun or shade and appears to be indestructibly hardy, at any rate, in a light soil.

The uncommon colour of G. Endressii never fails to attract attention, and this it has bequeathed to some of its offspring which, the result of natural hybridisation between this species and G. striatum, spring up in various parts of the garden and woodland. Mr. E. A. Bowles, in *My Garden in Summer*, refers to this hybrid and others which have occurred with him, and I share to the full his warm appreciation of these charming plants. They may not be among the choicest, but they naturalise with such a hearty good will and thrive in all manner of impossible places, even in grass, that they are seldom other than welcome. In my own garden these Endressii × striatum hybrids are mainly of two distinct types. One of them takes after the former species in foliage and flower, its blooms being of a slightly paler, still more chalky, pink, whilst the other has the glossier leafage of G. striatum with flowers of a pale silvery-rose lightly veined with a darker shade. These hybrids are even more persistent bloomers than either of the parents. There is scarcely a month of the year in which a few flowers cannot be found upon them and, like G. Endressii, they are almost evergreen. Although I have not put it to the test, I believe they will produce seedlings true to their respective colours and other characteristics. *N. Wales.*

MENTHA REQUIENII.

IF, as has been stated, " Fragrance is the song of flowers," assuredly the little Mentha Requienii is one of the most delightful songsters among plants. It is modest in its appearance and stature, but it is one of the plants which should command admiration from all of us. It is exceedingly minute, almost Lichen-like in the closeness with which it clings to the earth, forming a very low green carpet of the most lovely green, tiny leaves, and in summer it is spangled with tiny, purple, Labiate flowers. If we only look at it we cannot detect its hidden charm, but if we touch it with the fingers or tread upon it, we are greeted with a delicious fragrance of Peppermint of the most penetrating yet delightful kind.

This little plant soon makes for itself a place in the garden. It is perennial and hardy, but, if, through some mischance, it should be lost in winter, young seedlings will probably appear in spring, as it seeds freely. It never becomes a pest wherever it may be planted. It forms a delightful carpet for small bulbs, and I have seen it growing well among the grass of the lawn of a palatial abode where it surprised and delighted with its scent those who trod on the lawn. It may be raised from seeds or increased by division. *S. Arnott.*

ASTER SERICEUS.

THE genus Aster does not yield many species for the rock garden, but among the most suitable is A. sericeus; a strong point in its favour being that it is a plant which flowers late in the season, thus augmenting the weak array of late summer- and autumn-flowering alpine plants.

Aster sericeus is the tardiest of the genus to flower; so late is it that through October until the first weeks of November it is unrivalled in its rich and brilliant violet-purple colouring. The flowers are about one-and-a-half inch across, single, with the characteristic golden eye of the family.

This, however, is not all that may be written in its favour, for throughout spring and summer in fact, until winter arrives, the sprawling, bushy growths, attaining about one foot in height, are clothed in narrow leaves, with silvery-green, satiny surfaces.

Although it appears to be quite hardy, it is best planted on a sheltered and well-drained slope, in full sun, to induce it to flower before the frosts arrive. *Graham S. Thomas, University Botanic Garden, Cambridge.*

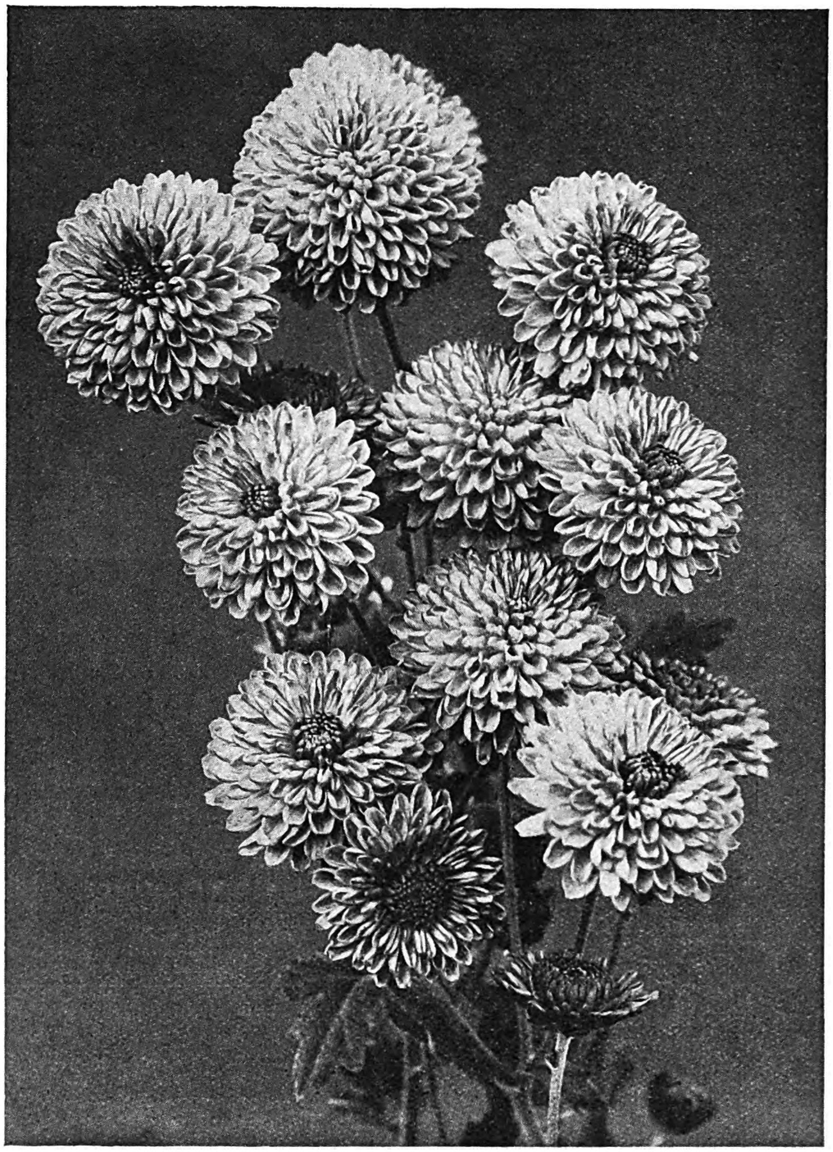

FIG. 202.—CHRYSANTHEMUM HILDA CANNING.

N.C.S. First Class Certificate, November 26; R.H.S. Award of Merit, November 27. A Pompon variety; bright golden-bronze. Shown by Messrs. Keith Luxford and Co.

TREES AND SHRUBS.

CISTUS SILVER PINK.

Among the Cistuses of outstanding merit, and they are many, Cistus Silver Pink ranks high, for the colouring of its flowers renders it quite distinct and in habit it leaves nothing to be desired.

It was raised by Messrs. Hillier and Sons, and is regarded as a seedling from C. villosus, while it is one of the hardiest of the group and in habit is compact and shapely. So far, my plants average about two feet in height, they are spreading and bushy, and during last summer bloomed continuously, producing deep, saucer-shaped flowers of a bright shade of pink, and with no suggestion of mauve in them, in unbroken succession, the downiness of the foliage adding to the charming effect produced.

Like other Cistuses, this form relishes a hot and sunny position, and its habit of growth makes it especially suitable for growing on the rock garden or rocky bank, while it is also very charming when planted along the top of a rock wall.

Cistus Silver Pink is already quite popular, but it should become more so when better known; it may be increased quite readily by inserting cuttings of young shoots in sand in a cold frame during the summer. The cuttings should not be subjected to too much moisture, as on account of their downy foliage they are liable to damp off. When rooted, they should be potted into sixty-sized pots, which they should soon fill with roots, when they may be repotted into five-inch pots, from which, after being wintered in a cold frame or protected position, they may be planted in their permanent quarters.

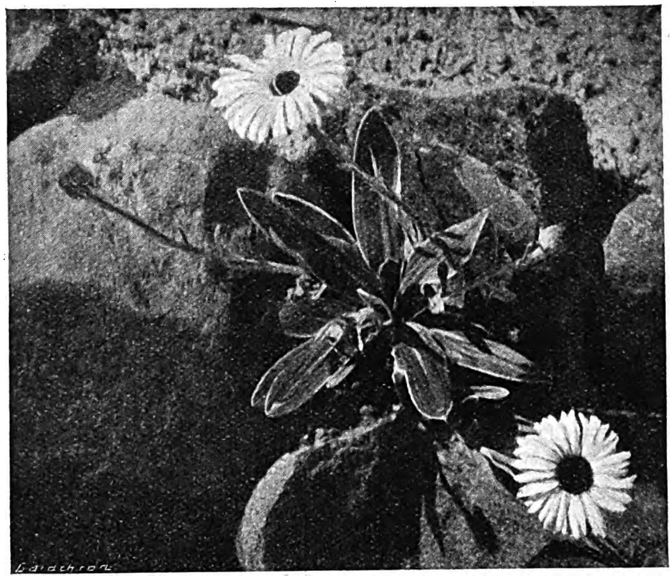

FIG. 203.—CELMISIA HOOKERI IN THE DUNEDIN BOTANIC GARDENS.
(A one-year-old seedling.)

COROKIA COTONEASTER.

For a sunny, but sheltered position on the rock garden, or for planting against a protecting wall, this New Zealand shrub of quaint habit might well be employed.

It forms a rounded bush, and will apparently grow to eight feet high, but it is seldom that specimens of this height are seen growing in the open. The manner in which the slender growths twist and interlace is very peculiar, and they are only sparsely clothed with leaves, which are semi-persistent, alternately placed, and about half-an-inch or sometimes a little more in length, obovate or rounded-ovate in shape, dark green on the upper surface and covered with white down beneath; the shoots, when young, are also covered with down.

When in flower, a bush of C. Cotoneaster appears to be dotted with little yellow stars, for the small blooms are star-like in structure, bright yellow in colour, and are produced either singly or in small clusters on short stalks from the axils of the leaves. In congenial seasons, such as the last, fruits are produced, but never in large numbers; they are about a quarter-of-an-inch in diameter and bright red.

As stated, C. Cotoneaster requires a warm sunny position, and it flourishes in loamy soil of not too heavy texture. *M. W.*

LAVANDULA PINNATA.

Lavandula pinnata is a distinctive little shrub, and its delicate Fern-like appearance makes it eminently suitable for cultivation in pots or on a sheltered border outside. The species is a native of Madeira, and it will be found that even on a warm border the plants require a little protection in severe weather during the winter months.

Seeds would appear to afford the best method of propagation, as they germinate very freely, and from a sowing made in February, bushy plants may be obtained in full flower by the middle of July, and these will continue to produce flowering spikes well into the winter. Under glass, the plants attain a height of eighteen inches, although twelve inches is seldom exceeded out-of-doors. The plants themselves resemble those of Lavandula vera, but the habit, form of leaves and spike, are totally different. The scent is reminiscent of some of the Sages.

The leaves of this species, including a short petiole, are about two inches long when fully grown and coarsely pinnate. The upper surface is bright green and somewhat glandular, while the under surface is clothed with soft white hairs. The stems are ascending, tetragonal and distinctly pubescent. The flowering spikes are large and are borne on stiff stalks eight to eighteen inches long.

An unique feature of the spike is the way in which the flowers are produced, in a closely packed, yet distinct spiral, and a proclivity to produce secondary spikes from the base of the terminal one. The flowers are dark purple, with a corolla twice as long as the pubescent calyx. *R. K.*

BETULA LUTEA.

Among the many subjects which are worth planting for the bright effects produced by their coloured stems and trunks during the winter, Betula lutea is certainly deserving of consideration, but, whereas the silvery-coloured Birches are widely recognised and planted extensively for this purpose, Betula lutea, with winter-coloured bark of bright yellowish-brown, is not so well known, and is still comparatively rare, although it has been grown in this country since towards the end of the eighteenth century.

When planted in groups of three or four on the margins of large ponds, or in other open positions, it is very striking, and may be grown either in bush form with four or five main stems, or with a single trunk, the lower branches being removed as the tree attains height.

Being a native of the western parts of North America, where it attains a height of up to one hundred feet, B. lutea is quite hardy in the British Isles, and is easy to establish if young specimens are planted. *W.*

THREE INTERESTING SHRUBS.

It may, I think, be safely assumed that each subject mentioned below will, when better-known, become popular with those who care to grow the rarer plants in their gardens. The two first, so far as experience goes, are as hardy as Holly; the third cannot be regarded as such, although I know of one plant that has been in a most healthy condition for three years on a fairly exposed west wall in a garden in Woking. One would therefore expect that if it had lived through the winter of 1927-8, it would not usually succumb to the severities of the English climate.

Ligustrum ionandrum.—This distinct species from China is an introduction of great merit. Few nurserymen have begun to grow it yet, and it is difficult to obtain, but it is a shrub which must come into its own. It has a stiff, rigid growth, and is stated by one authority to be capable of attaining a height of eight feet. The shining leaves somewhat resemble those of Lonicera nitida, but they are smaller and more ovate. The shrub fruits profusely and the fruits appear in the form of bunches of black berries. It will probably lend itself to clipping and be useful for formal planting, and as a standard it is most satisfactory. Its rigid growth, the smallness and brightness of the leaves, and its free-fruiting characteristics make it a shrub of some future importance.

Pyracantha Rodgersiana forma flava.—Let not this name disconcert the reader, let him think of it as the yellow-berried variety of Pyracantha Rodgersiana, and all will be well. Although this Chinese plant is not new—it has been distributed for several years by the R.H.S. authorities at Wisley—it is seldom seen. The foliage and habit of growth are both similar to those of ordinary Pyracantha, but it is in fruiting there is a difference. Pyracantha Rodgersiana is more prolific in its fruits and the berries are smaller, but produced in far larger, rounder bunches than are the fruits of the common Pyracantha. The variety in question, with its bright yellow berries, makes a fine subject for a north wall, and the shrub lends itself to very formal training.

Abutilon magapotamicum.—This Abutilon comes from Brazil, and although its hardiness at Kew is questioned by the fact that it is starred in the *Kew Hand List*, it will be seen from what has been stated above that in Woking it has had its bitter experiences and come through unscathed. Taking this into consideration, it is as well to grow it on a wall. Its habit is that of the common greenhouse Abutilon, and considerably unlike Abutilon vitifolium. It has a graceful growth, but the flowers, which are produced the whole summer through, give this plant the interest which at once strikes a stranger. These flowers are yellow and bell-shaped, the sepals being almost crimson and the anthers quite a different shade. No one can see this plant in the hey-dey of its glory without being struck by its beauty. As it only grows three or four feet high, it should make a useful low wall shrub for planting under a window. It is always difficult to find a good plant for a position such as this, and Abutilon megapotamicum should be one of the plants that comes to the help of those who are thinking of clothing the walls of their houses. *William Acworth, Chobham.*

AESCULUS PARVIFLORA.

As a specimen shrub for the production of floral effect late in the season, much may be said in favour of this bushy Horse Chestnut, also known as the Shrubby Pavia, and figured and described in the *Bot. Mag.*, t. 2118, as Aesculus macrostachya; it has also been described under the synonym Pavia macrostachya.

It was introduced to this country so long ago as 1785, and is a native of the south-eastern

United States. In this country it has proved quite hardy, being both free in growth and flowering, yet it has never been planted extensively and is still comparatively rare.

Unlike the better-known members of this genus, A. parviflora forms a rounded, spreading bush, up to twelve feet or more in height and usually much broader, although, apparently, it sometimes forms a trunk and so becomes a small tree; it has not, however, fallen to my lot to see such a specimen.

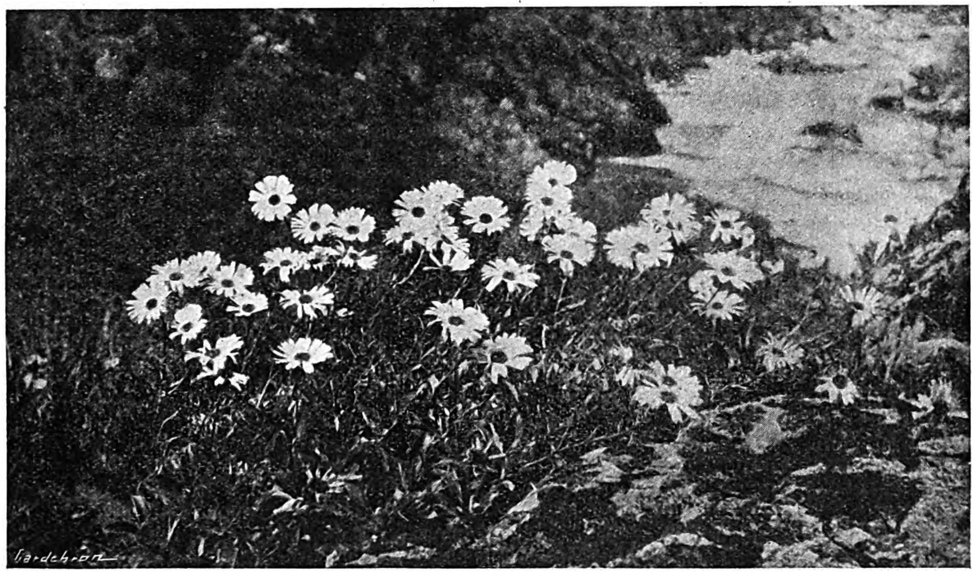

FIG. 204.—CELMISIA LINDSAYI IN ITS NATURAL HABITAT.
(Humboldt Mt., Southern Alps, N.Z., 2,500 feet.)

Usually the growths are produced plentifully from the base, or some little distance from the main stool, its diameter being increased by means of spreading suckers. The leaves are variable in size; they consist of five, sometimes seven, obovate leaflets, which taper at both ends and are up to eight or nine inches long, the upper surfaces being dull, fairly light green, and the lower thickly downy. During August, the blooms, in erect panicles up to one foot long, are usually produced freely, converting the shrub into a mound of creamy-whiteness, tinted with pink by the reddish colouring of the long stamens and anthers.

Of sound constitution, A. parviflora should be planted in deeply-worked soil of good condition, on a lawn or in other positions where it may be allowed to develop into a specimen plant. *M. W.*

CELMISIAS.

(*Concluded from page* 429.)

C. Lindsayi (Fig. 204) is a charming plant, and probably the easiest of all the Celmisias to cultivate. It forms large, rounded masses of foliage and is very floriferous. There are many varieties of this species; one variety grows along the cliffs of the south-east coast of Otago, while another and much smaller form is found among the southern Alps, at a height of 4,000 feet.

C. Hectori (Fig. 205) is the aristocrat of the high alpine species. It is well marked and easily recognised by the small, silvery, linear-spathulate leaves, one inch long by a quarter-of-an-inch broad. When this plant thrives, it is usually a very prolific flower-bearer. C. Hectori is well distributed at an altitude of from 4,000 feet to 6,000 feet. In certain districts of the southern Alps, where there is a good rainfall, one may have the privilege of seeing many acres of gravelly soil covered by a pure C. Hectori association. It is a most tenacious plant for garden cultivation, and on account of its silver appearance, it is always admired. It spreads quickly, is prostrate, tufted, and most uniform in its habit of growth. The low-growing and spreading characters make it quite a feature among the smaller species.

C. Hookeri (Fig. 203) is a handsome plant, having bright green leaves provided with silky-white tomentum; the flower-heads are usually about two inches in diameter.

Cultivation and Propagation.

By Division.—The plants should be lifted in early spring, when the semi-woody offsets should be divided up and replanted. All Celmisias have a mass of decaying leaf-sheaths surrounding the stem; this should be removed and adventitious roots will be exposed starting to penetrate the peat. These roots seem to thrive much better when they come into contact with good loamy soil. C. holosericea is a notable example of the use of division with Celmisias. If this plant is allowed to grow freely for several years, it suddenly dies off, but if it is subjected to division every two or three years, it thrives exceedingly well under cultivation. Anyone who has seen and contrasted stocks of C. holosericea which have and have not been subjected to division, will have no hesitation in dividing all specimens of Celmisia which look unhealthy; the benefit of such treatment is so obvious.

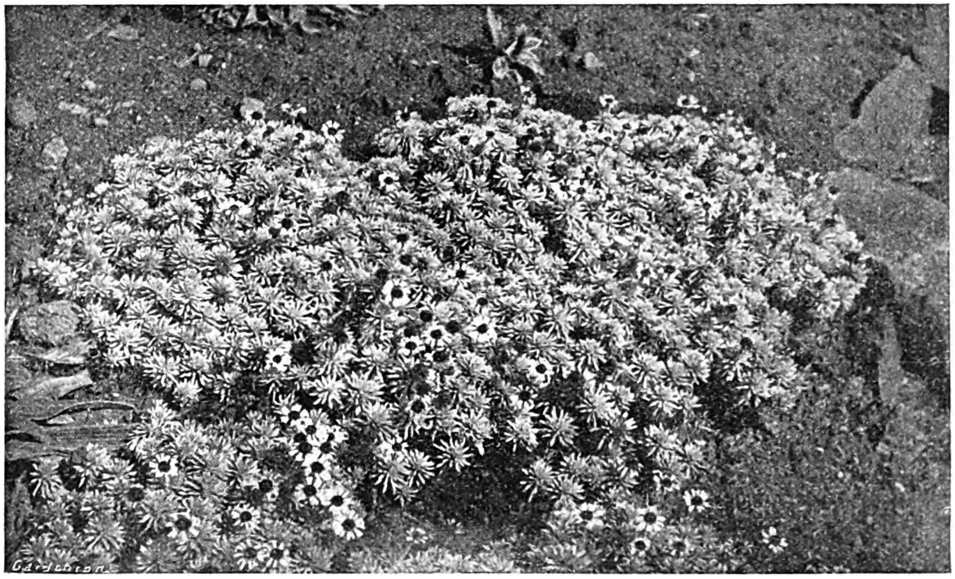

FIG. 205.—CELMISIA HECTORI IN THE DUNEDIN BOTANIC GARDENS.

By Seeds.—In their natural habitats, Celmisias produce seeds freely, but considerable difficulty, and in some cases complete failure, has been the experience of those who have attempted to propagate these plants from seeds. The seeds are frequently infertile, and sometimes when germination does take place, the young plants die off for no apparent reason. This seems very strange, because practically all Celmisias found in the wild state are self-sown seedlings. A few spread by means of roots and stems, but even they grow more freely from seeds than from vegetative reproduction.

We find that the best method is to sow the seeds in autumn, choosing a cold frame in a cool position. The compost should consist of good fibrous loam, leaf-soil and silver-sand. The seeds should be just covered with a layer of silver sand, watered thoroughly, and shaded. The frame should be kept fairly close during the winter, and the seeds will germinate in spring. When germination takes place, the shading should be removed and the plants left in the seed-bed until autumn, when they may be transplanted to their flowering quarters. The reason for such treatment is, that in the natural state, Celmisia seeds are dispersed in autumn, and must lie under a thick coating of snow, at an even temperature, until spring, when the snow disappears, after which germination takes place.

The seedling plants may produce a few flowers during the first season in the border, and by the following flowering season they will have grown into handsome plants.

Although a few species prefer to grow in slight shade, the majority of Celmisias should be planted in an exposed position. Plenty of moisture must be present, and good drainage is essential, because they resent acidity and stagnation. We find they thrive best when planted in a raised border, the soil of which has been thoroughly trenched. The soil is a good turfy loam, over a foot deep, and overlying friable clay. A good dressing of river shingle and old lime rubble has been worked thoroughly into the border before planting was commenced. The border is on a hillside, and is never dry because of water soaking from the higher parts, and maintaining a constant supply of moisture in the subsoil. In dealing with a large collection of Celmisias, we find that the raised border is simpler and more satisfactory than the rock garden method of cultivation. *A. W. Anderson, Dunedin Botanic Gardens.*

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THE RELATION OF CHROMOSOME STUDIES TO HORTICULTURE.

IMPORTANT advances have recently been made in our knowledge of breeding many species of plants of horticultural interest as a result of a study of their cytological behaviour. Correspondence I have received seems to show that some account of the principles applied in this kind of study would be of value to horticulturists.

It has long been recognised that the principal seat of organisation, and hence of variation, in the cells of plants and animals, is the nucleus. This is sufficiently evident from one fact, namely, that while the male and female contributions are equally evident in most breeding results, the male germ-cells transmit, as a rule, no permanently organised body, except the nucleus. We are, however, indebted to the stimulus of Mendelian breeding work for the great advance of recent years, and the proof that the details of inheritance in all their complexity are provided for by the mechanism of nuclear division.

It has been shown first that when a cell divides to produce daughter-cells with the same properties as itself, its nucleus always divides in a particular way, by what is called "mitosis." This takes the following course:—The fine threads, which are the only permanent structures of the nucleus, split lengthwise to give, each, two identical threads; these then condense to give two rods which, fused together, make the so-called "chromosomes"; these finally come to lie side by side across the cell arranged as a plate, and their halves then separate to opposite poles of the cell where new nuclei are formed; each daughter-nucleus has half of each of the chromosomes of the parent nucleus. It would thus appear that every part of the nucleus is necessary to its identity—its genetic character—and this has, in fact, been verified by countless experiments.

Thus, throughout the life of a plant the nucleus on the one hand maintains all the genetic qualities of the plant, and on the other hand, transmits its structural properties to its daughter-nuclei exactly as it has received them from its parent nucleus. It is to the exactness of this process that we owe the stability of vegetatively propagated clones, and when a change—a sport or mutation,—occurs in a clone, we can frequently show that this is the result of an accident in the process of mitosis. For example, the fertile Primula kewensis arose as a result of such an accident from the sterile form. The number of its chromosomes is exactly double that of the sterile form, and as nuclei have been seen failing to separate after the division of the chromosomes at mitosis, we have no reason to doubt that such a failure was responsible for the original of this fertile form. Many other cases are known in which the doubling of the chromosome number restores fertility in producing a new relatively true-breeding giant form. The reason for this will appear later.

Mitosis provides sufficiently for vegetative reproduction, but it must be obvious that sexual reproduction requires a very special modification of this process if anything like the same continuity of structure and of genetic properties is to be maintained. Sexual reproduction is not merely the rule in all the higher plants, but it is the chief means of the origin of variation. It involves, as everyone knows, the fusion of two germ-cells, and this means the fusion of two nuclei.

How is this brought about? We know that a particular nucleus at mitosis will resolve itself into the same number of chromosomes as have actually gone to form it. Fusion of two nuclei therefore means the adding together of their chromosome numbers; the new complement is the sum of the two complements that make it up. A compensating process is therefore to be looked for, since sexual reproduction does not lead to chromosome doubling at each generation. This process is found in "reduction," and is an essential preliminary to germ-cell formation in all sexually reproducing plants and animals. "Reduction" consists of two cell-divisions rapidly following one another, in the course of which each chromosome only divides once, so that each of the four resulting cells has only half the number of chromosomes of the germ mother-cell. Now, in all ordinary cases, the nuclei of the two germ-cells which fuse to form the new plant have the same number of chromosomes, the haploid number of the species; the plant itself has the double or diploid number. That is to say, it has pairs of chromosomes corresponding to one another, one of each pair derived from each parent. And it is found that the germ-cells are only capable of living when they each contain one of each of these pairs. For example, when the Mexican species, Rhoeo discolor, which normally has germ-cells with six chromosomes, produces by irregularity germ-cells with seven and five chromosomes, only those with seven survive; those with five die. Thus "reduction" takes place normally and successfully only when corresponding chromosomes derived from opposite parents, pair and separate to opposite cells. This is the mechanism on which Mendelian segregation depends, for the corresponding chromosomes have been shown to be associated with the alternative or allelomorphic factors.

We have already seen that irregularities in mitosis are a cause of sports and mutations. Irregularities in the mechanism of sexual reproduction are a much more fruitful cause. At each stage an error may occur. If fertilisation fails and an unfertilised egg-cell develops, a haploid plant is produced, smaller than the parent and usually sterile, for its half-number of chromosomes have no mates with which to pair. Such a failure has been found in the Tomato, and in Datura Stramonium. If, on the other hand, "reduction" fails, we get germ-cells with the diploid number which, fusing, will produce plants having four times the haploid number, *i.e.*, tetraploids. The same result is attained in this case as in Primula kewensis, but by a different means. In this way giant forms of the Evening Primrose, Oenothera Lamarckiana, and of Primula sinensis, have arisen several times. These new tetraploid forms, in the absence of segregation or any other irregularity, are always approximately twice the size of their diploid parent. In nature, however, as in cultivation, segregation occurs in the next generation, with the result that the offspring of such new forms usually get smaller from generation to generation, and tetraploid species are often even smaller than their diploid relatives.

The most potent direct cause of the origin of new forms, whether, as in these simple cases, tetraploids or, in others with various more complicated arrangements, is undoubtedly hybridisation. For, as I have pointed out, orderly "reduction" depends on the pairing of corresponding chromosomes from opposite parents. But it is of the nature of hybrids that their parental chromosomes do not correspond, and this lack of correspondence therefore leads to irregularities of the utmost importance in variation. These irregularities are none the less possible in true-breeding forms. For example, in Datura Stramonium, as a result of irregular "reduction," seedlings have been found with one of their chromosomes represented three times instead of twice, having, that is, one extra chromosome beyond the diploid number. The variation that was produced, usually recognisable from the fruit characters, depended on which of the twelve chromosomes was represented in excess, each chromosome producing a special type. This is important when it is remembered that the principal varieties of Sweet Cherries have one, two, or three extra chromosomes beyond the diploid number for the species (Prunus Avium); this special condition is not improbably associated with the special merits of their fruits.

Take another instance. The Loganberry was reported to have arisen as a hybrid between a Raspberry and a Blackberry, but for some time its fertility was thought to be incompatible with the account of its hybrid origin, and this view was disputed. It is, however, a hexaploid; it contains six sets of chromosomes, so that each Blackberry chromosome has another identical Blackberry chromosome to pair with; in this way the characteristic sterility of a hybrid is avoided, and as its germ-cells all contain chromosomes from both parents, their characters are never separated and never reappear as such, in its offspring.

In other Rubus hybrids, however, no doubling of the chromosome number has occurred, and they, in consequence, show varying degrees of sterility. The Mahdi, for example, is a triploid Raspberry-Blackberry hybrid; it sets only occasional drupels, and is a horticultural curiosity.

Where, as a result of an irregular "reduction," a diploid germ-cell is produced, this may fuse with an ordinary haploid germ-cell and give rise to a new plant with three sets of chromosomes instead of two—a triploid. Such plants behave in the most irregular way at "reduction," because their odd number of chromosomes cannot divide evenly, and although not necessarily hybrids in the botanical sense, are usually sterile. The best varieties of garden Hyacinths are of this kind and undoubtedly owe their great size to their triploid condition.

It is interesting to notice the incidence of triploidy, with its usually inherent sterility, among cultivated plants. In the first place we find triploid forms of Tradescantia and Canna, for they are vegetatively propagated. Secondly, we find triploid ornamental Cherries, both of the European and of the Japanese species, for sterility is rather an advantage to them than otherwise, and they are propagated by grafting. Thirdly, we find triploid Apples—including some of our best varieties, such as Blenheim Pippin, for to them, unlike the stone fruits, seed-fertility is relatively unimportant; the fruits will usually develop with only one or two of the ten seeds set, and in some varieties even fertilisation is not indispensable. Lastly, there are many "species" of Hieracium which are triploid; their chromosome constitution has no bearing on their reproduction, for their seed develops apogamously, *i.e.*, vegetatively.

Irregularities in germ cell-formation are a most frequent cause of sterility, but in breeding-work they may actually provide the means of avoiding it. For instance, from a cross between the diploid Rubus rusticanus and the tetraploid Rubus thyrsiger, three seedlings were obtained, one giant and fertile, resembling the diploid parent, the other two smaller, sterile, and resembling the tetraploid parent more closely; these latter were of the expected type, for, in genetic influence, the tetraploid parent giving diploid germ-cells would naturally be expected to outweigh the diploid parent giving haploid germ-cells; they had, in fact, the triploid number of chromosomes. The fertile, stronger-growing seedling, on the other hand, gave evidence of having received a double chromosome contribution from its R. rusticanus parent, and proved to have one set of chromosomes more than its sister seedlings; it had the tetraploid number. Its breeding behaviour further confirmed the view that it had received a diploid contribution from both parents.

It will be understood that it is no longer possible to undertake hybridisation experiments for theoretical purposes without a knowledge of the chromosome constitution of the plants concerned. While the operation of the elaborated Mendelian laws will still account for all ordinary behaviour in diploids—even in the exceptional Oenothera—the behaviour of a natural polyploid must be viewed in quite a different light. It is essentially a true-breeding hybrid. Its hybridity appears especially when it is crossed with a related species, but it may show occasionally when self-fertilised. Thus, in pure lines of Oats and Wheat relatively worthless forms arise from time to time; these fatuoid or speltoid sports show characters derived from their ultimate diploid parents, and are the result of abnormal pairing of the chromosomes. Their constant recurrence would be inexplicable without a knowledge of the polyploid nature of Wheat and Oats.

These examples indicate the lines on which present studies of the microscopic properties of plants are enabling us to understand the mechanism of their inheritance and variation. They represent a beginning in the application of a method which promises much to the horticulturist. *C. D. Darlington, John Innes Horticultural Institution.*

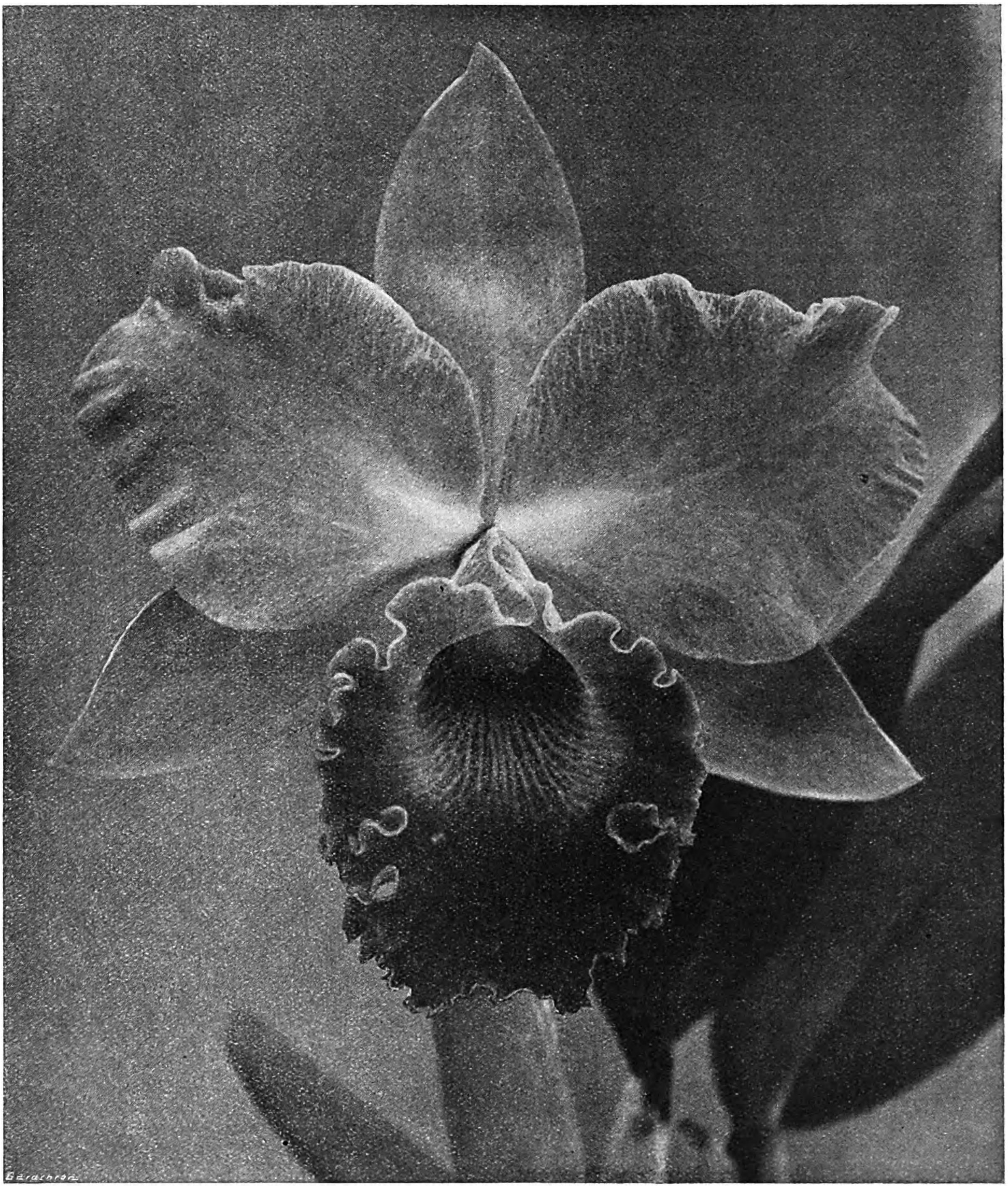

FIG. 206.—POTINARA DOROTHY.
R.H.S. First Class Certificate, November 27. Flowers golden-orange and cerise. Shown by Baron Bruno Schröder (gr. Mr. J. Shill), Dell Park, Englefield Green.
(see p. 436.)

NOTES FROM GLASNEVIN.

MID-NOVEMBER is not a season one associates with any great display of colour in the outdoor garden, although the interest need be none the less on that account. As a matter of fact, the winter condition of plants is as much a source of interest to the student as the more active growing state. To the botanist, the resting state is of as much importance frequently as the growing state, and the gardener who would get the best out of plants and sustain interest throughout the year must needs acquaint himself with plants which are effective in the resting condition as well as with such as may flower in the open during the dark days of winter. These latter must, of course, be introduced, for, with few exceptions, our native plants rest in winter, which is natural.

It is remarkable how some well-known plants retain their pre-eminence and are not displaced by any newcomers. For instance, two striking groups of the Kaffir Lily, Schizostylis coccinea, one red, the other pink, have been much admired in the rock garden for several weeks. This South African plant, of the Iris family, despite the popular name, is well worth growing in a sunny, sheltered position, where the root conditions are never dry. Occasional lifting and dividing is beneficial and keeps the plants in flowering condition.

Only those going carefully through the rock garden would notice that the Snowdrops are already in flower, represented by the Cicilian species, Galanthus cilicicus, a dainty Snowdrop presaging the coming spring that is yet far off. Elsewhere the Byzantine Snowdrop, Galanthus byzantinum var. November, has been in bloom since the beginning of the month.

At least half-a-dozen Crocuses are flowering freely. Crocus asturicus is a dainty little species, native of the Asturias, producing freely its pale purple or lilac-coloured flowers in November. C. karduchorum is from Kurdistan, of comparatively recent introduction and not common in gardens; the flowers are of fair size and lavender-blue. It appears to be slow of increase, and as our stock has only been acquired recently, it is not possible to say much about its duration under cultivation. Crocus longiflorus melitensis is a Maltese variety and one of the best and most persistent of winter-flowering Crocuses. Every year, without fail, it produces an abundance of pretty, lilac flowers, slightly feathered with purple; a fine Crocus for the rock garden or front of a sunny border. Crocus ochroleucus is one of the most striking species in flower at present, not on account of the size of the flowers, but because of their abundance, and the creamy-white colour which is conspicuous at a distance. The individual flowers are slender, that is, they are not inflated above the tube to the same degree as in many other species, but this does not detract from their beauty, which increases on closer inspection.

Crocus Salzmannii erectophyllus is a hardy, robust and satisfactory Crocus which flowers freely every year. I fear it must also be described as lilac, but its size and vigour compensate for any lack of distinctive colour. Crocus Tournefortii, a Grecian species, can be recommended as choice and free-growing, at least, here it increases freely and flowers abundantly every winter at the front of a sunny border. Nothing is more difficult to describe than colour, especially in Crocuses. Mr. Bowles describes C. Tournefortii as "warm rosy-lilac," and he should know, for his *Handbook* is a stand-by for all who have the keeping of collections.

A few belated clumps of Cyclamen neapolitanum are still in flower, and the red buds of C. coum are already appearing among the dark green leaves. The hardy Cyclamens are well worth the attention of lovers of hardy plants. A full collection will give pleasure and interest throughout the year, and when out of flower the marbled leaves of certain species are hardly less beautiful than the flowers. A colony of C. macrophyllum clustered around the base of Pinus Thunbergii at the top of the rock garden, is striking by reason of the wealth of marbled leaves, and the Neapolitan species is equally fine. C. coum may be claimed as winter- and spring-flowering, since the flowers persist far into spring, to be followed in succession by those of C. ibericum and its varieties, C. vernale, and C. europaeum in early summer, and C. cilicium, C. neapolitanum and C. macrophyllum in autumn.

Meconopsis Wallichii continues to flower among the Rhododendrons even so late in the year, but is obviously out of season and pale in colour. The true beauty of the evergreen species at present lies in the handsome rosettes of hairy leaves, glistening with moisture attached to the hairs, the best of them for winter effect being M. Wallachii, with rusty-coloured hairs, M. paniculata and M. paniculata elata, with hairs of a paler hue, giving the rosettes a totally different appearance. Another old favourite which annually gives much pleasure to visitors is Lithospermum rosmarinifolium, now well covered with beautiful blue flowers; a situation high and dry suits it, for then the summer growth is short and sturdy and able to withstand considerable frost.

Among shrubs, Cotoneaster frigida is still unsurpassed as a winter-fruiting species, although some forms of C. Francheti are brighter in colour. The ample proportions attained by C. frigida give it a decided advantage over less vigorous species, but this vigour may be a disadvantage in a small garden.

The Barberries are still in fruit, several unnamed plants very near to B. Wilsonae being particularly fine. The Barberries cross so readily that a great number of named seedlings are likely to appear and may eventually supersede the species where display is the first consideration. A number have been raised here from seeds of the Wisley hybrids, such as Firefly, etc., and whether the seedlings resemble the parents or not, they are beautiful fruiting shrubs. A hybrid raised in Messrs. Watson's nursery at Killiney, named by them Barbarossa, is wonderfully fine, roped in coral berries.

Variegated shrubs are anathema to some people, and certainly they must be used with care. One which looks particularly pleasing at present is Aristotelia Macqui variegata, but it must be planted in poor soil or it tends to become green; this, however, may be turned to advantage, as shrubs for poor soil are not too numerous the leaves are dark green and yellow. *J. W. Besant.*

HORTICULTURE IN CANADA.*

In the short period at my disposal, justice cannot be done to so comprehensive a subject, therefore, the address will be devoted to a consideration of the most important phases of Canadian horticulture, and which to-day are occupying the minds of leaders in this field and to which the greatest attention is being given.

Canada is a land of vast extent, extending from the Atlantic to the Pacific, a distance of 3,000 miles, and from latitude 42° in the south to latitude 80° in the north, some 2,000 miles, and having a total area of 3,797,123 square miles, or 2,338,688,640 land acres. From this statement may be gleaned the fact that the climatic conditions are varied, and it is this variation which ordains that the horticultural products must also be varied, and that these and the cultural methods may be adapted to the rigours or amenities of the climate as the case may be.

A Land of Sunshine.

Kipling called Canada "Our Lady of the Snows." Those who are fortunate enough to live there would prefer to have it called "Our Lady of the Sun." In the practice of horticulture, we have discovered she is really a sunny land, for within her borders are produced, or can be produced, both hardy and sub-tropical fruits and vegetables and Tobacco of the finest quality, on an immense scale.

In Ontario, south of the lake of that name, in the great fruit belt of the Niagara Peninsula, and in the Burlington and Oakville district north of the lake, Peaches, Melons, Sweet and sour Cherries, Grapes, and the hardier Apples, Pears, Raspberries, Blackberries, Currants and Gooseberries are produced. These, with the exception of the Sweet Cherries and Melons, are also grown, many in commercial quantities, in the Georgian Bay district, one hundred miles further north. Eastward, along the north shore of Lake Ontario, in the Trenton district, Apples in enormous quantities are produced, as they are also on the north shore of Lake Erie toward the Essex Peninsula, wherein practically all fruits grown in the Niagara Peninsula are also grown commercially. In western Canada, in the Okanagan and other valleys in British Columbia, practically all the fruits mentioned are grown to perfection, while Nova Scotia in the east is also a great producer of many kinds of fruits, including Apples, the crops being of great economic importance. Thus, in the south-central parts of the Dominion and in the extreme east and west, there are vast fruit-producing areas, and it has been estimated that these are large enough to supply a population of 200,000,000, whenever the time arrives. The fruit-growing industry has assumed such large proportions that enormous shipments are annually exported.

In southern Canada, vegetable growing has also assumed the proportions of an industry, there being some 1,000 commercial growers. Practically every town has its local supply. In almost every province, however, certain localities and soils are adapted to the production of special crops, such as Onions and Celery, the Leamington district of Ontario being one of these. It may here, however, be stated that ordinary garden vegetables of nearly every kind may be grown successfully so far north as latitude 50° in eastern Canada, and latitude 60° in the west. Tomatos and Tobacco are great commercial crops in southern Ontario and in parts of British Columbia. The value of the Ontario crop of Tobacco will this year be about $2,800,000, grown between the parallels of latitude 42° and 43°.

Flowers.

In British Columbia, bulb-growing has been established on a large scale, and there is every reason to expect that Daffodils, Tulips and Hyacinths will soon be grown in quantities large enough to more than meet domestic needs.

Nowhere in the world can Sweet Peas be grown to greater perfection than in northern Canada and on the west coast. Nor can Paeonies, Iris or Gladioli be surpassed, growing as they do vigorously and to the greatest perfection northward, even to latitude 51° in the east, and still further north in the west. By reason of the winter's covering of snow, nearly all the hardy herbaceous perennials may be grown, and it is through the use of these and of the hardy shrubs, that the surroundings of Canadian homes are being beautified. Flowers for commercial purposes are grown on a large scale, every town of any size having its florist. The largest wholesale greenhouse establishment on the continent, known as the Dale Estate, is located at Brampton, Ontario. The greenhouses cover thirty-five acres of ground, out of a total acreage of two-hundred-and-fifty.

Government Aid.

Nearly every Provincial Government in Canada, in some way or other, helps to promote horticultural activity. The Quebec Legislature gives $400 annually to each society; Saskatchewan, 50c. per member and also pays one-half of the prize money at horticultural exhibitions. These are but instances. Ontario, the pioneer in this respect, makes a grant of $20,000 a year, and maintains a horticultural societies' branch, the amateur societies being banded into an association known as the Ontario Horticultural Association, with a membership of 75,000, this being probably the largest purely amateur organisation in the world. The Honourable the Minister of Agriculture and the Deputy-Minister are sympathetic to the cause, and as a result the Province is setting an example in the beautification of homes and of municipalities, the work resulting in a wonderful transformation. The Superintendent of Horticultural Societies, Mr. J. Lockie Wilson, has been at the helm for over twenty years, and it is largely to him that success is due.

Large Private Estates.

In a country with only 10,000,000 population, it is not to be expected that there will be so many private estates as in the United States with over 110,000,000 people. There are, however, several fine examples near Toronto, Montreal, Winnipeg, Vancouver and elsewhere. There is thus not such demand for private gardeners as in the United States. The supply may be said to be almost equal to the demand, a very happy state of affairs. The salaries paid for head gardeners or superintendents vary between the limits of $1,500 and $2,400 per year, with residence. One or two head gardeners receive $3,000 per year. The salaries of cemetery superintendents in the large cemeteries run about

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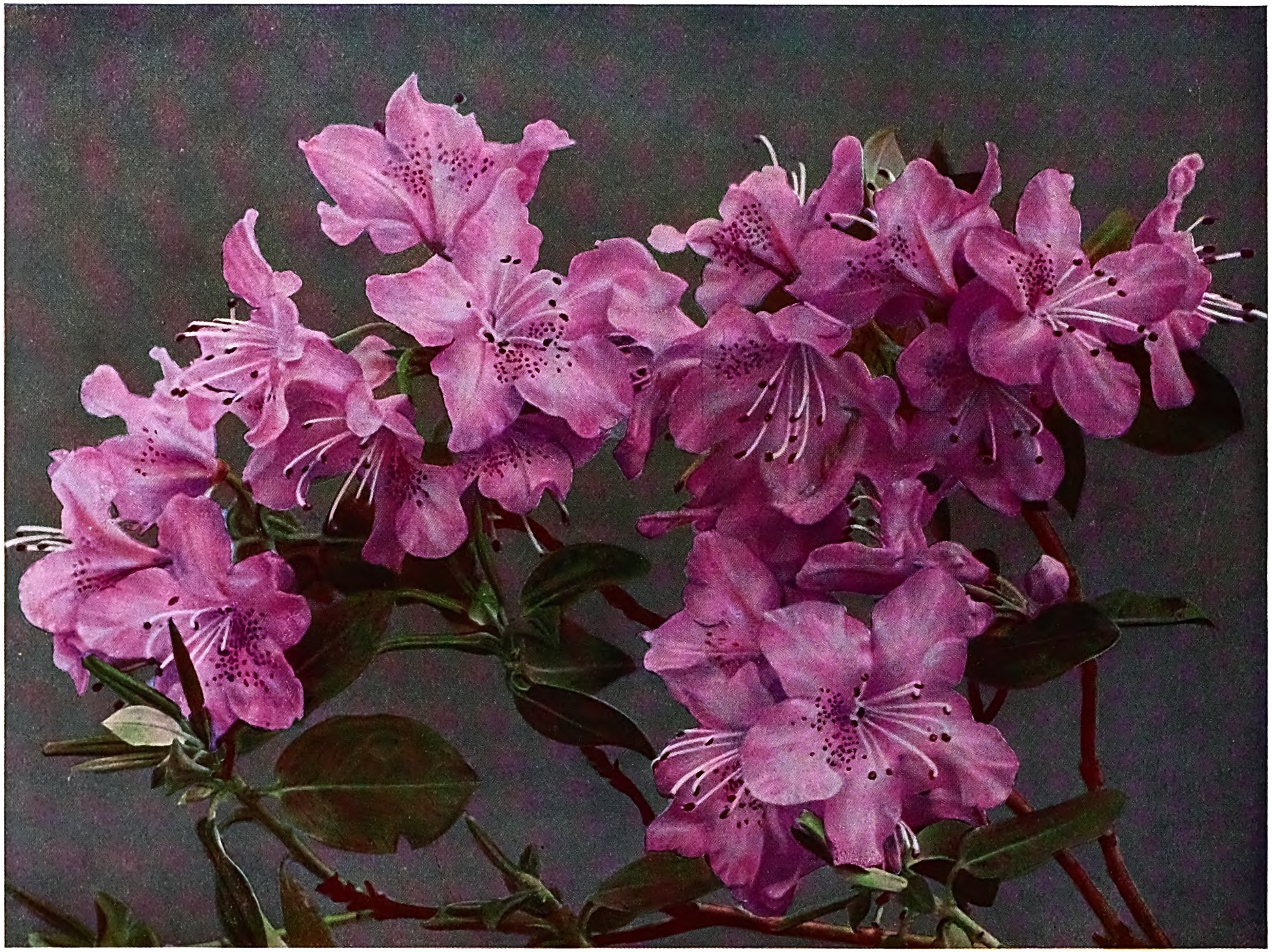
* An address delivered before the National Association of Gardeners at Greenwich, Connecticut, on October 15, 1928, by Mr. Henry J. Moore, of the Department of Agriculture of the Province of Ontario and the Canadian Horticultural Council.

Supplement to "The GARDENERS' CHRONICLE."



RHODODENDRON OREOTREPHES.

$4,200, and those of superintendents of parks in the large cities such as Toronto and Montreal, anywhere from $3,000 to $6,000 per year. Under gardeners receive from $1,200 to $1,500 per year, minus residence in many cases.

THE HORTICULTURAL COUNCIL.

As every Province has horticultural associations of some kind, and as these are so widely scattered, it became evident that unless co-operation was effected in some way, co-ordination could not be brought about. Some organisations were working to the disadvantage of others. Others, actually without knowing it, were working to their own disadvantage in the things they tried to promote, and often of the most vital importance.

During 1919, a number of horticulturists who realised that something should be done, held a meeting at which it was decided to take steps to organise a Canadian Horticultural Council. It was not, however, until 1922 that the organisation took definite shape, and to the Secretary, Mr. L. F. Burrows, and one or two colleagues, and the President and members, should go the credit for the organisation and subsequent management of the Council.

Affiliated with the Council are associations of all kinds: Fruit and Vegetable Growers, Florists and Gardeners, Rose, Gladioli, Paeony and Dahlia Societies, Provincial Horticultural Associations, Package and Basket Manufacturers, and even Jam Manufacturers. In fact, all Provinces are represented, and so well has co-ordination been effected that incalculable benefits have been showered upon the horticultural activities of Canada.

Among the many important achievements are:—

(a) The establishment of National Plant Registration and the Patenting of Plants. Every province has a representative.

(b) Dominion-wide School Garden Competitions. To encourage the beautification of school grounds, the Dominion is divided into eleven sections, and competitions are annually held. Valuable silver cups are awarded to the winners in each section, and these have to be won three times to become the possession of any school. This truly National competition is working a transformation in the external appearance of schools and their grounds.

(c) Horticultural standards for exhibitions. These have been established nationally. Score cards for flowers, fruits and vegetables have been adopted by the Council, thus standardising the methods of exhibiting and judging throughout Canada.

(d) Demonstration Gardens. These, in order that the public may obtain knowledge of desirable subjects for their gardens, have been established in many municipalities.

(e) Certificates of Merit. To encourage the best possible displays at exhibitions, the Council awards Certificates of Merit to outstanding groups upon recommendation of the judges. These certificates are looked upon as the highest possible awards, and are much coveted.

(f) Tariff and Legislation. Matter pertaining to the tariff and legislation are handled directly by the Council, and submitted to the Government at the unanimous request of the Canadian Horticultural interests. Thus, only requests of an intelligent and important nature ever reach the Cabinet. The Council of Horticulture sifts out the dross and is invariably able to convince legislators that the requests are reasonable and from a national standpoint, rather than from that of a merely provincial organisation or society.

THE PATENTING OF PLANTS.

Without doubt one of the greatest forward steps in the horticultural history of any country was taken by Canada when the Government, at the request of the Canadian Horticultural Council, granted letters patent to new originations of flowers, fruits and ornamental plants, it now being possible to actually secure a patent to protect the subject in the same way as an inventor may protect his invention. The Dale Estate of Brampton, Ontario, has taken out the first patent in the history of the world on a plant, this being a commercial Rose Lady Canada. These patents give the originator the sole right to disseminate the plants and any attempt on the part of others to sell without the consent of the originator is an infringement on the patent rights. By reason of this Act plant improvement efforts will be stimulated enormously in the Dominion. To register a plant costs the originator a sum of $5 in Canada, $10 outside, and if the owner desires to secure a patent he will pay the patent fee of $25 extra. This, in the case of an outstanding novelty of great commercial value, is but a small amount.

PROJECTS.

A project of the Council for next year is a campaign to beautify the service stations throughout Canada. This will result in a vastly improved appearance of these essential places. It is possible that prizes will be awarded for the best, and as the companies themselves are greatly interested in the work, the necessary money will be forthcoming, and it may be stated that, as in the case of the school-garden competition, all the valuable trophies have also been donated by public spirited citizens.

Another matter of great importance now occupying the attention of the Council and other organisations is the creation of a National Shade Tree Commission. This body will function in giving advice to municipalities, organisations and individuals in all matters pertaining to the planting and care of trees on streets and road-sides, and proffer legal advice. An attempt is to be made to interest automobile and tyre manufacturers, motorists, governments and municipalities in the planting and preservation of the trees. The more beautiful the highways, the more delightful to travel, and so it is felt that the companies will contribute to the scheme, which, after all, is but co-ordination —the directing of thought and energy, much of which, in the past, has been wasted—into a channel in which it can be used effectively.

AMBASSADORS OF PEACE.

No profession sets a greater example of peace than that of horticulture. Year by year each member of this organisation, the National Association of Gardeners, weaves a little more beauty into the economic fabric of the nation, and year by year helps to mould the national character. In Canada, they are doing just the same, making beautiful this great North America, developing its horticultural resources to leave them as a heritage for the generations yet unborn.

You remember the poem about the old man who at eventide, after crossing the torrent, collected a few boulders and a log or two and built a crude bridge, and when interrogated by a companion as to his reason for building, said, "I'm building for the young fellow who will of necessity have to cross to-night, and who otherwise might be lost!" I like the poem. It must have been repeated a thousand times, please forgive this repetition.

> "An old man travelling a lone highway,
> Came at the evening cold and grey
> To a chasm deep and wide.
> The old man crossed in the twilight dim
> For the sullen stream held no fears for him,
> And turned when he reached the other side
> And builded a bridge to span the tide.
>
> 'Old man,' cried a fellow pilgrim near,
> 'You are wasting your strength in building here,
> Your journey will end with the ending day
> And never again will you pass this way.
> You have crossed the chasm deep and wide,
> Why build a bridge at eventide?'
>
> The traveller raised his old grey head,
> 'Good friend, on the path I have come,' he said,
> 'There followeth after me to-day
> A youth whose feet will pass this way;
> This stream which held no fears for me
> To this fair-haired youth may a pitfall be;
> He, too, must cross in the twilight dim,
> Good friend, I'm building this bridge for him.'"

You are building a bridge and the dawn which is just breaking on this great continent will reveal to the eyes of the oncoming generations a land of beauty, filled with the inspiration which beautiful things alone can create. But the dawn must come after the darkness. Ten years ago there finished the bloodiest war the world ever knew. That war happened because organisations worked for it, or were so apathetic as to let things take their course.

For a hundred years your country and mine, speaking a common language, have set an example that the nations of the world are beginning to follow. We have had no quarrel. You are interested in the ways of peace; the very nature of the things you work with inspires to the loftiest ideals, so from your efforts emanate the beauty, the refinement and the happiness which characterise an ideal citizenry.

In Canada, we desire to know more of you and your work. We want to co-operate with you. Working together, we can cement a friendship which will assure that in the field of horticulture the international horizon will never be darkened, but that the sun of peace will ever shine and friendship ever endure.

Your Government and mine are trying to solve the disarmament problem to assure that there shall be no future wars. What can this organisation do to help? I know you will pardon the suggestion. It can take its place side by side with its sister organisations and affiliate with them into a National Council of Horticulture. Working together, the Horticultural Councils of two great countries can set an example of friendliness to organisations throughout the world, and usher in an era of progress in our beloved profession, such as horticulture has never known. We look to you to help to establish International Plant Registration and to assure that there shall be a universal standard of naming, so that plants all the world over shall each have but one name, and that the prior one, and so prevent duplication and the fraudulent practice of selling plants under wrong names.

These are a few of the great things we can accomplish when we, the horticulturists of the United States and Canada, in our Councils—the Horticultural Parliaments—discuss the things which are vital to the best interests of our great work.

INSECTICIDES AND FUNGICIDES.

(Continued from p. 432.)

THE preparation of Nicotine soap sprays is common enough practice, but semi-solid or cake soaps containing Nicotine are also put on the market for the purpose of being dissolved in stated quantities of water and thus furnishing spray solution of known strength. Such soaps should be looked on critically, for unless made with potash soaps of a particular type they are apt to deteriorate badly on keeping, and consequently may furnish less than the required amount of active Nicotine when used. To overcome this difficulty, true Nicotine soaps have been prepared, *i.e.*, compounds of Nicotine with corresponding fatty acids, using molecular proportions of alkaloid and acid. Such soaps are made, for example, with oleic acid (red oil), although better results may be obtained by using other fatty acids which give superior wetting and covering power. It is by no means certain that such Nicotine soaps have any inherently better qualities than a properly prepared mixture of Nicotine and potash soap, but the simplicity and uniformity of the product may prove advantageous.

With the development of dusting as an alternative to spraying, much attention has naturally been paid to the production of effective Nicotine dusts. All sorts of materials have been tried as absorbents for the alkaloid since R. E. Smith first recommended Nicotine dusts in 1917, among them being kaolin, diatomaceous earths, sulphur, gypsum, talc, magnesia and all manner of limes, both natural and bye-product. The chief difficulties to meet are the volatility and consequent possible loss of free Nicotine on the one hand, and the relatively low toxicity of the sulphate and other stable salts on the other. The solution of the problem lies in the use of suitable alkaline earths, such as precipitated chalk, as absorbents, and the presence of sufficient alkali to ensure the reasonably rapid liberation of the Nicotine from its salts should they be used. In the latter case, a certain minimum humidity should be retained in the powder as moisture is essential for the chemical reactions involved.

To prevent loss from volatilisation or deterioration from access of oxygen, Nicotine dusts should be packed in glass or metal only and used so soon as possible after each package is opened.

When used with proper carriers, Nicotine dusts are very effective as insecticides, and in many cases have proved as efficacious as sprays. As a rule, however, the killing period is longer and the action therefore more liable to be interfered with by rain. Experiments on specific aphidae have shown that, with a liquid Nicotine spray, the majority of the insects are killed within two hours of treatment, and the maximum effect produced within twenty-four hours, whereas, with a dust of corresponding strength, the figures were twenty-four hours and seventy-two hours, respectively. There is, moreover, an appreciably greater cost of materials in the case of the dust and a bigger waste of the expensive Nicotine. The chief advantages of the dust are general convenience, increased speed in treating large areas, and entire independence of water.

PYRETHRUM.—The value, as an insecticide, of Pyrethrum, the so-called Dalmatian powder, has long been known, but the increased attention paid to it recently as a fly-killer has led to further appreciation of its more general utility. The active principles are contained in three species of Chrysanthemum to varying degrees, that generally used for their extraction being C. cinerariaefolium. Like many, or indeed most, plant principles, the active oleo-resins are not present to the same extent even in different varieties of the same species, or at different seasons. Some knowledge must, therefore, be used in the preparation of powders or insecticides in order to ensure a reasonable standard of activity.

Pyrethrum may be used in the form of powder of dried flowers, or it may be extracted therefrom, or, better still, from the fresh flowers, by solvents such as alcohol; or partially extracted by solvents, such as kerosene, for direct use as a fly-killer, etc. Pyrethrum is practically non-poisonous to man and the higher animals, and has consequently proved beneficial for use on forage crops and formed fruits where arsenicals or other poisonous materials are impossible of use. Furthermore, if properly made up, it exerts no injury to foliage and may thus be used in certain forms with impunity on the most delicate plants. Such applications are generally best made with a heavy soap of the alcohol extracted oleo-resins of fresh Pyrethrum flowers. As such, it mixes readily with water to any required degree of dilution, and has proved effective against a very wide range of the commoner insect pests. Quite recently such a preparation has been shown to have particular value in controlling the Japanese Beetle, which is responsible for wide depredations on fruit trees in many parts of America. There is no doubt that an extended use for Pyrethrum compounds is likely to be general.

OTHER ORGANIC INSECTICIDES.

On behalf of the United States Department of Agriculture, MacIndoo and Sievers examined 260 different chosen species of plants with a view to determining their insecticidal properties. Of these, only five were found to be of any value as contact insecticides, the three species of Chrysanthemum mentioned above, Derris root, and the Peruvian plant, "Cube." To these may be added Delphinium consolida, which has some value, according to McDonnell. With the exception of Nicotine, it is rather surprising to find that the plant alkaloids are of low toxicity, although they comprise some of the most deadly poisons towards man. Derivatives of pyridine and its homologues, which from their analogy to Nicotine might be hoped to be useful, are also of low value, although dipyridyl, a synthetic compound obtained by the action of sodium on coal-tar pyridine, is stated to be good against certain plant lice. The field of organic insecticides is therefore very narrow at present, and of the lesser-known substances Derris and Cube are the most promising.

Derris is obtained from the root of Derris elliptica, and the active principles appear to be tubatoxin and certain resins. The latter include the so-called "derrid" and "tubain," but they are not yet in any way well characterised. The methods of extraction and application of Derris are practically the same as for Pyrethrum, and the general action is similar. As for Pyrethrum also, and as happens in the case of all medicinal plant extracts containing no well-characterised or determinable principle, one of the difficulties to be overcome in its adoption is that of assay in order to provide material of constant activity.

Among other things, Derris is stated to be very good against dog and cat fleas, but the writer has had no personal experience with it in this connection.

Fungicides.

Not very much new ground has been broken in the development or improvement of the fungicides. The various copper preparations and the sulphur washes continue to be the mainstays, and, as with the insecticides, advances have been generally in the direction of increasing activity by obtaining better contact and adherence. This is of particular value in the case of :—

SULPHUR AND THE SULPHUR COMPOUNDS.—It has been shown that sulphur is only toxic in the presence of oxygen, and that the active agent is, itself, volatile. Since both oxygen and water are essential to the development of the fungicidal activity, it has been suggested that the action may be due to the formation of pentathionic acid, an oxygenated compound capable of being produced under these conditions. Rate of oxidation is therefore a measure of the fungicidal value of sulphur, and the more finely divided a sulphur preparation, the higher its toxic value is likely to be. Precipitated sulphur is more toxic than finely-ground sulphur, and a true colloidal sulphur is still more active. In the circumstances, it is not surprising that numerous colloidal sulphurs have been marketed and used with fair success. Such colloidal sulphurs are often no more than precipitated sulphur dispersed in a finely divided condition on a colloidal medium. As such they are highly active, but are not to be regarded as true colloidal solutions, the activity of which may be anticipated to be very high indeed. A really stable colloidal solution of sulphur should be an asset of considerable value in the control of fungus pests, but, so far, the writer knows of no commercial product of this nature. Most attempts to prepare colloidal sulphur solutions have been based on the acidification of solutions of polysulphides or thiosulphates in the presence of gelatine or other organic colloid and the attempted removal of the salts formed during acidification by washing or dialysis.

The valuable activity of the lime-sulphur wash is probably due on these grounds to two causes. In the first place, the polysulphides are readily decomposed on exposure to air, with the separation of finely divided free sulphur and its deposition *in situ* on the plant structure. In the second place, the writer's investigations have shown that the sulphur in the calcium polysulphides is progressively more loosely attached to a lower sulphide, and that the last sulphur atoms joined to the complex behave almost as if they were in physical solution. This explains why a wash with a higher polysulphide ratio is more effective than one with a lower, irrespective of the total polysulphide in the diluted solution which may be brought to the same concentration in either case. In the circumstances, it is not surprising that attempts have been made to obtain higher proportions of polysulphide in the lime sulphur wash than those obtainable by standard methods of production, and, failing this, to produce other, similar, polysulphide solutions by different processes. Advances in this direction are generally to be welcomed.

COPPER FUNGICIDES.—The copper compounds continue to hold pride of place as fungicides, in much the same way as the arsenic compounds do as insecticides, and but few chemical changes have been made in their composition in recent years. Indeed, all possible combinations in the use of the simple copper compounds appear to have been tried in the now almost remote past. It is interesting to note that it was in those early days that the first attempts were made to popularise the use of powders, not merely as concentrated forms of the chief mixtures, like Bordeaux, for subsequent solution and dilution, but for actual use in the modern manner by blowing. The dry mixtures, such as Podechard's and David's powders, consisted essentially of quicklime and copper sulphate, and for a time had a certain vogue.

More recently, the success attending the use of dusting has revived a certain amount of interest in the use of the so-called Bordeaux powders and other copper-containing dusts. Not nearly the same success has attended such compounds as those previously discussed as insecticides, and so far it may be accepted in general for fungus diseases, that dusting is not so effective as spraying. With the discovery of new fungicides the position may have to be reviewed, for it is not easy to see any reason inherent in the mechanical condition alone as being responsible for the divergence of usefulness.

Since insecticides and fungicides, where compatible, are frequently used together, the fact that the fungicides are best used as sprays is a good reason for continued preference being given to sprays in general. *S. J. M. Auld, D.Sc.*

(*To be continued*).

NOTICE OF BOOK.

The Science and Art of Scent-making.

THIS little book* will doubtless interest many people—especially, perhaps, women—who use scent in a discriminating way, and will be glad to learn the origins of the different perfumes from one who, unlike the majority of their male acquaintances, takes the subject seriously and regards it with respect. The author is amusing when writing about the lack of discrimination between different scents which is characteristic of the human being, especially of the smoker (although he does not mention this cause of "noselessness") but suggests, doubtless with good foundation, that the sense of smell can be trained by practice, and is so trained by the chemist and perfumer, to a high pitch of perfection, just as the Tea-taster can educate his sense of taste.

Much interesting information is given on the difficult and expensive methods by which the natural scents of flowers are extracted for use, and also on the "synthetic" chemical products which are being used more and more to make cheaper substitutes for the expensive natural perfumes. Many of these synthetics imitate very successfully nature's handiwork, and, indeed, are in some cases compounded of the very same elements; but it takes a little of the romance out of, say, "Trefle Incarnat" when one learns that the recipe for its manufacture consists mainly of linalyl acetate, amyl salicylate and Bergamot and other oils. So far, however, from being in any way disillusioned as to the mode of manufacture, at any rate of the best class of perfume, one is left wondering how, after a process so costly and difficult as that, for instance, of "enfleurage," the resulting perfume can be sold at all at a price within the reach of any but the wealthiest.

The subject of scent in general is not, perhaps, a profound one; but after reading this book, one finds oneself looking at the display in Rimmel's shop window with more of understanding and more of respect than before, and that is surely something gained. The book contains a good, although not very full, index, and is nicely got up.

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* *Scent and all about it*, by H. Stanley Redgrove, B.Sc. London: William Heinemann (Medical Books) Ltd. Price 3s. 6d.

THE GENUS PRIMULA.

(Continued from p. 432.)

GLABRA (Klatt.). Smooth P.
(Farinosae.)

A deciduous perennial of tufted habit, with smooth, non-mealy leaves, having egg-shaped, pointed or blunt blades tapering to a fairly long stalk, in all from half-an-inch to one inch long; margins toothed or jagged as though gnawed by insects. Flower stem very slender, one to five inches long, mealy among the flowers, which are borne in an umbel of three to six on very short stalks. Corolla a quarter-of-an-inch across, bluish-purple, divided into five short, flat, bifid segments; tube contracted at the mouth.

Grows in damp alpine pastures in the Sikkim Himalayas, at about 15,000 feet above sea-level.

Culture: As for P. denticulata.

GLACIALIS (Franch.). Glacial P.
(Nivales.)

An attractive species with a tuft of Papyrus-like leaves one inch to two inches long, with oblong or lanceolate, blunt blades gradually tapering into narrowly-winged stalks; margins closely and bluntly toothed; upper surface more or less smooth, underside coated with white meal. Flower stem one-and-a-half to two-and-a-half inches tall, bearing an umbel of three to five violet-coloured blossoms. Corolla slightly concave, over five-eighths-of-an-inch across, divided into five oval-oblong, entire lobes; tube slightly longer than the calyx. Flowers in June.

This species grows in glacial debris and peat, on the edge of the limit of perpetual snow, on the Lichiang Range, in Yunnan, western China.

Culture: Plant it in peat and limestone chips in a moraine, with abundant underground moisture in the growing season, but with protection from damp in winter.

GLANDULIFERA (Balf. f.). Glandular-hairy P.
(Minutissimae.)

A minute, tufted species covered, except the corolla, with short, glandular down. Leaves about three-quarters-of-an-inch long, with elliptic, oblong-elliptic or broadly wedge-shaped leaves, blunt and rounded at the tip, narrowing at the base into a short winged stalk. Flower stem about a quarter-of-an-inch long, bearing two to four stemless blossoms. Corolla about half-an-inch across, membranous, divided into five egg-shaped, very deeply-cleft lobes; tube about half-an-inch long, cylindric, rugose and granular within. The colour of the blossoms has not been recorded but is probably some shade of purple. Flowers from July to September. Not in cultivation.

Grows in open places in rocky soil near Napatcha and Dudhpani, in the Kumaon Himalayas, at about 13,000 feet above sea-level.

Culture: Members of the section to which this species belongs have not so far been successfully cultivated for any length of time. Frame culture may be tried, in a compost of peat, loam and limestone chips, well supplied with water when the plant is in growth.

GLAUCESCENS (Moretti.). Glaucous P.
(Auricula.)

A beautiful species from the Alps of southern Europe. It produces a tuft of lance-shaped or narrowly-oval, pointed leaves, three to four inches long; margins quite entire, broadly edged with cartilaginous membrane; upper surface smooth, not sticky, slightly glaucous, underside more so. Flower stem four to five inches tall, smooth, fairly stout, bearing an umbel of two to six rose, pale rose-purple, or pale lilac blossoms. Corolla three-quarters-to nearly one-and-a-quarter inch across, more or less funnel-shaped; lobes broadly heart-shape, notched; tube longer than the calyx. Flowers in March and April.

Grows in elevated alpine meadows, usually on limestone formations, in open situations on the Alps of Bergamo and Judicaria.

Var. calycina (Durby), is more robust than the type, with flowers one-and-a-quarter inch across; tube as long as the calyx. Alps of Bergamo.

Var. longobarda (Porta.), is a dwarf form with flowers about three-quarters-of-an-inch across; tube longer than the calyx. Alps of Judicaria.

Culture: Plant them in fibrous loam and limestone chips in a damp, sunny spot.

GLUTINOSA (Wulfen.). Sticky-leaved P.
(Auricula.)

An exceedingly beautiful, but difficult plant to induce to blossom in this country. It is a deciduous perennial, with a tuft of narrowly-oblong or lance-shaped leaves, one to three inches long; margins toothed from the middle to the tip; both surfaces covered with a very viscid secretion from glands. Flower stem three to four inches tall, fairly stout, erect, bearing an umbel of about half-a-dozen very fragrant, intense violet-blue, or rarely white, blossoms on very short stalks subtended by conspicuous bracts. Corolla somewhat funnel-shaped, half-to nearly three-quarters-of-an-inch across, divided into five rounded, notched, spreading lobes; tube as long or a little longer than the calyx. Flowers in April. Introduced in 1824. *Gard. Chron.*, 1915; Vol. LVII, Fig. 64, p. 206.

This species is found in damp, peaty soil on granitic formations, usually in very dwarf, grassy lawns on the edges of the melting snow, ranging from the western Rhaetian Alps throughout the Alps of Austria, up to 10,000 feet above sea-level, where it blossoms surrounded by a blanket of snow.

Culture: Plant it in peaty soil among very dwarf alpine grasses, such as Festuca ovina tenuifolia; treat it as a bog plant when in active growth, and protect it in winter with a sheet of glass overhead, and a cone of dry fibre over its crown.

GRACILENTA (Dunn.). Graceful P.
(Muscarioides.)

A smooth, non-mealy, deciduous perennial with a rosette of rich green foliage springing from small, fleshy resting buds. Leaves two to three inches long, with oblong, blunt blades tapering to a short, or rather long, winged stalk; margins wavy, furnished with blunt, irregular teeth; both surfaces finely hairy, especially on the veins beneath. Flower stems slender, slightly hairy, six to nine inches tall, bearing a head or short spike of deep lilac, stalkless, frequently nodding blossoms. Corolla about three-eighths-of-an-inch across, bell-shaped, divided into five blunt, oblong, toothed segments; tube cylindrical, about three-eighths-of-an-inch long. Introduced in 1915.

This beautiful species is found in moist alpine situations on the mountains of north-western Szechuan and the Tibetan frontier, at 9,000 to 13,500 feet above sea level.

Culture: Plant it in Oak or Beech leaf-soil, with a small quantity of friable loam and sand added, in a cool spot, with protection from wet in winter.

GRACILIPES (Craib.). Slender P.
(Petiolares.)

A dwarf perennial with a fairly stout root-stock and a tuft of oblong-spathulate leaves with rounded, blunt tips, the blades narrowing at the base into short, more or less narrowly-winged stalks, in all one to three inches long; margins sharply and irregularly toothed. Flower stem nearly obsolete. Flowers borne on stalks equalling, or slightly shorter than, the foliage. Corolla about three-quarters-of-an-inch across, divided into five broadly egg-shaped or broadly wedge-shaped lobes, each tip being furnished with three pointed teeth; tube short, cylindrical. The colour of the blossoms of this species has not been recorded, but is probably some shade of purple.

Grows on the mountains of eastern Sikkim, probably reaching its greatest elevation above sea level at Begger, 12,500 feet.

Culture: It should succeed in good fibrous loam and grit, in a damp, open spot.

GRAMINIFOLIA (Pax et. K. Hoffm.) Grassy-leaved P.
(Nivales.)

This beautiful plant is a sub-species of P. sinoplantaginea (Balf. f.). It has an erect root-stock clothed below with brownish, deciduous scales; the papery, linear, pointed leaves have blades one-and-a-half to two-and-a-half inches long and less than one-eighth-of-an-inch wide; margins revolute, sub-entire; upper surface more or less smooth, underside sparsely coated with sulphur-yellow meal. Flower stem fairly stout, three to four inches tall, coated with yellow meal towards the tip and bearing a terminal umbel of two or three blue flowers, on mealy stalks up to a quarter-of-an-inch long. Corolla three-quarters to over one inch in diameter, divided into five oblong, pointed lobes; tube cylindric, longer than the calyx. Flowers in July. Not in cultivation.

The plant is found in alpine pastures at Dawo Lumpuer Tal, in eastern Tibet, at about 15,000 feet above sea level.

Culture: Good fibrous loam and grit, in an open spot in the rock garden, well supplied with underground moisture when the plant is in growth, with protection from damp in winter, are the conditions required.

GRANDIS (Trautv.). Large P.
(Grandis.)

A coarse-growing, small-flowered perennial species with a large tuft of Burdock-like foliage. Root-stock thick and fleshy. Leaves thin, not mealy, with oval or triangular-oval blades, six inches long, heart-shaped at the base, on distinct, slender, narrowly-winged stalks from nine to twelve inches long; margins irregularly and finely toothed; upper surface nearly smooth, underside rugose and sparsely downy. Flower stem one-and-a-half to two-and-a-half feet tall, stout, bearing an umbel of thirty or more drooping, pale yellow blossoms from five-eighths-to three-quarters-of-an-inch long, on slender, down-curved stalks from two to three inches long. Corolla narrow, more or less tubular, divided into five narrowly oblong, blunt, broadly notched lobes, each with a minute tooth in the cleft; tube somewhat inflated, occupying about half the total length of the blossom. Flowers in August.

Grows in moist alpine meadows in the Caucasus, at from 6,000 to 9,600 feet above sea level.

Culture: Plant it in rather heavy loam, and treat as a bog plant; it is easily grown.

GRIFFITHII (Watt.). Griffith's P.
(Petiolaris-Roylei.)

A handsome, smooth, non-mealy perennial species with a tuft or rosette of membranous, broadly oval, pointed leaves from one-and-a-half inch to two-and-a-half inches long, tapering gradually, or rather abruptly contracted into a winged stalk, shorter than the blade; margins furnished with coarse, rounded teeth. Flower stem four to seven inches tall, bearing a many-flowered umbel of purple blossoms on erect stalks about three-quarters-of-an-inch long. Corolla about one inch across, divided into five broadly heart-shaped, notched lobes; tube twice as long as the calyx, cylindric below, dilated upwards, with a ring in the throat.

Grows in cool, damp situations in the Sikkim and Bhutan Himalayas, at from 12,000 to nearly 16,000 feet above sea level.

Culture: Good fibrous loam and peat, and a cool, moist, but well-drained spot, with protection from wet in winter, should fulfil its requirements.

GROENLANDICA (Warming). Mealy Greenland P.
(Farinosae.)

This plant is a sub-species of P. farinosa. It is a dwarf, deciduous perennial with a tuft or rosette of diamond-oblong-shaped, coarsely-toothed or nearly entire leaves, usually smooth above and more or less mealy below. Flower stem stout, somewhat fleshy, three to four inches tall, bearing an umbel of violet blossoms, rather similar in shape and size to those of P. farinosa.

Grows in damp, open situations in rocky soil in Greenland and Labrador.

Culture: As for P. farinosa. *A. W. Darnell.*

(To be continued.)

TREE GROWTH AND CLIMATIC CYCLES.

I have just received *The Gardeners' Chronicle* of August 8, and was interested to read therein an account of the above subject (p. 122). Some twenty-five years ago, we had experienced about five very dry seasons, and a correspondent in *The Leader* (an Australian weekly), witnessed the sawing of logs, and on close examination, concluded that the trees had been growing from three to four hundred years; seeing that there were not more than five consecutive narrow rings (which were supposed to correspond with the dry seasons), and as we had already had five dry seasons, by taking the law of averages, we would now have normal or wet seasons.

Being a close observer, I endeavoured to prove that the wet seasons do not necessarily cause the larger, or wider annual rings. These giant trees, which are invariably selected to prove the theory, are so well established that they are not so seriously affected by the weather conditions as normal-sized trees. What I want to emphasise is, that a season attended with frequent high winds places a greater strain upon the trees (and especially the evergreen trees when making new growths), and wider rings are the result. To illustrate the "wind theory" on annual rings, remove all trees but one from a group, and the annual ring the tree makes the first season may be equal to three or four previous rings, but after it has supported itself in proportion to the strain put upon it, then it soon acts normally again, consequently rainfall, position, winds and velocity, must all be considered before we come to conclusions. *Thomas W. Pockett, Healesville, Victoria, Australia.*

NURSERY NOTES.

MESSRS. WM. WOOD AND SON, LTD.

"Everything for the garden" is the slogan of this enterprising firm, whose headquarters are at Taplow, Buckinghamshire, and whose activities are extremely widespread and varied.

The landscape department is a very active one, and in conjunction with this work are those of constructing glasshouses and frames, summer houses and pergolas; and the supply of fuel, various types of rock and paving stones, ornaments and garden furniture—seats in Teak-wood and stone, white enamelled and in wicker-work,—canvas hammocks, brilliantly-coloured giant umbrellas, plant tubs, tables, etc.

One large room of the extensive buildings at Taplow is devoted to the exhibition of these subjects, together with insecticides and fungicides, tools of every description, artificial manures, mowing machines, watering cans, netting for all purposes, and packing boxes—in fact, everything that is required, or likely to be required, in an up-to-date garden establishment. Hoses form one of their specialities, one type being guaranteed for ten years' service, while a specially prepared insect-proof rope is also stocked and is specially recommended for training Roses and other subjects on.

As proof of the enterprise of Messrs. W. Wood and Son, it is sufficient to state that they have their own private siding from the railway, to facilitate dispatch, while the carpentry and joinery shop is extremely modern in its equipment. All the glasshouses, frames, etc., which they supply are made on the establishment, and the demand is apparently so great that the machinery for the making of them has, of necessity, to be of the highest efficiency.

On the occasion of our visit recently, we were able to see many houses in the course of construction, and the speed with which the various sections were made was amazing. In the painting shop lathe blinds were receiving their final coats of paint, while the smithy rang with the sound of busy workmen making iron fittings for the glasshouses, etc.

In another department various artificial fertilisers were being mixed and prepared, and in another, insecticides and fungicides were being made: it was of interest to note that soft water only, collected in a specially constructed tank, is used in the making of these preparations. In a huge yard adjoining the buildings there were large stocks of Larch poles of varying sizes, Pea and Bean sticks, and fencing, while in one of the sheds were huge bins of various types of soil and sand.

The nursery section cannot be describe d as extensive, although we were able to inspect a goodly collection of alpine and herbaceous plants, but fresh land is being brought into use annually, and this side of the establishment's activities is expanding rapidly to cope with the requirements of the landscape department. At the entrance to the nursery are to be seen various exhibition gardens, including a sunk formal garden, divided into sections, each being constructed of different types of stone, so that the prospective customer may see for himself the qualities of each and may chose accordingly. There is also an attractive rock garden, a small Lily pool of formal design, and an exhibition hard tennis court.

It will be seen, therefore, from these few notes, that "Everything for the garden" is no idle boast.

FRUIT GARDEN.

EARLY FRUITION OF FRUIT TREES.

Awhile back (*Gard. Chron.*, January 2, 1926, p. 16), I outlined the plan of grafting scions from young seedlings at some height upon old and well-spurred trees, as a possible means of inducing hastened formation of fruits: of this method some actual trials are in being, but it is too early to record any results. The purpose of these lines is, however, to note that the method is given in the now rare *Le Cidre* (par de Boutteville and Hauchecorne, Rouen, 1875), a copy of which has lately come my way.

On page 260, it is stated that M. Sannier, horticulturist of Rouen, has devised a plan which markedly and surely shortens the long period from seedling to fruiting. When translated, the paragraph reads: "M. Sannier cuts a sufficient amount to yield a couple of grafts from the seedlings of the previous spring—*i.e.*, from their first autumn onwards; these he inserts as crown grafts on a free stock at a height of about two metres (essential condition). Such grafts fruit, or, at least, flower, at the end of two, or at the most, of three, years; also 'down-bending' (*arcure*) is done to the young shoots if they do not tend to form fruit buds (no pruning is mentioned. H. E. D.) At the same time, the original seedling is conserved and serves to form a tree itself or a further supply of grafts; it is not seriously delayed by the procedure of cutting it back."

I may add that some friends propose to try the method on a considerable number of new seedlings when grafting time comes round in the spring, so that there should be data available on a considerable scale in a few years time. *H. E. Durham.*

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for the opinions expressed by correspondents.*]

Effects of the Storm.—I hope that some one will draw up a report of the damage done throughout the country by the recent gale, for it must be the worst experienced for many years, not excepting that of March, 1916. At Aldenham, we escaped comparatively cheaply, by far the most serious loss being an unique form of the common Ulmus campestris, about eighty to one hundred years old, which had grown into a narrow Cypress-like pyramid and made a very striking land-mark. At Kew, their best and biggest Ulmus campestris is gone, also two or three large Sequoia sempervirens. Further, in their recently-acquired Pinetum, at Bedgebury, in Kent, they have lost many magnificent specimens of Conifers planted, doubtless, some seventy years ago by the then owner, Alexander Beresford-Hope. Again, at Tortworth, Gloucestershire, the havoc has been terrible, the famous Castanopsis chrysophylla, of which my old friend Lord Dacre was so proud, is destroyed, although planted, as I should have considered, in a sheltered spot. The best specimen of Nothofagus obliqua, raised from seeds which Mr. H. Elwes introduced from Chile, is no more, and many of the choicest and rarest Conifers have also joined the majority. At Sheffield Park, Sussex, Mr. Arthur Soames is mourning the loss of what I believe to have been much the finest Ailanthus glandulosa in the country, at any rate, much larger than any recorded in Elwes' and Henry's *Trees of Great Britain*; its girth was twelve feet six inches. A great many of his finest Eucalyptus Gunnii, even although twice pollarded, failed to withstand the gale. A Spruce, 117 feet high, is another victim, and, were it not taking up too much of your space, the sad tale of death and destruction could be greatly extended. These are the only places from which reports have reached me, although I gather that our native Oak, Quercus pedunculata, has generally suffered very severely owing to the fact that it had not yet shed its leaves. I hope that this short and imperfect sketch of what has been happening in two or three places in the south may stimulate someone to draw a complete, if tragic, picture of all the losses incurred in the British Isles, giving the height and girth of the more notable trees that have fallen. The article by Mr. E. A. Bowles on the effect of a recent severe winter would, *mutatis mutundis*, serve admirably as a model. *Vicary Gibbs, Aldenham.*

Rosa nitida, etc. (p. 406).—I was very interested in your correspondent, Mr. A. C. Downe's, note on Rosa nitida. It has been a fine colour with me and I can imagine what a fine sight it must be when planted as he describes. Rosa lucida was not as good in the colour of its autumn foliage, but seems better now with its reddish-brown stems. Of the few other species I have none show much colour in the autumn foliage. Regarding the shrubs mentioned, all have been good here, but the small bushes of Liquidambar styraciflua down in the nursery were exceptionally good, whereas a specimen about eighteen feet high gave very little colour. Fothergilla major was gorgeous; Disanthus cercidifolius also, until 12° of frost spoilt the display of this and several other subjects. But of all the shrubs here, and in my nursery, none can beat Cotoneaster divaricata, C. nitens, C. acuminata and C. bullata. They were a mass of colour and after two of the worst gales we have had for years, they still showed more coloured foliage than anything else. *G. H. Dalrymple, Bartley, nr. Southampton.*

Buddleias.—Those who know the beautiful family of Buddleia will be interested in Mr. B. Mulligan's note on this shrub on p. 406 of *The Gardeners' Chronicle*. I am concerned to see, however, that according to Messrs. Wilson and Rehder, the now well-known B. variabilis varieties should be called B. Davidii, for their authority is good, but I think we owe it to the late firm of Messrs. James Veitch and Sons, who introduced them to commerce, to find out what was their authority for the name B. variabilis. When once a plant has been widely distributed and become known under a specific name, to change it is a serious matter, and I suggest it will be doing a good service if the authority for the original nomenclature, which most of us would prefer to retain, could be given. *Laurence J. Cook.*

Geranium sanguineum var. lancastriense.—Mr. E. Horton (p. 375) is amusingly emphatic. But may I ask him for his authority for stating that the *Kew Hand List* is wrong in describing the above as a synonym of G. s. var. roseum, thereby substantiating my own belief that what we call G. s. var. lancastriense is a rose-pink and not a magenta form. Merely to suggest that Kew has made a mistake and flatly to assert that "therefore" Mr. Stansfield is right and I am wrong, proves nothing. I do not claim any originality in stating what I consider the colour of G. s. var. lancastriense to be. Farrer writes of it as being of the "tenderest and truest rose-pink." Mr. E. A. Bowles refers to its "soft rose" and "soft salmon-rose," and Bentham and Hooker call it "flesh coloured." So, perhaps, Mr. Horton will feel convinced that in my endeavour to rescue the pretty thing from the family curse—magenta—I am in good company. May I remind Mr. Horton that there are any number of forms of G. sanguineum, and that the mere fact of finding one of these in the Isle of Walney is no proof that it is the variety in question. Perhaps he will be good enough to tell me what he thinks G. s. var. prostratum looks like, and if he has ever picked that up on the Lancashire coast. *A. T. J.*

The late Mr. John Cypher, V.M.H.—As one who has been the recipient of advice kindly given when sought, I desire to express my pleasure in reading in *The Gardeners' Chronicle* that a suggestion has been put forward to form a memorial to the late Mr. John Cypher. I shall be pleased to subscribe to a fund in recognition of his assistance given gratuitously on any occasion when I required his expert advice. My acquaintance with him was of the pleasantest, if not the longest; many knew him better, and I feel sure will honour his memory. *Clariore Tenebris, Birkdale.*

Twin-flowered Cypripediums.—I was under the impression that it is a characteristic of Cypripedium insigne to have only a single flower upon each stem. An example of this Orchid, at present in flower in my greenhouse, has two stems each bearing one single flower, one stem bearing one perfect and one undeveloped flower, and one stem bearing two distinct and perfectly formed flowers, the flowers being about three inches apart, the lower flower fully open and the upper one commencing to unfold. Both flowers are of normal size. The plant is a part of a large specimen (never bearing more than a single flower on a stem) which I divided some eighteen months since. Will your Orchid specialists kindly state whether this characteristic is sufficiently uncommon to be of interest, and, if found to be persistent, whether the commercial value of the plant would be increased thereby. *C. Clarke, Sutton, Surrey.*

Apple Ellison's Orange.—The description by *Market Grower* of Ellison's Orange Apple on p. 414, is so absurdly inaccurate as to suggest that he has not the true variety, or that the situation is totally unsuited to it. In this district it is rather a pretty fruit, and the flavour, although not equal to its parent (Cox's Orange Pippin), is decidedly good. From what I have seen, I am inclined to think it will succeed better in the midland and northern counties than south of the Thames, which may, perhaps, account for the unflattering description referred to. *Chas. E. Pearson, Lowdham.*

National Chrysanthemum Society's Show.—I quite agree with *J. H.* (p. 414) that it would be wise if the Committee of this Society were to introduce some classes for plants suitable for conservatory decoration, in pots not exceeding eight inches in diameter. I also suggest that classes be made for Single Chrysanthemums not disbudded, and also for Japanese varieties, not disbudded. At the local exhibition here, these classes make a grand display, as nearly all the local gardeners grow spray blooms. *A. E. T.*

Table Decorations.—The notes dealing with Table Decorations which have appeared in recent issues of *The Gardeners' Chronicle*, are very appropriate for this season of the year, when shooting and hunting parties are being given in many country mansions. However, the table decorations executed at flower shows give the general public only a very slight idea of the decorations as carried out in country mansions. With regard to table ornaments, I quite agree with G. S. Thomas; in my opinion, the less they are used, the better. The imitation kingfishers, butterflies and nymphs are out of keeping in a beautiful dining room. I consider that candelabra are quite sufficient, shading being employed according to the flowers used. What is more annoying than sitting at table and not being able to converse across the table, owing to a large vase of flowers being in front of you, usually so high that you can only see the undersides of the blooms. My endeavours were always to arrange the flowers so that guests could look down on them. They were placed in low, plain glasses, sprays of Lygodium scandens being trailed among them. Mr. Thomas states that the Japanese are past-masters in the art of table decoration. Their style suits their country. I consider that an English gardener in a good establishment, if allowed to carry out his own designs, is equal to any. *John Butler, Rose Cottage, Kidlington.*

PUBLIC PARKS AND GARDENS.

The Bognor Urban District Council has approved a recommendation to acquire land at Felpham for recreation grounds, and a proposal to construct a boating pool for children and to lay-out a sun garden on the Marine Parks estate.

The Bridgwater Library, Museum and Open Spaces Committee has been asked to consider the provision of playing fields in the Bristol Road district; the laying-out of the Blake Museum garden; and the purchase of Brown's Pond and adjoining land, and their conversion into a small ornamental park.

The Charlton Kings Urban District Council has under consideration a proposal to purchase a nine-and-a-half acre site for a recreation ground.

The Paignton Urban District Council is contemplating the purchase of the Parkfield estate for pleasure grounds.

At a public meeting of residents, held in the Village Hall, Porlock, it was decided to purchase land for a recreation ground.

The Radcliffe Urban District Council has resolved to make application to the Ministry of Health for sanction to a loan for the purchase and development of land for playing fields. The surveyor has been authorised to prepare schemes for the development of the Radcliffe Hall and Bolton Road sites as recreation grounds.

The Wroughton Privy Council has appointed a Sub-Committee to consider the proposed purchase of land for a recreation ground at a cost of £1,400.

The Redcar Town Council has authorised the Surveyor to prepare plans for the lay-out of Locke Park.

The Boultham Ministry of Health has held an enquiry into an application of the Lincoln Town Council for sanction to borrow £6,000 to purchase eighty acres of land at Boultham for open spaces and playing fields, and £3,400 to purchase fifty-three acres of ground at Skellingthorpe for a similar purpose.

The Bradford Town Council has received a grant of £1,000 from the National Association and the Carnegie Trust for the Harold Park scheme for recreation grounds.

The Charlton Kings Urban District Council has under consideration the purchase of a field between Little Herberts and Church Street, and laying it out as a recreation ground at a total estimated cost of £659.

The Higham Ferrers Town Council has approved a scheme to provide a recreation ground, at an estimated cost of £1,700.

The Prestwich Ministry of Health held an inquiry recently at the Town Hall into an application by the Urban District Council for the sanction to borrow £15,000 for the laying-out, etc., of land known as Rectory Fields for recreation purposes.

SOCIETIES.

MANCHESTER AND NORTHERN COUNTIES CHRYSANTHEMUM.

After a lapse of fifteen years, a two-days' show was held by this Society in the Town Hall, Manchester, on November 14 and 15. There were many fine exhibits, both by the trade and private growers, and these filled the hall and provided a spectacular effect.

Messrs. Sutton and Sons, Ltd., staged a very fine exhibit of vegetables, which was awarded a Large Gold Medal; and Mr. H. Woolman set up an extremely attractive display of Chrysanthemums, for which they also received a Large Gold Medal, as did Messrs. Allwood Bros., for Carnations.

Mr. Robert Tyrer, of Bolton, was successful in winning the Challenge Cup presented by the Manchester Guardians, in the trade section, for a group of Chrysanthemums, while the *Daily Dispatch* Cup, for a group of Orchids, was secured by Mr. McLeod. Messrs. Garner and Sons staged a very attractive Large Gold Medal exhibit of Chrysanthemums in pots and as cut flowers; and the Manchester Parks arranged a big display of Japanese Chrysanthemums, for which they were awarded a Gold Medal, as also were Messrs. Dickson and Robinson for a stand of cut flowers.

In the competitive classes, the Cheadle Royal Mental Hospital carried off several prizes, the chief being first prize for a large group of Chrysanthemums; and first for specimen plants of Begonia Gloire de Lorraine.

The various competitive classes were well filled, especially the one for Japanese Chrysanthemums, for a Challenge Cup offered by the Royal Botanical Society of Manchester and Northern Counties, which the Stockport Society won with very fine blooms.

LANCASTER CHRYSANTHEMUM.

November 15.—The eleventh annual Chrysanthemum, etc., show, held in the Ashton Hall, was opened by the Mayor, Mr. E. G. Smith, supported by Mr. R. Parkinson Tomlinson, M.P. for the division, and the Chief Constable, Mr. C. E. Harriss, President. The cut bloom classes probably contained the finest exhibits in this Society's history, and the fruits and vegetables were of very good quality. Owing to lateness, the usual competitors in the group class were missing, and it would have been to the credit of the Society if the cup had been withheld. However, no complaint could be made against the cut blooms, both Japanese and Single, except that the two vases of Singles were in duplicate, and even this had its compensation, for four finer vases of Bronze Molly, Phyllis Cooper, Molly Godfrey and Mrs. J. Palmer could not have been desired than those shown by Mr. F. Smith, Bare. This exhibitor was the chief winner in all Chrysanthemum classes he entered for, and his flowers were magnificent. His twelve Japanese, nine varieties, included Mrs. B. Carpenter, W. Rigby, Majestic, Julia, Victory, Mrs. A. Davies, R. C. P. 1927, Red Majestic, Mrs. Holden, Mrs. R. C. Pulling and Miss D. C. Atkinson, and these gave no other exhibitor a chance, although Mr. S. Carney had a good entry. In the class for six Japanese, his Princess Mary, Queen Mary, etc., were of equal excellence. In the two vases of Decorative, his In Memoriam and Blanche Poitevine were delightful. In all these classes Mr. S. Carney made a great effort, and would have won against a less redoubtable opponent.

These two exhibitors, with Mr. J. Dearden, dominated the open plant classes, and Mr. Dearden easily led for Primulas. In the open fruit classes, Mr. W. Robinson, Forton, was the leading prize-winner, with Mr. W. R. Walling and Mr. W. M. Simpson following. Mrs. F. Emmott secured the prizes both for a table decoration and an epergne; and Mr. E. Clayton had the best hand bouquet. In the restricted classes, Messrs. Carney, S. B. Carter and E. Broadley were most prominent.

Trophies.—Mr. F. Smith, Bare, won the Lady Storey Rose Bowl and also the Alderman

Jackson Cup; the Lord Ashton Cup (presented by Sir Norval Helme), was won by Mr. S. Carney, Lancaster, who also obtained the Councillor Clark Challenge Cup; while Miss Brighouse took the Alderman J. J. Curwen Cup for fruits and vegetables. Mr. W. Robinson secured the prize for the premier collection of vegetables.

The Corporation Parks Committee (gr. Mr. J. Dearden), staged a fine and extensive group of Chrysanthemums.

READING AND DISTRICT GARDENERS'.

There was an excellent attendance of members at the fortnightly meeting of the above Association, held in the Abbey Hall on November 19, and presided over by Mr. H. Reeves.

The subject of the lecture was "The Chemistry of the Soil," the lecturer being Mr. Marshall, The Gardens, Bere Court, Pangbourne, a representative from the Pangbourne Gardeners' Association. The subject was dealt with in a clear and practical manner, the chief points discussed being the life of a plant; the fertility of the soil; organic and inorganic manures and their application; manuring of fruit trees; fungus diseases and insect pests.

In the competitive classes for Apples and Pears, many excellent specimens of Bramley's Seedling, Newtown Pippin, Peasgood's Nonesuch, Cox's Orange Pippin and Blenheim Pippin were staged. For three dishes of Apples, two culinary and one dessert, there were eleven entries, the first prize being awarded to Mr. M. Goddard, The Gardens, Bear Wood; second, Mr. F. J. Green, The Gardens, Aldermaston Court. For three dishes of Pears, there were seven entries, and the first prize went to Mr. A. Manley, The Gardens, Highfield, Heckfield; second, Mr. M. Goddard.

In the non-competitive section some very interesting exhibits were arranged. Mr. C. S. Clacy, The Gardens, Lidmouth Grange, Earley, showed blooms and seed-pods of Tacsonia Van-Volxemii, and a vase of seedling Chrysanthemums; Mr. C. Cook, Tilehurst Road, Reading, exhibited fruiting shoots of Celastrus articulatus; and Mr. G. Burchell, Linden Road, Reading, a vase of Single Chrysanthemums. A First Class Certificate for Cultural skill was awarded to Mr. A. Manley for a vase of blooms of Princess of Wales Violets; and an Award of Merit to Mr. C. J. Howlett, The Yews, Earley, for a collection of highly-coloured Apples.

NATIONAL DAHLIA.

The annual meeting of the above Society was held at the Royal Horticultural Society's new hall on November 27, Mr. Joseph Cheal occupying the chair.

The annual report was presented by Mr. W. E. Chittenden, and was accepted by the meeting. It was stated in this report that the past season was a most successful one for the Dahlia; although in some places frost destroyed them earlier than usual, in others, notably the public parks, the Dahlias continued their display until the end of October. A large number of new varieties of Dahlias was submitted to the Joint Dahlia Committee, and many were selected for trial at Wisley next year. Of those which were tried during the current year, twenty-one were selected for Awards of Merit, and sixteen were highly commended. The Gold Medal offered for the best seedling Dahlia tried at Wisley, was not awarded this year, as the plants were cut down by frost before they could be inspected properly. During the past year, sixty-four new members have joined the Society. Regret was expressed at the loss sustained by the Society in the passing of Mr. W. J. Chittenden, Hon. Secretary since 1924, and of Mr. H. J. Jones, who was, for many years, an active member of the Committee.

The balance sheet, which showed a balance of £197 1s. 10d. to the good, was presented by Mr. D. B. Crane, Hon. Treasurer, and was accepted by the meeting. The sum of twenty-five guineas was proposed by Mr. D. B. Crane as an honorarium to Mr. W. E. Chittenden, who has discharged the secretarial duties of the Society since the death of his father. The Chairman seconded the motion, which was carried unanimously.

Mr. Reginald Cory was re-elected President of the Society, and the Vice-Presidents were re-elected *en bloc*. Mr. George Monro and Col. F. R. Durham were also elected Vice-Presidents.

Mr. Joseph Cheal was re-elected Chairman, and cordially thanked for his previous services, and Mr. J. Emberson was re-elected Hon. Show Superintendent. Mr. Emberson was presented with a silver tray in recognition of the valuable work he has done for the Society. Mr. W. E. Chittenden was elected Hon. Secretary, and Mr. D. B. Crane was re-elected Hon. Treasurer.

With regard to the election of members of the Committee, a motion was passed that no member be elected who has not paid his subscription for the year preceding the annual meeting. All the present members of Committee were re-elected, subject to the above condition. Mr. R. C. Pulling was also elected a member of the Committee.

ROYAL HORTICULTURAL.

The following awards have been made to the undermentioned flowers by the Council of the Royal Horticultural Society, after trial at Wisley.

Perennial Asters.

Awards of Merit.

Amellus section.—*Kobold*, sent by Messrs. Arends; *Sonia*, sent by Mr. T. Bones; and *Viola*, sent by Mr. H. J. Jones. Ericoides section.—*Silver Spray*, sent by Mr. E. Ballard, Malvern. Novi-Belgii section.—*Empress of Colwall*, sent by Mr. E. Ballard; *Ethel Ballard*, sent by Mr. E. Ballard; *Red Star*, sent by Messrs. Dickson and Robinson; *Pink Perfection*, sent by Mr. Edwin Beckett, Elstree; and *Eclipse*, sent by Mr. Edwin Beckett, and Mr. H. J. Jones.

Highly Commended.

Amellus section.—Preciosa, sent by Messrs. Barr and Sons. Novi-Belgii section.—A.1., sent by Mr. T. Bones, Cheshunt.

AYR CHRYSANTHEMUM.

One of the finest Chrysanthemum shows held recently in Scotland was the one at Ayr on November 14, under the auspices of the above Society. The number of entries having increased by 150, the accommodation of the main hall and two adjoining rooms proved inadequate, and provision had to be made for the staging of a number of the vegetable classes on tables in the open. There were eighty-two classes, and competition was keen, particularly in the gardeners' section, where the pot plants and Japanese Chrysanthemums revealed a very high standard of culture.

The Pollock Cup, for two Chrysanthemum plants in pots, was won by Mr. R. J. Clark, Ayr, who also scored with one Incurved, and one Single in pots; in the latter class he showed a specimen of Miss Woodburn, of huge dimensions, and clothed with hundreds of flowers. Mr. George McCartney secured first prizes in the two classes for Chrysanthemums of any variety.

There was a very close contest between Mr. Hugh McSkimming, Auchenault Gardens, Helensburgh, and Mr. R. H. Allan, gardener to Alex. S. Watt, Esq., Whiting Bay, Arran, for the Land of Burn's Cup, awarded for the best four vases of Japanese Chrysanthemums, three blooms in each, in at least six varieties. The former exhibitor was successful by 2½ points. Mr. McSkimming's best blooms were of Dawn of Day, Lady Talbot, Mrs. A. Davis, Francis Joliffe and Mrs. T. W. Pockett; while in the second prize group Red Majestic, Miss A. E. Roope, Mrs. M. Sargent and Mrs. R. C. Pulling were outstanding. The last-named was adjudged the best bloom in the show.

Mr. Allan secured first prizes for white, yellow, bronze and pink varieties, respectively; and he was also successful with twelve specimen blooms shown on boards, and two vases of six varieties introduced since 1925. These latter were well-grown specimens of T. W. Pockett, Mrs. A. M. Dunkell, Lady Edward Miller, Thalia, Major Wheatley and William Hazlehurst.

Other classes for Chrysanthemums provided keen competition. Mr. Robert Rae, Wentworth, Ayr, won the Webster Rose Bowl outright, and also secured the leading honours for three vases of Single, and three vases of Decorative sorts; he was first in three single-vase classes. Mrs. W. Rae staged the best basket of Chrysanthemums, and Mr. John S. Cowan secured a triple success with three ladies' sprays, six buttonhole bouquets, and one basket of outdoor autumn foliage. He was also first for a decorated dinner table.

The amateurs' section was notable for the success of Mr. Norman Jamie, a youth of nineteen years of age, who was first in all six classes for pot Chrysanthemums, and also secured the *Daily Record* special prize for a vase of Incurved Chrysanthemums. Other first prize winners were:—For six blooms of Japanese Chrysanthemums, shown on boards, Mr. William Reid, Stewarton; two vases, Japanese, one vase disbudded Singles, and one vase undisbudded, Mr. James Fullarton, Ayr; one vase of Chrysanthemums, two pots of Primula obconica, and two Ferns, Mr. James W. Kerr, Ayr.

Apples were the feature of the fruit section, Mr. J. S. Cowan, Dornholm, defeating Mr. W. Campbell, Balgarth, Ayr, in the class for twelve dessert varieties. The latter exhibitor was, however, successful in the classes for six dessert Apples and six baking varieties. Mr. A. Harvie, Rozelle, scored with twelve baking Apples, also for twelve Pears, and Mr. R. J. Clark received the leading awards for two bunches of black and two bunches of white Grapes. In the amateurs' fruit section, the principal prize-winners were:—Mr. James Fullarton, Ayr, for one bunch of Grapes; Mr. John Anderson, Monkton, for six baking Apples; Mr. J. W. Aird, Maybole, for six dessert Apples; and Miss Hutchinson, Kirkoswald, for six Pears.

Both in quality and quantity the displays of vegetables were the finest staged during the twenty-two years' existence of the Society. Competition was particularly keen in the class for a collection of vegetables, Mr. J. Hay, Tarbolton, being placed first, and Mr. J. S. Cowan, second. Mr. Hay also scored with six Leeks, eighteen Potatos and six Parsnips, while Mr. Cowan secured first prizes in the classes for six Beetroots and six Parsnips. The following competitors were also included in the prize list:—Mr. W. S. Muir, Mr. William Murdock, Largs; Mr. Andrew Simpson, Dalmellington; Mr. A. J. Dunlop, Galstones; Mr. R. S. Allan, Whiting Bay; Mr. W. Manson, Whitletts; Mr. Joseph Devoy, Stranraer; Mr. W. Loan, Hurlford; and Mr. H. S. Kerr.

Trade exhibits were staged by Messrs. Learmonth, Hunter and King; Messrs. Austin and McAslan; Messrs. Samsons, Ltd.; and Messrs. W. Marshall and Co.

A Certificate of Merit was awarded to Mr. James W. Kerr for a new Japanese Chrysanthemum, a white sport from Mrs. B. Carpenter.

NORFOLK AND NORWICH HORTICULTURAL.

This old Society, which celebrates its centenary next year, held a most successful show of Chrysanthemums, fruits and vegetables in St. Andrew's Hall, Norwich, on November 22, 23 and 24. The number of entries constituted a record, and great credit was due to Captain Sandys-Winsch, the Parks Superintendent, for the way it was organised.

There were three entries for thirty-six Japanese Chrysanthemums, on standard exhibition boards. It seems to the writer that the time has come, if such a mode of exhibiting is to be continued, that the National Chrysanthemum Society should make a rule for wider spacing, for with blooms twelve inches in diameter, there is much overlapping of florets, and the effect is spoiled.

There were also many entries in the classes for eighteen, twelve and six blooms, on boards, and one may confidently state that, in every case, the blooms were well up to exhibition standard. The Japanese blooms staged in vases were grand, and the Single Chrysanthemums were very popular.

Miscellaneous subjects comprised a splendid display of cut bunches of berried shrubs, also a goodly array of Carnations; Violets were also effectively exhibited. Pot plants were a bright feature of the show, special mention being due to Mr. F. J. Endersley, gardener to G. H. Gurney, Esq., Keswick Hall, Norwich, for Cyclamens, and to Mr. W. Barrie, gardener to Colonel Barclay, Colney Hall, Norwich, for Begonia Gloire de Lorraine.

The fruit exhibits were outstanding, the Apples in particular being remarkably well coloured. Pears were shown in great numbers, the specimens of Doyenné du Comice, Charles Ernest, and Winter Nelis being notable.

It certainly looked as if the mantle of the late Mr. William Allan, who had charge of the gardens at Gunton Park, has fallen upon his successor, Mr. A. J. Jones, for his splendid Muscat and Alicante Grapes were admired by everyone. Of the Pears of choice quality and rather difficult to bring to perfection, the dish of Emile d'Heyst, staged by Mr. Sam High, gardener to J. A. Christie, Esq., M.P., Framingham, were quite a revelation.

Vegetables were prominent, seven fine collections being staged, the best by Mr. A. Bentley, gardener to Miss Barker-Hahlo, Langley Park, Norfolk. Onions and Leeks seemed exceptionally good, but the Brussels Sprouts were not up to exhibition standard, nor was the Celery so solid as it should be.

Messrs. Daniels Bros. had a fine educational display of vegetables; Messrs. A. Reeves and Co. showed Roses and fruits; and Messrs. Bakers had a charming display of shrubs and rock plants, as also did Messrs. Clibrans and Messrs. R. Winder and Co. Carnations and Pinks were exhibited by Messrs. Allwood Bros. and Messrs. Keith Luxford and Co. showed Chrysanthemums. The Suffolk Seed Stores arranged a fine array of various vegetables, and Messrs. Jas. Carter and Co. had a wonderful display of Potatos.

BATLEY CHRYSANTHEMUM.

The annual show of the Batley Chrysanthemum and Paxton Society, which was held in the Batley Town Hall, on November 24, was a great success, the two hundred entries constituting a record for the Society.

For the third successive year, Mr. G. W. Dunsmore, Bradford, secured Mr. Walter Forrest's Cup for the best Japanese Chrysanthemums, thus winning it outright; he also won the special prize for the best Chrysanthemum bloom in the show, a beautiful specimen of the variety Queen Mary.

For eighteen Japanese blooms, in not fewer than twelve varieties, Mr. G. W. Dunsmore was first, while for three vases of Incurved blooms Mr. P. Cardwell, Batley, secured the premier award. The best trade exhibit, for the Ellis Turner Cup, was staged by Mr. A. Kemp. For four vases of Single Chrysanthemums, distinct, Mr. J. W. Gaunt was first, Mr. A. Kemp leading for a shower bouquet of Chrysanthemums, and also for a hand-basket of Chrysanthemums. Mr. Kemp secured several other first prizes in the decorative section.

In the local classes, Mr. C. Holden showed the best two vases of Incurved Chrysanthemums, and for three vases of decorative Chrysanthemums, distinct, the premier award was secured by Mr. R. Mackinson, Morley, Mr. E. Clegg being placed first for a vase of Decorative sorts.

The Temperance Society's Cup, for a tablo of single Chrysanthemums, was secured by Mr. P. Cardwell; in the class for a vase of Phyllis Cooper Chrysanthemums, Mr. J. W. Gaunt led, also for a single vase of Nona Chrysanthemums, Mr. J. Hartley taking the first prize for a vase of Single Chrysanthemums, and for three vases of Single Chrysanthemums.

Obituary.

James Wood.—One of the oldest and most respected gardeners in the Newcastle-on-Tyne district passed away on November 21, in the person of Mr. James Wood, at the age of seventy-seven years. By a sad coincidence, he was to have officiated as a judge at the Newcastle Chrysanthemum Show on the day of his death. Mr. Wood commenced his gardening career as a boy in the Claremont district of Newcastle and subsequently worked in various establishments throughout the north until he came to Fenham Hall as head gardener, where he remained for thirty years. He then started a very successful landscape business in Newcastle which he carried on until the last. A much sought-after judge and a very active member of the Newcastle Horticultural Society, his demise will be very much regretted.

NEW HORTICULTURAL INVENTIONS.

These particulars of new Patents, of interest to readers, have been selected from the Official *Journal of Patents*, and are published by permission of the Controller of H.M. Stationery Office.

Latest Patent Applications.

31,323.—& J. Y. (I. G. Farbenindustrie Akt.-Ges.).—Manufacture of fertilisers. October 29.

31,425.—Knudsen, W. P. A.—Hedge-clipping shears. October 30.

31,443.—Stuart, A. R.—Diggers or cultivators. October 30.

32,132.—Uhde, F.—Fertilisers. November 3.

32,636.—Alliance Toy and Speciality Co.—Shears. November 8.

Specifications Published.

299,832.—Johnstone, J.—Machines for trimming the edges of lawns.

299,113.—Ward, D. H.—Devices or appliances for supporting flowers and plants.

299,653.—Fowler, E. A.—Soil sterilisers.

299,674.—Blincoe, F. H.—Shears, scissors, and the like appliances.

Printed copies of the full published specifications may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at the uniform price of 1s. each.

THE LATEST TRADE MARKS.

This list of Trade Marks, of interest to readers, has been selected from the Official *Trade Marks Journal*, and is published by permission of the Controller of H.M. Stationery Office.

URELITE.

485,341.—Goods in Class 13, which includes pruning tools, shears, etc.—The Cutter Electrical and Manufacturing Co., 19th and Hamilton Streets, Philadelphia, State of Pennsylvania, United States of America. November 14.

MORRIC.

494,298.—All goods in Class 12, which includes pruning tools, shears, etc.—Pearlident Company, Limited, 75, Main Street, Glasgow, C.5. October 31.

GAR-PA.

483,091.—Manufactures from sand and cement for making garden paths.—Sand and Shingle, Limited, Staines Road, Hounslow, Middlesex. October 31.

ASPHACRETE.

492,377.—Manufactures from bitumen, stone and sand, for use in the making of roads, paths and the like.—John Cooke and Son (Huddersfield), Limited, Little Royd, Queen's Mill Road, Huddersfield. October 31.

ANSWERS TO CORRESPONDENTS.

Apples Diseased.—*M. N.* The specimens of Apples you sent us were badly "scabbed," due to the presence of the fungus Fusicladium dendritichum, a very common disease of Apples, which attacks the leaves as well as the fruits. Syringing the trees in winter with a sulphate of iron solution is stated to be a good remedial measure, while spraying the trees with diluted Bordeaux mixture when the buds are commencing to expand, repeating the operation when the petals are falling, and again when the fruits have developed to the size of Peas, should also prove effective in controlling the disease.

Chrysanthemum Sports.—*C. H. F.* It is not uncommon for Chrysanthemums to produce colour sports, which is what has happened with your plant. The two forms you sent us have, we believe, occurred before, although we are not sure whether they have been given varietal names.

Chrysanthemum Plants Diseased.—*W. H. E.* Your Chrysanthemum plants are attacked by mildew, and as a remedy, dust them with flowers of sulphur. Do not stand the plants too closely together, as lack of air, together with excessive dampness, are liable to encourage the disease.

Names of Fruits.—*H. C.* White Nonpareil.—*G. B. P.* 1, Scarlet Nonpareil; 2, Benoni; 3, Autumn Bergamot; 4, Beurré Diel; 5, Winter Nelis; 6, decayed.—*L. T. P.* 1, decayed; 2, Beurré Diel; 3, decayed; 4, Louise Bonne de Jersey; 5, decayed, probably Fearn's Pippin.—*A. S.* 1, Duchess of Oldenburgh; 2, decayed; 3, Waltham Abbey Seedling; 4, Fameuse (Royal Snow Apple); 5, Brownlees's Russet; 6, Radford Beauty; 7, Baxter's Pearmain; 8, Api; 9, Sam Young; 10, Doyenné Bussoch; 11, Winter Nelis.—*C. D.* Small's Admirable.—*T. W. M.* 1, Lincoln Codlin; 2, Jolly Beggar; 3, Warner's King; 4, Bramley's Seedling; 5, Greenups, syn. Yorkshire Beauty; 6, decayed; 7, Orange Goff; 8, Winter Greening; 9, Alfriston; 10, Wealthy; 11, Northern Greening; 12, Red Hawthornden; 13, Sweet Lading; 14, Lord Derby.—*A. D. H.* Newton Wonder.—*H. G.* Fearn's Pippin.—*L. G. P.* Annie Elizabeth.

Names of Plants.—*G.* 1, 2, 3, 4, and 5, all forms of Pittosporum tenuifolium, a very variable species; 6, P. eugenioides; 7, P. Colensoi (this is generally regarded as a variety of P. tenuifolium; 8, Teucrium fruticans; 9, Aspidium angulare var.; 10, Buddleia Fallowiana, send when in flower; 11, Cocculus laurifolius; 12, Juniperus chinensis; 13, Salix alba; 14, Asplenium falcatum; 15, Forsythia sp. (cannot name without flowers); 16, Lespedeza Sieboldii (?), send when in flower.

Rating of Agricultural Land.—*E. W.* Until the De-rating Bill now before Parliament has been passed by both Houses, it is not possible to state what the position will be next year.

Violets Diseased.—*B.* The Violet foliage is suffering from the attacks of the larvae of a gall midge, Dasyneura affinis. This species is widely distributed throughout Europe, and has proved to be a severe pest in the Violet-growing areas of the south of France. There are at least two broods a year, the second brood emerging as adults in early January. Control measures include (1) handpicking swollen leaves at once and burning them; and (2) dusting the affected plants during the larval stage of the pest with Nicotine dust (Belumnite), or freshly-ground Pyrethrum powder. A wash will not reach the midge larvae within the curled leaf edges. The larvae pupate in the curled foliage, so that a soil fumigant is useless.

Communications Received:—H. A. C.—J. F.—H. S.—R. W. W.—J. C.—A. F.—A. J. H.—W. G. B.—M. W.—A. W. S.—W. S.—E. C. M.—R. B. R.—E. H. P.

MARKETS.

COVENT GARDEN, Tuesday, December 4th, 1928.

WE cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in the day.—EDS.

Plants in Pots, etc. : Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz. ...	10 0-12 0
—elegans ...	10 0-12 0
Aralia Sieboldi	8 0—9 0
Araucarias, per doz.	30 0-40 0
Asparagus plumosus ...	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistras, green ...	16 0-60 0
Aspleniums, doz.	12 0-18 0
—32's	24 0-30 0
—nidus ...	12 0-15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Chrysanthemums per doz. ...	15 0-24 0
—white, per doz.	15 0-24 0
—yellow „	18 0-24 0
—pink „	21 0-24 0
—bronze „	12 0-18 0
Crotons, per doz.	30 0-45 0
Cyclamens, per doz.	24 0-36 0

	s. d. s. d.
Cyrtomiums ...	10 0-12 0
Erica gracilis, per doz. ...	24 0-30 0
— — 60's, per doz.	12 0-15 0
— — 72's, per doz.	6 0—8 0
— — hyemalis, per doz. ...	24 0-30 0
—nivalis, per doz.	24 0-36 0
— — 60's, per doz.	12 0-15 0
— — 72's, per doz.	6 0—8 0
Nephrolepis in variety ...	12 0-18 0
—32's	24 0-36 0
Palms, Kentia,	30 0-48 0
—60's	15 0-18 0
Pteris in variety	10 0-15 0
—large 60's ...	5 0—6 0
—small... ...	4 0—5 0
—72's, per tray of 15... ...	2 6—3 0
Solanums, per doz.	15 0-18 0
— 60's, per doz.	8 0—9 0

Cut Flowers, etc. : Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	10 0-12 0
—cuneatum, per doz. bun. ...	9 0-10 0
Anemone, St. Brigid, per doz.	5 0—8 0
Arums (Richardias), per doz. blooms ...	5 0—6 0
Asparagus, plumosus, per bun., long trails ...	2 6—3 0
—med. sprays	2 0—2 6
—short „	— 1 0
—Sprengeri, bun. long sprays...	2 0—2 6
—med. „ ...	1 0—1 6
—short „ ...	0 6—1 9
Autumn foliage, various, per doz. bun. ...	6 0-12 0
Camellias, white, per doz. blooms	2 0—2 6
Carnations, per doz. blooms	2 6—4 6
Chrysanthemums—	
—white, per doz. blooms ...	3 6—7 0
—yellow, per doz. blooms ...	3 6—6 0
—bronze, per doz. bunches ...	12 0-18 0
—bronze, per doz. blooms ...	3 6—7 0
—pink, per doz. bunches ...	15 0-24 0
—pink, per doz. blooms ...	4 0—7 0
—single varieties, disbudded, per doz.	3 0—4 0
—single varieties, spray, per doz. bun.... ...	12 0-18 0
Cornflowers, blue, per doz. bun.	3 0—3 6
Croton leaves, per doz. ...	1 9—2 6
Fern, French, per doz. bun.	10 0-12 0
Forget-me-nots, per doz. bun.	10 0-12 0
Gardenias, per doz. blooms	6 0—9 0
Heather, white, per doz. bun.	9 0-12 0
Lilac, white, per doz. sprays...	5 0—6 0

	s. d. s. d.
Lily-of-the-Valley, per doz. bun.	18 0-30 0
Lilium longiflorum, long, per bun.	3 6—4 0
— — short, per doz. blooms...	2 6—3 0
—speciosum rubrum, long, per doz. ...	4 0—4 6
— — — short, per doz. ...	2 0—2 6
Marigolds, per doz. bun. ...	4 0—6 0
Myrtle, green, per doz. bun.	1 6—2 6
Narcissus, Paper White, per doz. bun.... ...	3 0—4 0
Orchids, per doz.	
—Cattleyas ...	18 0-30 0
—Cypripediums	6 0—8 0
Roses, per doz. blooms—	
—Mme. Butterfly	4 0—8 0
—Columbia ...	5 0—6 0
—Golden Ophelia	4 6—6 0
—Richmond ...	5 0—7 0
—Roselandia ...	5 0—8 0
—Molly Crawford	2 6—4 0
Smilax, per doz. trails ...	4 6—5 0
Violets, Prince of Wales, per doz. bun.... ...	2 6—4 0
French Flowers—	
—Acacia (Mimosa), per doz. bun.	15 0-18 0
—Chilies, loose, per pad ...	4 0—5 0
—Eucalyptus foliage, per pad	5 0—6 0
—Marigolds, per pad	5 0—6 0
—Narcissus, Paper White, per doz. bun.	3 0—4 6
— — Soliel d'Or, per doz. bun.	4 6—5 0
—Roses, Safrano, per pkt. 24's	2 0—2 6
—Ruscus foliage, per pad ...	5 0—6 0
—Solanum berries, loose, per pad	6 0—8 0
—Violets, Parma, large, per bun.	4 0—5 0

REMARKS.—In this department, similar conditions prevail to those detailed last week. Carnations and Roses advanced slightly in price at the beginning of the week, but owing to milder weather conditions these prices were not maintained. Richardias and Lilium longiflorums were also firmer in price, owing to shorter supplies from all growers. All other subjects are similar to last week's quotations. In the French department supplies are increasing daily, Paper White and Soliel d'Or Narcissi, Marguerites and Safrano Roses being more plentiful. These are the principal lines so far available, and prices are generally on the down grade.

Fruit : Average Wholesale Prices.

	s. d. s. d.
Apples, English—	
—Cox's Orange Pippin, ½-bushel	10 0-20 0
—National Mark Standard Cases	30 0-40 0
—Bramley's Seedling	7 0-12 0
—Newtown Wonder	6 0—9 0
—Lane's Prince Albert ...	6 0—9 0
—Blenheim Pippin, ½-bushel	3 0—6 0
— Californian— Newtown Pippin, per case	9 0—9 6
—American Jonathan... ...	9 6-10 6
—Oregon, per case... ...	11 0-14 0
—Nova Scotian—	
—Ribston Pippin	28 0-30 0
—Wellington ...	28 0-32 0
Bananas, per bun.... ...	22 6-35 0
Dates, dry, in cartons ...	4 0—6 6
Grapes, English—	
—Muscat of Alexandria, per lb.	4 0—7 6
—Alicante ...	1 3—2 6
—Gros Colmar	1 6—3 0

	s. d. s. d.
Grapes, Almeria, per barrel ...	16 0-26 0
Grape Fruits—	
—Honduras ...	— 20 0
—Jamaica ...	— 20 0
—Florida ...	— 25 0
Lemons, per case—	
—Messina ...	12 0-32 0
—Malaga ...	10 0-14 0
Nuts—	
—Brazil, cwt. ...	— 90 0
—Chestnuts, Italian, bag	25 0-30 0
— — French „	— 15 0
—Walnuts „	10 0-12 0
Oranges—	
—Cape Valencia	13 0-22 6
—Jaffa ...	14 0-15 0
—Jamaica ...	— 15 0
—Murcia ...	12 6-16 0
—Denia ...	14 0-20 0
Pears, English—	
—Doyenné du Comice, trays, specials, per doz.	6 0-12 0
—trays, medium	3 0—5 0
—American—	
—Washington Winter Nelis	18 0-20 0
—Californian Doyenné du Comice, case	21 0-24 0
Pineapples, case	27 0-40 0

Vegetables : Average Wholesale Prices.

	s. d. s. d.
Asparagus, English	8 0-12 0
—French ...	12 0-14 0
—Italian ...	5 0—6 0
Beans—	
—Worthing, per lb.	1 6—1 9
—Guernsey, per lb.	1 6—2 6
—Madeira ...	2 6—4 0
Beet, per bag....	5 0—6 0
Brussels Sprouts, ½-bag. ...	2 6—4 0
Cabbage, per doz.... ...	0 9—1 3
Carrots, ½-bag...	2 3—2 6
Cauliflowers, English—	
—Cornish, crates, 18's, 24's ...	5 0—8 0
Kent, 15's...	4 0—5 0
French— St Malo ...	5 0—6 6
Celery, washed, per doz. ...	18 0 24 0
Cucumbers, doz.	15 0 20 0
Lettuce, Cabbage, English, doz.	0 6—1 0
—French, indoor, 48's	4 0—6 0
— — outdoor ...	4 0—6 0

	s. d. s. d.
Mint, per doz. bun.... ...	6 0—8 0
Mushrooms—	
—cups, per lb.	2 0—3 0
—broilers „	1 8—2 0
—" field " ...	1 0—1 3
Parsnips, cwt....	6 0—7 0
Peas, hothouse, per lb. ...	3 0—6 0
Potatos—	
—English, cwt.	3 6—7 0
—Azores, new per case ...	12 0-20 0
—new hothouse, per lb.	1 0—1 6
Savoys, per doz.	2 6—3 0
Seakale, punnet	2 0—2 6
Tomatos, English, New Crop—	
—pink... ...	6 0—8 0
—pink and white ...	6 0—7 6
—white ...	5 0—6 0
—blue ...	4 0—5 0
—Guernsey ...	2 0—4 0
—Canary Island, per bundle ...	12 0-16 0

REMARKS.—Business has been rather more active during the week, and values in some sections have shown improvement. Hothouse Grapes have sold better in spite of increased arrivals from the Continent. Quantities of English Apples available have been small but are increasing at the time of writing, probably in anticipation of the Christmas demand. Large cooking Apples are selling with a fair amount of freedom at slightly better prices than have been ruling lately. Selected Cox's Orange Pippins are also doing well, and prices are steady, although quotations are heavier than they have been for some time. Imported Apples of the first grade also sell with more freedom. English new crop Tomatos are selling well at comparatively high prices, in spite of the good quality Canary Island produce available. Cucumbers are scarce and costly, all available supplies clearing readily. The Mushroom trade is steady, with a tendency towards lower prices, owing to increasing supplies. English hothouse Asparagus is now on the market, but is not selling freely, the Asparagus from Paris being more popular, and that from Italy cheaper. Some good forced Beans are arriving from Guernsey and the Worthing district and are selling freely. Hothouse new Potatos do not sell particularly well, but some forced Peas from Guernsey have been disposed of at rather high prices. Cauliflowers are moderately plentiful; those from St. Malo are selling at low rates. Green vegetables are quoted at very reasonable prices, but sell slowly. Salads, mainly from France, are cheaper and the old Potato trade is rather slow.

GLASGOW.

While there was no material increase in business, the tone of the cut flower market was rather better during the past week. Chrysanthemums were sold in a wide range of varieties, but supplies were not so plentiful as they have been of late, and that condition had a steadying influence on prices, which ranged as follows:—No. 5 Pink and P. A. Dove, 4s. for 12's, and 2s. 6d. for 6's; Ada Brooker, 3s. to 3s. 6d. for 12's, and 2s. to 2s. 6d. for 6's; Exmouth Crimson and Autocrat, 3s. 6d. for 12's and 2s. for 6's; Balcombe Beauty, 3s. for 12's; Pioneer, 1s. 6d. to 2s. 6d. for 12's; Rosa Chocode, 1s. 6d. to 1s. 9d. for 6's; Framfield Pink, 2s. 6d., sprays, 2s.; Peggie and Golden Marvel, 1s. 6d.; lemon Thorpe, 1s. 4d. to 1s. 6d.; white Thorpe, 10d. to 1s.; Jean Pattison, 1s. to 1s. 6d.; Red Almirante, 1s. 3d.; Florrie King, 1s. to 1s. 3d.; Cranfordia, 1s. 3d.; R. F. Felton and La Pactole, 1s.; Almirante, 10d. to 1s.; and Blanche de Poitou, 10d. to 1s. Pink Roses were dearer at 3s. 6d. to 5s. per dozen; red and white Roses being 2s. to 3s.; Carnations, 2s. to 4s. 6d.; Narcissi, 4s. to 5s.; English Violets, 1s.; Richardias, 4s. per bunch; Smilax, 9d. to 1s.

In the fruit market, Apple prices were firmer, Delicious being worth 11s. to 12s. per case; Jonathan, 9s. 6d. to 11s.; York Imperial, 28s. per barrel; ungraded, 20s. to 24s.; Winesap, 30s.; and Greenings, 33s. to 34s. The first consignments of Valencia and Mandarin Oranges were disposed of at the following values:—Valencia, extra selected, 300's, 22s. to 24s.; 420's, 26s.; 360's, 20s.; other counts, 17s. 6d.; Royal Mandarins, 55's, 11d. per tray; 60's, 1s. 1d.; cases of 420's, 15s. to 16s.; Jaffa Oranges, 144's, 12s. 6d.; 180's and 240's, 14s. 6d. Grape Fruits (Jamaica) sold at 16s. to 18s.; Anderson's Winter Nelis Pears, 15s. 6d. per half-case; and 25s. per case; Washington Pears, 20s. to 26s.; Blocks, 12s. 6d. half-case; hothouse Grapes, 2s. 6d. to 4s. per lb.; Royal, 1s. 4d.; Almeria, 16s. to 40s. per barrel; Tripoli Lemons, 250's and 300's, 9s.; Malaga No. 1, 13s. 6d.; seconds, 10s.; Palermo 300's, 12s. 6d. to 16s.; Italian Chestnuts, 30s. per bag; French, 16s. to 18s.; Scotch Tomatos, 6d. per lb.; and Teneriffe Tomatos, 14s. to 20s. per package.

Vegetables generally were dearer. Cucumbers advanced to 21s. per dozen; Cornish Cauliflowers, 6s. per box of 1½-dozen; Scotch Lettuce, 2s. per box of 18; French Lettuce, 7s. 6d. for 24; Brussels Sprouts, 5s. per net; Onions, 14s. per case; and Mushrooms, 2s. 6d. per lb.

CATALOGUES RECEIVED.

Messrs. KERSHAW, Keighley, Sandbeds, nr. Bingley.—Fruit Trees, Roses, Shrubs, Hardy Plants and Climbers

R. WALLACE AND CO., LTD., Tunbridge Wells.—Trees and Shrubs; Hardy Plants for Alpine Garden, Bog and Herbaceous Border.

GARDENING APPOINTMENTS.

Mr. T. Springett, for the past two seasons second gardener at Headley Park, Epsom, as gardener to Mrs. ROSCOE, Rowlands Court, Lingfield, Surrey. [Thanks for 2/6 for R.G.O.F. Box.—EDS.]

Mr. J. W. Graham, previously foreman at Bramham Park, Boston Spa, Yorks., as gardener to THE DUCHESS OF NORFOLK, Arundel Castle, Sussex. [Thanks for 2/6 for R.G.O.F. Box.—EDS.]

Mr. W. Everitt, formerly a student gardener at the Royal Botanic Gardens, Kew, as Curator of the Municipal Gardens, Queenstown, Cape Province, South Africa.

TRADE NOTE.

PATENTS AND TRADE MARKS.—Any of our readers requiring information and advice respecting Patents, Trade Marks or Designs, should apply to Messrs. Rayner and Co., Patent Agents, of 5, Chancery Lane, London, who will give free advice to readers mentioning *The Gardeners' Chronicle.*

A TOO CROWDED ADVERTISEMENT WEARIES THE EYE; ONE QUICKLY PERCEIVED IS BETTER THAN TWO NOT PERCEIVED AT ALL.

THE
Gardeners' Chronicle

No. 2190.—*SATURDAY, DECEMBER* 15, 1928

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 40·6°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, December 12, 10 a.m. Bar. 29·6. Temp. 38°. Weather, Wet.

The Causes of Plant Disease.

THE great Pasteur's "germ theory" of disease, that is, the view that all diseases, whether of plants or animals, are due to microbes, long held the field, and, unquestionably, has led to great advances in the treatment of disease. But the doctrine has not escaped the fate that has overtaken the theoretical explanation of gravitation given by his co-Olympian, Newton, which had to give way to a new theory discovered by Einstein. Both must be regarded as partial statements of the truth. The germ is only one of a number of "factors" in the causation of disease. And of these factors, in the case of plants, many can be grouped under environment; for example, the liability of plants to diseases due to fungi is affected by the temperature and moisture of the surrounding air, and by the presence or absence of certain substances in the soil. (We had occasion recently to notice the influence of potash on fruit trees). And now, after nearly a generation spent on identifying and attacking the organisms which infest plants, mycologists are turning their attention away from methods of destroying the germ after it appears, to methods of preventing its appearance altogether—with some success, too, as will appear below. The direct—one may call it the brutal—method is being followed by such investigators as Professor L. L. Jones, of Wisconsin, who, at great expense, has constructed chambers within which such factors as temperature and humidity may be varied and controlled by elaborate automatic instruments. But results obtained in this way, although precise, seem to be subject to a sort of "law of diminishing returns" *i.e.*, they become more infrequent as the expenditure increases. Another type of work, such as that proceeding at the Lea Valley Research Station, under the direction of Dr. Bewlay, if rough and ready, has the merit of being governed by practice, and is directly translatable into management. It has been shown there, for example, that the dreaded Stripe disease of the Tomato may generally be averted if the temperature of the house is kept above 75°F., and if humidity is kept down by ventilation suitably controlled. Similarly, another disastrous epidemic, the Sleepy disease (Verticilium sp.) can be guarded against by watching the temperature in the first fortnight of growth and keeping it well above 70°F. Seedlings have other likings. Damping-off diseases (Phytophthora spp.) will not take place if the temperature is not allowed to exceed 50°. Again, the dangerous Spot disease of the Cucumber (Colletotrichium sp.) may be kept from the fruits if the house is kept about 86°. The lesson to be drawn from such results as these is that what must be studied is the healthy growth of the plant as promoted by the means which the experienced practical man adopts almost instinctively; he does not need to be told that a plant is healthy when it makes a good "hard" growth rather than a soft, fleshy one. The harm comes when routine methods replace the intelligent watching of the plant. As observation at Cheshunt has shown, control of disease in practice resolves itself very often into skilful stoking, and opening of ventilators not at fixed times, but with an eye on the sun, thermometer and hygrometer. These and other observations regarding the Cheshire experiments we shall discuss in succeeding issues. Turning to out-of-doors, an outstanding example of the relation between disease and environment is afforded by the Potato. The disease known as Common Scab is controlled by the reaction of the soil. The organism may be present, but it is powerless in an acid soil. A dressing of lime may prove fatal. But, contrariwise, all the Brassicae, Cabbage, Turnips and so forth, are liable, for want of lime, to attack by Club-root, or Finger-and-Toe. Geographical conditions may come into play. We are told that Cotton in the Sudan is menaced by a Leaf-spot disease which does not trouble lower Egypt. This disease is being attacked by the controlled-chamber method at Rothamsted at the present time, and at the expense of the Empire Marketing Board. It is, perhaps, not an unfair comment on such investigations to state that the trail blazed by Biffen when, by the application of Mendelian methods, he bred a Wheat which is resistant to the Rust fungus, has been little explored. The existence of strains which naturally, that is genetically, either resist or are immune to disease has been established in many species of plants, and by modern scientific methods it is generally possible to transfer this character to other varieties susceptible to disease. Again, the existence of immunity shows that plants can elaborate substances akin to the vaccines and antitoxins of the human pathologist. Why is it that, so far, no such substances have been discovered by the plant pathologist? The conclusion of the whole matter seems to be that the old adage, "prevention is better than cure," holds good, and that science—as has happened so often in relation to the oldest of man's occupations—simply confirms the wisdom of the ages

"The Gardeners' Chronicle" Almanac for 1929.—Our Almanac for 1929 is now being prepared, and we are anxious to include in it as many dates of horticultural meetings and exhibitions as possible. Secretaries of horticultural, botanical and floricultural societies are therefore requested to send us the dates of their shows and meetings for the coming year on or before Tuesday, January 1, 1929.

Purity of Scotch Potato Crops.—The Board of Agriculture for Scotland has issued a summary of the acreage of Potato crops inspected for purity in Scotland during 1928. The tables relating to immune varieties show that of the acreage of Kerr's Pink inspected, 10,787 acres had 99·5 per cent. of purity or over, and 1,442 acres of 97· to 99·5 per cent. In the case of Great Scot, the acreages were 6,751 of 99·5 per cent. purity and over, and 783 of 97· to 99·5 per cent. The figures for Arran Consul were 1,775 and 28 acres, and for Golden Wonder, 1,537 and 40 acres, respectively. In respect to non-immune varieties, 9,299 acres of King Edward inspected had a purity percentage of 99·5 or over, and 411 acres of 97· to 99·5 per cent. The figures for three other leading varieties were:—Arran Chief, 2,571 and 455; Eclipse, 1,977 and 123; and Epicure, 833 and 445 acres, respectively.

The Tax on Flowers in France.—French florists are complaining bitterly of the continued necessity of paying the "luxury tax" on their wares, especially now that general financial difficulty in France is having its effect in restricting the sale of articles which are not strictly necessities. The luxury tax was originally imposed as a temporary measure during the financial crisis of June, 1920, and was then only ten per cent.; it was subsequently raised to twelve per cent., and is still in force at that figure. Apart from their dislike to the tax itself, florists are particularly aggrieved at the action of the authorities in charging it in full on the transactions of the Florists' Association, which has an arrangement similar to the one which exists in this country, by which orders for flowers to be delivered at a distance are executed, not by post, but by local members of the Association, thus saving time in transit. On these transactions, the tax is levied both from the transmitter of the order and from the actual executor, with the result that either the customer has to pay more dearly, or one or both of the tradesmen loses by the amount of the tax. Representations on the subject are likely to be made by the Association to the Minister of Finances.

New American Apples.—At the tenth annual meeting of the New York Fruit Testing Co-operative Association, held recently at the Geneva Experimental Station, New York, three new Apples were reported upon very favourably. They were Milton, of the McIntosh type, Red Gravenstein, and an improved Astrachan Red, at present known as No. 2,391. Milton is one of several varieties raised at the Geneva station to prolong the season of the McIntosh type of Apple, which it apparently does with success, as it ripens its fruits a month to six weeks before McIntosh, and comes into season after Early McIntosh. It is noted for its size and beauty, has the characteristic McIntosh flavour and aroma, and originated from a cross made in 1910 between Yellow Transparent and McIntosh. Red Gravenstein is described as a typical Gravenstein Apple, except that it is solid red in colour, and should therefore prove very popular as a market sort. Astrachan Red (No. 2,391), is regarded as an improvement on the type in that it is better coloured and is an annual bearer.

Potato Arran Crest Registered.—The Board of Agriculture for Scotland announces that it has received the report of the Scottish Potato Synonym Committee on the Potato registration and immunity trials held at the Braids Plant Registration Station in 1928. It states, among other things, that the number of varieties undergoing their first year's test as new varieties, was fifty, an increase of ten on the figure for the previous year, while twenty-five varieties were eligible for their second year's test. Three of the four varieties in the final year's test do not attain the required standard, but the remaining variety, Arran Crest, raised by Mr. Donald Mackelvie, Lamlash, Arran, is recommended for registration for the reason that it will give a marketable crop a few days before Epicure, and that, unlike Epicure, it is immune to Wart Disease. The Standing Committee of Management, which advises the Board regarding the trials, has endorsed the recommendation, and accordingly a certificate of registration is being issued to Mr. Mackelvie. The following is the official description of Arran Crest:—Maturity, first early; tuber round, skin white, eyes deep, flesh white, sprouts pink; foliage, haulm low to medium height, spreading; stem turns pink towards maturity; leaf opens with a spear-head shape, leaflet medium to dark green, narrow and pointed, glossy, surface slightly wrinkled and hairy, stalks long; flower white, rare; buds drop off without opening.

Chrysanthemum Growing in Tunis.—The French residents in Tunis are keen gardeners, and this year, on November 3 and 4, quite a successful Chrysanthemum show was held in a new exhibition hall, which was placed at the disposal of the exhibitors by the Tunis municipality. Cuttings of Chrysanthemums are given away by a local Chrysanthemum Committee every year, the number this year reaching four or five thousand, including a good many distributed through the schools to children.

Award of the Darwin Medal.—At the anniversary meeting of the Royal Society, on November 30, the Darwin Medal was awarded to Dr. Leonard Cockayne, a prominent New Zealand botanist, and one of the foremost living students of plant-association. He is regarded as an authority on the numerous natural plant hybrids which occur in New Zealand, while he has rendered invaluable service to both agriculture and horticulture in New Zealand. Dr. Cockayne is Honorary Botanist to the New Zealand Institute of Horticulture.

Gardener's Long Service.—Mr. W. M. Mitchell, for forty-two years in charge of Dunnottar House Gardens, Kincardineshire, has retired. A native of the city of Aberdeen, where he was born seventy years ago, Mr. Mitchell commenced work when only nine years of age with Messrs. Ben. Reid and Co., Aberdeen. He evidently liked the work and became an apprentice at Thainstone, Kintore, Aberdeenshire. His first journeyman's place was with the Brodie of Brodie, Brodie Castle, Nairnshire, whence he went to Udny Castle, Aberdeenshire, and took part in the laying out of the fine gardens there. After short periods at Tillery House and Fintray House (Master of Sempill), he went to England, and had charge at Horsley Towers and at Sandhills, Bletchingley. Returning to the north-east of Scotland, he entered the service of Colonel Hall, Dernclough, Kincardineshire, and finally, in 1886, he took charge at Dunnottar House. Naturally, Mr. Mitchell has many reminiscences to relate. He can speak of the time when Tomatos were grown out of curiosity, and when no one dreamt of eating them. The Chrysanthemum, in his early days, was a flower many gardeners could not grow. While at Sandhills, he sent large consignments of fruits and flowers to Covent Garden market, and recalls the fact that the first Strawberries he handled fetched 2s. 4d. per ounce, or 16s. per six ounce basket. The remuneration of gardeners in those far-off days cannot be described as princely. A journeyman's wage at that time was 14s. to 16s. per week, while a foreman received 18s. per week. Mr. Mitchell's services were greatly in demand as a judge at shows in the north-east of Scotland, his fine knowledge of fruits and flowers being much appreciated. He recalls with pride the names of many apprentices he trained at Dunnottar, and who now hold responsible positions throughout the country. Apart from his professional duties, Mr. Mitchell's great hobby is music, a delightful combination, one must admit. Modest and retiring in the extreme, Mr. Mitchell enters his eventide with the best wishes of a host of friends, and it is pleasing to record that his employer, the Laird of Dunnottar (Captain W. H. Ritchie) has been among the foremost in handsomely acknowledging the long and faithful services of an accomplished gardener.

Mr. Harold Beale.—Many years have elapsed since the well-known seedsmen, Messrs. James Carter and Co., conducted business under the title of Messrs. Carter, Dunnett and Beale, but the two last names are still intimately associated with the conduct and expansion of business at Raynes Park. Mr. Harold Beale is one of three brothers, who, together with Mr. J. Dunnett, devote the whole of their time and energy to the management of "Carter's," and he has identified himself particularly with the flower-seed section of the business. Quite naturally, Sweet Peas have claimed a good deal of his attention, as his firm was one of the earliest to catalogue these flowers, and has exhibited them finely on very many occasions during the past thirty years. This attention has brought Mr. H. Beale into close association with the members of the National Sweet Pea Society, and the Society has elected him as its President for the ensuing year. Widely known in the seed trade, Mr. H. Beale is almost as well-known in southern France, where he regularly inspects the seed crops that are being grown for his firm. The N.S.P.S. is to be congratulated upon securing him as its President.

MR. HAROLD BEALE.

Preston Public Parks.—We learn that Mr. A. Birkinshaw, an old Kewite, and formerly employed at Wisley, has been appointed Superintendent of the Public Parks at Preston. Mr. Birkinshaw has been engaged with the Manchester Parks Department since 1923, and for some time past has had charge of Birchfields Park and nine of the smaller open spaces at Manchester. He takes up his new duties on January 2, 1929.

Miniature Succulent Plants.—The Director of the Royal Botanic Gardens, Kew, exhibited a small collection of minute Succulent plants at the meeting of the Linnean Society, held on November 29. These plants had been sent over from South Africa by Mr. J. Hutchinson, F.L.S., who is now on a botanical expedition there. The species represented were Conophytum Comptonii, Anacampseros Comptonii and Crassula Comptonii, and were originally found by Professor Compton near the top of Vanrhyns Pass in a small hard pan of rock. In addition to these three species, a specimen of a new species of Lithops growing in shales, a Crassula near C. columnaris, and a specimen of Mesembryanthemum, probably testiculare, growing amongst blocks of white rock, which they closely resemble, were also exhibited. The Crassula is probably the smallest species of the genus. The Lithops was found near Koup Station, the only locality known for this plant, which grows wedged tightly between pieces of inverted shale. The specimens had been potted at Kew with stones and shale sent over with the specimens from South Africa, and the natural conditions had been so well reproduced that it was difficult to detect the plants from the stones.

Half-a-Crown an Acre for Potatos.—At a displenishing sale which took place on Saturday last, at the farm of Nether Raderne, St. Andrews, two acres of Potatos, Kerr's Pink variety, were sold for 5s. The bidding started at 1s., and owing to the backward season, the purchaser is to be allowed up to the end of February 1929, to lift and remove the crop!

This Year's Potato Crop.—According to reports received from the Ministry of Agriculture, the Potato crop was eminently good. The yield on a decreased acreage is estimated to be 3,513,000 tons, or nearly half-a-million tons more than in 1927. The yield per acre is estimated to have been 7·2 tons, compared with 5·9 tons last year, and an average per acre of 6 tons for the previous ten years. Only five counties in the country showed reductions from their average yield per acre, and these were quite insignificant. The highest increases were obtained in Norfolk, with an average yield of ten tons per acre or three tons per acre above the average for the county, and in Lincolnshire (Holland), where an average yield of nine tons was 2·5 tons above the county average.

Expropriation of Land in Italy.—Several instances of the expropriation of land by the Fascist authorities have been reported in the press recently and a fresh case has just been announced. It is stated that the Prefect at Ferrara has evicted a farmer accused of neglecting his land, and his farm has been handed over to a local Fascist agricultural society. The same Prefect has entrusted the care of certain estates, about which there is a legal dispute, to a third party, on the ground that the neglect of the land occasioned by the dispute is harmful to national economy.

Agricultural Research at Cambridge.—Following upon the offer of £700,000 from the International Education Board of the Rockefeller Foundation as announced in *The Gardeners' Chronicle* for October 6, p. 261, Cambridge University has received an offer from the Government and the Empire Marketing Board of a joint grant of £100,000. It is stipulated that the money—to be provided in equal shares by the Exchequer and the Empire Marketing Board—must be devoted to the expenses directly attributable to the School of Agriculture and the development of agricultural research. This joint offer is also dependent on the raising of the sum of £245,000, which the University has undertaken in order to comply with the terms governing the munificent offer by the Rockefeller Foundation, but the grant is, in reality, a subscription towards this sum, which is consequently reduced to £145,000. The Government and Empire Marketing Board are ready to make this grant because, they state, they believe the highest interests of the Empire demand that Cambridge University should be enabled to avail itself of the Rockefeller Foundation's offer.

Kewites Annual Social Gathering.—Arrangements have been made to hold the annual social gathering of past and present Kewites at the Castle Restaurant, Richmond, on Friday, January 18, 1929, at 8 p.m. The Kew Guild annual meeting and dinner will be held on the second day of Chelsea Show, 1929; further particulars will be published later. We learn that the *Kew Guild Journal* for 1929 will soon be in the printer's hands, and early publication is anticipated.

Scottish Seed and Nursery Trades.—Mr. David Bell presided over a company of members and guests at the annual dinner of the Scottish Seed and Nursery Trade Association, held at the Caledonian Hotel, Edinburgh, on Wednesday, December 5. In proposing the toast of the Association, Mr. Charles Weatherill, Secretary of the Board of Agriculture for Scotland, stated that the Department which he represented and the Association had a common interest in the production, development and life of the Scottish seed and nursery trade. They were deservedly proud of their reputation for the export of seeds and nursery stocks. It stood deservedly high, not only in their own country and among their own kinsmen over the border, but also throughout the Empire and in foreign countries. One administrative act of value was the setting up of the Scottish Horticultural Advisory Committee, which, under Mr. Cuthbertson's able chairmanship, was already a live force of real value, and it was formed on lines that would enable it to be of increasing benefit to the industry as time went on. In 1918, the first year of the Association's work, the number of Certificates that he had signed for the export of Potatos and nursery stock was 308. In 1928, up-to-date, the number was 996. The Chairman, in reply, said there was a good deal of difficulty in the early days of the Seeds Act, and it was the officials they had to thank for the way in which they had worked the Act.

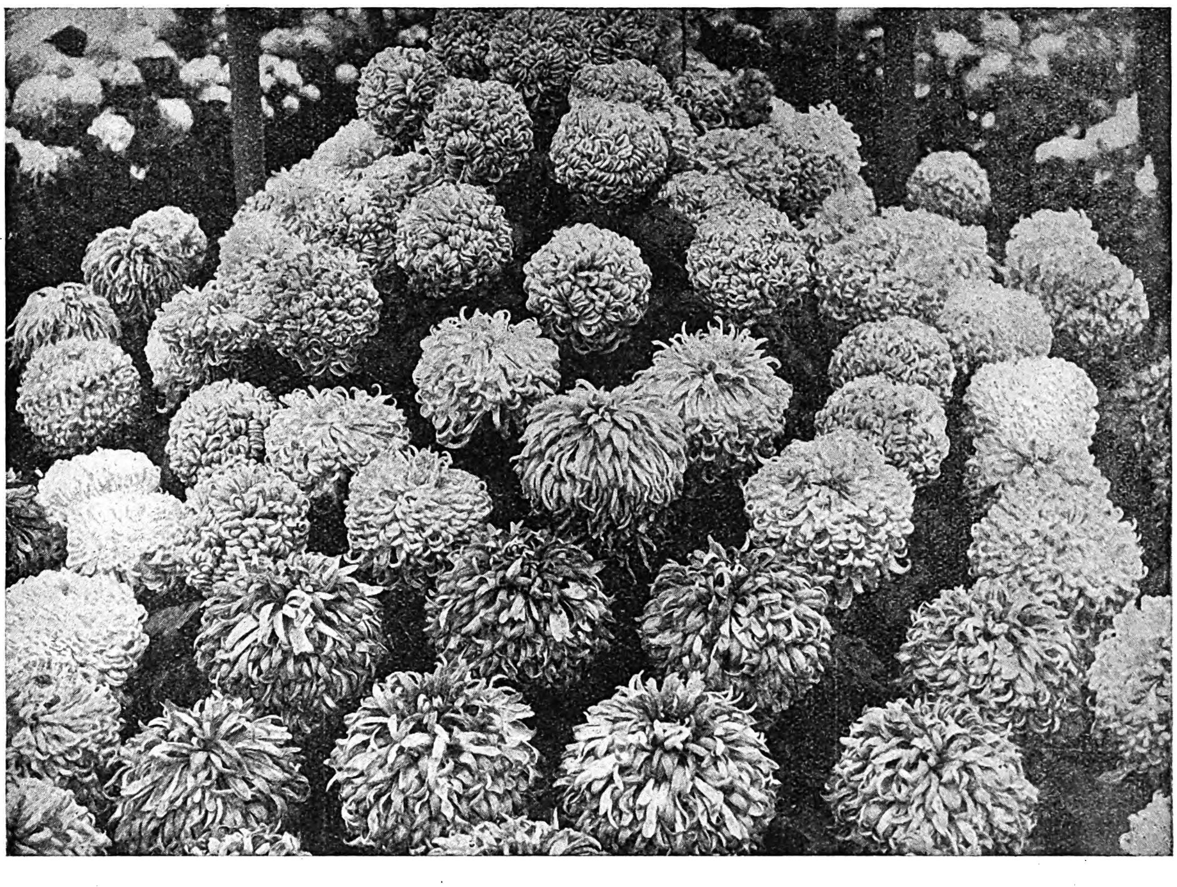

FIG. 207.—CHRYSANTHEMUM DISPLAY AT CENTRAL PARK, WALLASEY.

Professor Montagu Drummond, Botany Department of Glasgow University, who proposed the toast of "Horticultural Interests," said there was nothing more striking than the greatly increased interest in gardening, notably among the inhabitants of their great towns. A great deal of credit was due to the trade, which had encouraged the amateur in every possible way. Alluding to the Imperial Agricultural Research Bureaux, he said the object was to co-ordinate research in all kinds of agricultural matters within the Empire. Scotland had come off well. They were to have two, one at Aberdeen and one at Edinburgh. He wished they could have had another in connection with plant breeding, but he understood they were to have some sort of machinery to link their plant breeding in Scotland with the fully organised bureau over the border. Mr. C. G. L. Du Cann, General Secretary of the Horticultural Trades Association, remarked in reply that not nearly enough was done to further horticultural interests. The finest thing the Government could do would be, in the words of Voltaire, to teach its people to cultivate their gardens. They needed somebody in Parliament who would stand for horticulture all the time. The toast of "Our Guests" was proposed by Mr. Robert Fife, and replied to by Mr. T. A. Scarlett, while Ex-Bailee Kerr proposed the health of the Chairman.

Chrysanthemums at Central Park, Wallasey.—The Cheshire County Borough of Wallasey extends a considerable distance along the south bank of the Mersey, opposite Liverpool, and as a fleet of large steam-ferry boats ply at frequent intervals between the two places, very many people who are in business at Liverpool live at Wallasey. The public gardens of the Cheshire town are not extensive, but they are very pretty and greatly used and admired, especially during the holiday season, when they are particularly bright and attractive. In the dull season, however, the Chrysanthemums displayed in Central Park (Fig. 207), attract thousands of people, who not only pay tribute to the cultural ability of Mr. H. Smith, the Parks Superintendent, but also to the skill with which he arranges his plants and flowers. The illustration shows part of this season's display of about two thousand blooms; the varieties in the foreground include Majestic, Mrs. B. Carpenter, Mrs. R. C. Pulling, Mrs. Algernon Davis and other popular exhibition Japanese sorts.

Appointments for the Ensuing Week.—Monday, December 17: Harrogate Horticultural Association meets; East Anglian Institute of Agriculture lecture. Tuesday, December 18: Winchester Horticultural Society meets. Wednesday, December 19: Pangbourne and District Gardeners' Association's lecture. Thursday, December 20: Ipswich Gardeners' Association meets. Saturday, December 22: Leeds Paxton Society's Vegetable Show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Journeymen Gardeners in New York.*—A journeyman gardener left Scotland during the present year, and writes home thus to a friend—"You will be anxious to know how I have got on since I landed. I could have commenced work the first day that I landed, but did not incline to engage in such a hurry. I thought that I would take a week to look about me and consider things. During that time, I went to twelve different parties, each of whom would have given me instant employment, so at last I made a bargain with one. He is a Scotsman, and commenced here fourteen years ago with a small greenhouse, and slept in the stoke-hole; now he is independent. He has a large nursery and about a dozen greenhouses. He wished me to engage for a year at £80 sterling but I preferred engaging for 31s. 6d. per week, and if I get a better offer I am at liberty to take it on a week's warning, unless he chooses to give me as much. I pay 11s. 6d. for bed, board and washing. Gardeners are not here as they are in the Old Country, afraid to leave one place till they are sure of another. Here you may leave one place to-day and be sure of another to-morrow. Flower gardens are not so numerous as in the Old Country, but they are commencing new ones with spirit. Several hundreds of gentlemen are building fine houses, and are going to lay out flower gardens next summer. It is supposed that, in consequence, the wages of journeymen gardeners will be as high as two dollars, or 8s. 4d. sterling a day, by Whit-Sunday next. A friend who came out here some years ago has been fortunate enough to get a situation as head gardener with between £200 and £300 a year." *T. Lang, Kilmarnock. Gard. Chron., December* 10, 1853.

Publications Received.—*Plant Diseases*, by F. T. Brooks; Oxford University Press, Amen House, Warwick Square, E.C.4; price 21/- net.—*Scientific Papers of William Bateson*, Vols. I and II; the Cambridge University Press, Fetter Lane, E.C.4; price 42/- net, each volume.—*Fruit-growing Projects* by Fred C. Sears; The Macmillan Co., New York; 7/6 net.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

Selenipediums.—The robust-growing, late spring and summer-flowering kinds, notably S. microchilum giganteum, S. caudatum and its varieties, and S. grande, that were repotted after flowering, should now be well established in the new material and need an increased supply of water each time the compost becomes dry; those plants that were not disturbed at the roots are growing strongly and may soon become root-bound, in which state it is not advisable to allow the compost to remain dry for a long period, even at this season. If the plants are grown in a light position at the warm end of the intermediate house, they need copious supplies of water each time the surface moss becomes dry, care being taken that no moisture settles in the growths, as decay quickly sets in during the short, dull days; syringing or spraying should be discontinued.

Cattleya labiata autumnale.—This useful and free-flowering Cattleya is still grown in large quantities, especially for cut flower purposes. There are also many fine and beautiful forms in cultivation, which have been shown to perfection this autumn. After the flowering period the plants only require sufficient water at the roots to keep the pseudo-bulbs in a normal state. This Orchid, and many of the hybrids derived from it, produce strong, sappy sheaths with the flower spikes, and when the flowers are cut, moisture is liable to accumulate in them and often causes decay of the leaf. To prevent this, the spike and sheath should be cut so close as possible to the pseudo-bulb, without injuring it, and a little powdered charcoal should be sprinkled on the cut parts, which should be examined frequently. If any decay is detected, the diseased portions should be removed and the parts dusted with sulphur. Fresh roots are produced from the base of the leading pseudo-bulbs, and any necessary repotting may be done so soon as the new roots are noticed, care being taken to avoid injuring the roots during the operation. After repotting, water should be afforded sparingly, only sufficient being given to encourage root-action, which is naturally slow at this season. Other Cattleyas, such as C. Warneri, C. Lawrenceana, and many hybrids, that are still growing freely, should be afforded a light and warm position in the house and given every encouragement to assist the growths to develop fully. Ample supplies of water will be required at the roots, but saturation should be avoided and the compost allowed to become dry between each application. Cattleyas and Sophro-Cattleyas that are now showing their flower-spikes should be watched closely for any difficulty they may have in pushing their buds through the sheaths; in smoky districts, the sheaths often need splitting to release the buds at this season.

THE KITCHEN GARDEN.

By Allan Falconer, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Early Seed Orders.—Although the large orders for seeds need not be attended to until the various seed catalogues come to hand in the course of the next few weeks, it is advisable to place advance orders with the seedsmen for any special varieties which will be required for sowing at the end of the year, or early in the New Year, to avoid disappointment. For instance, such things as Onions, Tomatos and Cucumbers, which are required for early sowing, should receive first attention, the seedsmen usually being in a position to supply these at once, and well-tried varieties only should be sown early. So soon as the new catalogues come to hand, the seed order should be made out, ordering such quantities as will be required. It is imperative that the seeds should be ready to hand at the proper time and in sufficient quantity. Early orders usually receive prompt attention, while late orders are apt to take their chance with many others, and it sometimes happens that a specially desired variety is sold out. Many seedsmen have special stocks of certain subjects, and it is an advantage to procure these special strains whenever possible. The enthusiastic gardeners and exhibitors always lay great stress on special stocks; inferior strains take the same amount of growing as good ones, and in the end there is disappointment. So interesting are these special strains to many exhibitors, that they go to some trouble to save their own seeds, and put existing strains to a thorough test before growing them in bulk. Good standard varieties which have proved their worth in each locality should be relied upon, and a few novelties included for the purpose of testing their suitability to local conditions of soil and climate, as while some varieties are really good in one district, they are more or less a failure in others.

Asparagus for Forcing.—Undoubtedly the best method to secure roots for forcing is by sowing seeds each year, and using the four-year-old crowns grown especially for this purpose and previously uncut. A forcing pit provides the best place, but they may be forced under the stage of a greenhouse or on hot-beds made up of three parts fresh leaves and one part long stable litter, over which a frame may be placed when the temperature has declined to 60°; place a three-inch layer of soil, which should be light and well broken up, on the hot-bed, and then lay the roots evenly over the soil, covering them with four inches of the same material, and then giving a heavy soaking of tepid water. A safe temperature to maintain is from 60° to 65°, and should the heat be excessive, a little air may be admitted if the weather is favourable. Maintain a moist atmosphere by syringing when necessary, and protect the frames in cold frosty weather. Two frames on hot-beds are necessary for the maintenance of a regular supply, but a forcing pit suits the purpose much better and does not require the same amount of fermenting material as do outside hot-beds.

HARDY FRUIT GARDEN.

By T. E. Tomalin, Gardener to the Earl of Bessborough, Stansted Park, Emsworth, Sussex.

Figs.—In the colder districts, where the young growths do not come safely through the ordinary frosts of winter, steps should be taken to protect the Fig trees. The branches may be unloosed from the wall and gathered into bundles, which may be enclosed in a covering of straw or Bracken. Here, in Sussex, last winter proved fatal to a large proportion of the young growths on some Fig trees, but this is unusual and was doubtless due to exceptionally severe frosts following an unusually wet and sunless growing season.

Spraying.—An estimate should be made of the proposed amount of winter spraying to be attempted, and the necessary materials should be ordered, so that no delay arises when the trees are pruned, and the right type of weather occurs. The spraying machines and connections should be overhauled thoroughly; this will afford useful employment for a wet day. The new tar distillate sprays are showing splendid results in insect control and should certainly be tried where other means have failed to keep Plum aphis, black-fly and American blight in check. In connection with the latter pest, however, it must be pointed out that the majority of the insects migrate to the underground part of the tree in September. These should be dealt with by removing the top soil down to the first roots and dusting these and the underground stem plentifully with Tobacco powder, this treatment, of course, being in addition to the top-spraying, for which a tar oil spray is most effective. For Plum aphis and for black fly on Cherry trees, these sprays have given the best results, and they may also be used on Gooseberry bushes, where an infestation of aphis occurred during the past growing season. For bush fruits the dilution should be about the same as for Peaches, Plums and Cherries, the strength of the solution recommended for these being rather less than has been found safe for Apple and Pear trees. In all cases the directions for use, which are usually found on the containers, should be adhered to, and for these tar distillate washes the buds must be perfectly dormant at the time of spraying. As the use of tar oil sprays has been too recent for the cumulative effects from their use over a period of years to manifest themselves, it is neither desirable nor necessary to employ them for the same trees every year. As an alternative spray, lime-sulphur may be used, and, although this is of most use as a fungicide, and has proved most effective as a deterrant to black scale and sooty fungus on Pears, it has also good general cleansing properties on fruit trees, and keeps green mould and lichen growth in check. For use on old, neglected orchard trees where lichen growth abounds, there is nothing to beat caustic alkali. This will effectually clear off the lichen and thus pave the way for the profitable employment of the more expensive tar oil wash the following winter.

PLANTS UNDER GLASS.

By J. Coutts, Assistant Curator, Royal Gardens, Kew.

Daturas.—D. sanguinea, D. suaveolens and D. Knightii, are all old and well-known occupants of our conservatories, either planted out or grown in large pots or tubs. Large specimens in borders of the conservatory may now be pruned back hard, and during the winter, until they start into growth, they should be kept somewhat dry at the roots. When in pots or tubs they are best grown in standard form, six or seven feet stems displaying them to best advantage; these plants may be pruned back now or left until early in the New Year, according to when they are required to flower. These Daturas (syn. Brugmansia) are all propagated easily by means of cuttings, selecting the smaller, later shoots for this purpose. D. sanguinea is a very beautiful species and is not such a rampant grower as the others, but for some unexplained reason it seems scarce. They are all subject to attacks of white fly and a species of capsid bug, the latter perforating the leaves badly during the growing season and being very difficult to control. Syringing the plants vigorously on every possible occasion and spraying with an approved insecticide should, however, keep this pest in check.

Bouvardias.—As the Bouvardias pass out of flower the growths should be shortened back slightly and the roots kept fairly dry for a few weeks, during which time the plants may be kept in the cool house. If it is desired to start them into growth early in the New Year, they should be removed to a warm, moist house, where a temperature of 55° to 60° may be maintained. After an application of water they should soon start into growth. So soon as the young shoots are from three to four inches in length they should be secured for cuttings, for at this stage they root readily in a close case with slight bottom heat. They are also readily increased by means of root-cuttings; the stouter roots should be cut into short lengths and dibbled into pans of sand. A few varieties, such as Bridesmaid and Princess of Wales, do not come true from root-cuttings. During the growing season they should be stopped at every leaf until a good foundation is formed, and in the summer they may be planted out-of-doors, lifting and repotting them during September, or planting them out in a bed in a warm greenhouse. By growing on the old plants, large specimens may be produced in pots, while during the first season very useful decorative plants may be secured in five-inch pots; in this latter form they used to be grown extensively for market. It is very surprising that such a charming and useful class of plants is seldom seen at the present day. They are very subject to attacks of white fly and Begonia mite, and both pests must be guarded against.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to Sir CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Early Peach House.—To obtain ripe fruits during the early part of May, from Peach trees growing in borders, it is now necessary to start the trees gently into growth. The night temperature for the first fortnight should range from 40° to 45°, and the day temperature, 45° to 50° during dull, sunless weather; on bright days the temperature may rise to 60° or more before air is admitted. Cold draughts must be prevented. The trees should be syringed lightly on fine days until such time as the flowers begin to open, when syringing should cease until the fruits have set. While the trees are in bloom a slightly drier atmosphere should be maintained and a little higher temperature provided to ensure a free distribution of the pollen. Disbudding of the young shoots should be done very sparingly at first, removing those that grow from the upper ends and undersides of the branches, but at this time of the year, when growth is slow, this operation is best spread over a fairly long period. If green or black aphis attack the trees, fumigate the house immediately.

Fruit Borders.—The surface dressing of inside fruit borders should receive attention so soon as the structures, and trees or vines, have received their annual cleansing. First prick the surface of the borders lightly with a fork and remove all loose soil, and then test for moisture; if any doubt exists with regard to the roots requiring water, it should be afforded before proceeding with the work of top-dressing. The compost applied should consist of good loam that has been stacked for some time, to which should be added old mortar or lime rubble, wood-ash and some coarse fruit border compound and bone-meal. It should be thoroughly mixed by turning several times before using. The depth to which the top-dressing should be applied depends very much on the quantity removed, but in any case I do not recommend heavy top-dressings.

Muscat Vines in Borders.—Where Muscat Grape vines are growing in borders and ripe fruits are required by June, no time should be lost before starting them into growth. If a mild hot-bed is built on the border, the fermenting material should encourage root action considerably and obviate, to a certain degree, the need for artificial heat; moreover, the atmosphere obtained from this material favours early growth, counteracting, as it does, the dry heat given off by the hot-water pipes. The condition of the borders with regard to moisture should be ascertained and if necessary tepid water should be applied; avoid using cold water from the reservoir. The temperatures and other cultural details, for the present, may be as recommended for early pot vines.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to the DUKE OF DEVONSHIRE, Chatsworth, Bakewell, Derbyshire.

The Protection of Plants and Shrubs.—In writing of the protection of certain plants and shrubs, I refer to many choice things which, although not hardy enough in some localities to pass through a severe winter unscathed, may usually be relied upon to do so if given a certain amount of protection during sharp spells of frost, particularly if there is no snow, which in itself is a great protection at such times. Many of these subjects, such as the hardier Palms, Trachycarpus excelsus, Cordyline indivisa, Phormiums, and the Musas, although much hardier than many people suppose, require such protection. When arranging for this moderate amount of protection, avoid going to the extreme of coddling the plants or they may, in consequence, become tender and feel the loss of the protection when the time comes to remove it in the spring. A plan which may be recommended is to place evergreen boughs of the necessary size around the stems and base of the plants, and also use some dry Bracken, or in the case of roots needing protection, dry leaves. When these are placed around the bases of plants, a few branches of Rhododendron ponticum, Laurel or Yew may be used to keep them together. In more exposed places, wire-netting placed around the plants, with dry leaves put inside, and the whole surrounded with evergreen boughs, should keep them safe and tidy all the winter. Climbers and other plants against walls may be brought through the winter safely by utilising mats or canvas coverings, but this class of protection requires constant attention, and the coverings should be removed in all favourable weather. In the case of plants requiring only slight protection, the need should be met by the use of evergreen boughs and dry Bracken if possible, as these allow the air to circulate freely around the plants. Coal ashes have also been found efficient in preventing damage to roots of plants.

Planting Climbers.—While the weather remains open, many of the hardier climbing plants may be transplanted without fear of loss, but in the case of tender species it is advisable to postpone the planting until the spring, although the sites for these may be prepared now, so that everything is ready when the time for planting arrives. As climbers are planted with a view to their permanence, the ground should be prepared thoroughly, so that with the aid of an occasional top-dressing it may sustain them in good health for many years. In all cases, the ground should be dug deeply or trenched and some rough leaf-soil or light manure worked in. If the position is not well-drained this should be provided for while the work is in progress. Work some decayed manure into the bottom of the trench; this will be of value when the plants become established. The majority of climbers thrive in ordinary garden soil, but if the staple soil is not good, loam should be added before planting.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener at Jordanhill Training Centre, Glasgow.

Winter-flowering Pelargoniums.—Where a suitable house can be set aside for a batch of Pelargoniums to flower during the winter months, a very fine effect may be obtained. The plants should be grown specially for winter flowering, by striking cuttings early in the year, and afterwards repotting and stopping them as found necessary, until by the end of September they form good bushy plants in six- or seven-inch pots. These, if placed in an airy greenhouse with a night temperature of 45° to 50°, should begin to flower immediately, and by judicious feeding and watering may be kept in bloom during the winter months. Where space can be spared under glass, a few Pelargoniums, planted against a back wall, in course of time produce a remarkable crop of blooms throughout the year, and these plants are easily regulated and controlled by removing the older branches, and tying in young healthy growths in their place. Probably the advent of Begonia Gloire de Lorraine and other winter-flowering Begonias had a great deal to do with the reduction in numbers of Pelargoniums grown throughout the country, but where room may be spared for both, the striking scarlet and crimson flowers of the latter are a decided contrast to the softer pinks of the Begonias, and both are worth growing to brighten the greenhouse or conservatory during the winter months.

Cinerarias.—Plants intended for a display in the early months of next year should now be well established in their flowering pots, and in order to keep them healthy and vigorous, frequent applications of liquid manure should be given. Cinerarias should never be allowed to suffer for lack of moisture, and watering them consists in an intelligent anticipation of their actual requirements. The best results are obtained by growing them with the pots standing on an ash or gravel bottom, which may be kept moistened as required. Green-fly and leaf-miner are probably their worst enemies, and these may be kept in check by fumigating at the first signs of attack; for this purpose it is generally admitted that Auto shreds make the most satisfactory fumigant. Later batches of seedlings and plants of named varieties raised from cuttings should not be allowed to become starved in small pots, but should be potted on as required, and if the temperature of the house in which they are growing is raised a few degrees and careful watering practised, their roots should soon take hold of the new soil.

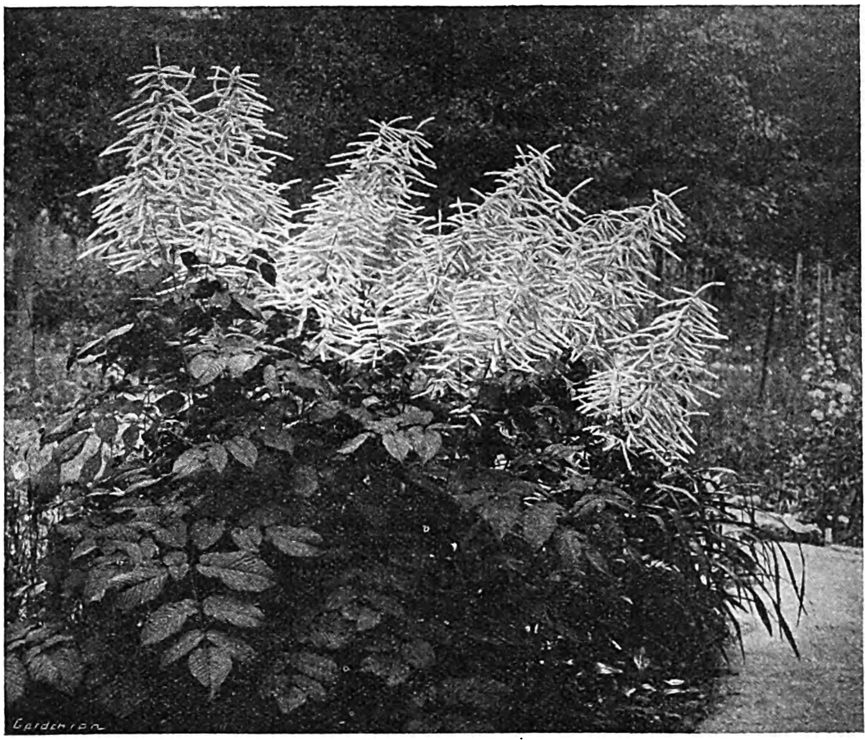

FIG. 208.—SPIRAEA ARUNCUS.

(see p. 467).

TREES AND SHRUBS.

ESCALLONIA ILLINITA.

Although not to be compared with some of the brightly-flowered members of the genus, and being, moreover, possessed of an odour not highly conducive to popularity, E. illinita should not be altogether despised, for it is not so unattractive as might at first be surmised.

It is a free-growing, evergreen species from Chile, and is among the hardiest of the group, for although often severely cut by hard frosts, it breaks away freely again and the symmetry of the bush is not long impaired. In height it will go to about ten feet, but it remains fairly compact and bushy, and does not object to moderately severe pruning. The young shoots and foliage, devoid of down, are distinctly sticky, due to resinous secretion from the glands with which they are furnished, the broadly oval leaves being finely toothed and glossy green.

E. illinita is very generous in the production of flowers, but these are not over attractive, for they are of a rather dull shade of white, borne in panicles three or four inches in length, the small branches of the panicles arising from leaf-like bracts, which detract from the appearance of the blooms.

However, E. illinita may well be employed for furnishing the large shrub border, for it flowers late in the summer, is free in growth, and of good habit, and is not very particular in its requirements. *M. W.*

BROOMS AND LIME.

In his interesting article (p. 409) Mr. H. Stanley Redgrove, in describing the flora of the "Brecks" refers to Gorse and Brooms as calcifuge shrubs. It would be interesting to have the opinion of others on this subject, for the latter appears to me to be a matter which, while it concerns both the gardener and the botanist, affords some problematical aspects. I have never gardened on chalk or lime, so cannot say from actual experience how the Brooms and Gorses behave in those mediums. Others who have done so appear to have had variable results, some species doing well, others indifferently. But even although one may find lime formations in this country which are apparently inimical to these shrubs, since the latter are absent or impoverished, I very much doubt whether one is justified in considering them calcifuge on that account.

There are limestones, as in Anglesey, upon which the Gorses,and to some extent the Brooms, abound. We also know that there are many species, especially of Genistas, on the Continent of Europe which are almost exclusively limestone shrubs. This is no less true of many allied genera, such as Spartium, Erinacea, Laburnum and others. Further, it has been conclusively proved that the bacteria which live in the root-cells of Leguminous plants require, as a general rule at any rate, a non-acid soil. In support of which we have the classical example of Rothamstead, where experiments carried out since 1856 have shown how Legumes entirely disappear from grass plots rendered acid, and how they prosper when the same plots are heavily limed.

Wherefore, in the force of such facts it is, I think, fairly evident that it is not the presence of lime, or chalk, in itself which renders certain soils and localities uncongenial to Brooms and Gorses. It is unwise to generalise on such subjects, but one feels that there is some factor, other than the presence of lime, at work in such soils, and which is responsible for the absence of these shrubs. At any rate, it seems fairly obvious that to class the Brooms and Gorses as calcifuge is hardly justified, especially from a gardening point of view.

CLEMATIS TANGUTICA.

This excellent climbing plant is a native of central Asia, and was introduced in 1898. If it cannot compare with Clematises in general as a flowering subject, it is the best yellow-flowered species we have and has other attributes of quality. In the first place, it is not a rampant grower, seldom exceeding a dozen feet, and this moderate stature, together with its lightness and slenderness, render it a very useful climber for rambling over supports which are unsuitable for stronger shrubs. The foliage, which is a pleasing glaucous green, is also so dainty and singularly graceful that C. tangutica would be well worth a place for this alone. Towards the later summer, the elegant growths put forth pendulous, Tulip-shaped flowers on erect stalks about six inches long, the rich yellow sepals being some two inches in length. When these are over, the seed vessels look like balls of gleaming brass until early autumn, when they break into large fluffy clusters of feathered styles which are as iridescent as spun glass. The first frost robs the plant of its foliage, but the fluffy balls remain for the greater part of the winter.

C. tangutica grows here in the poorest of stony soil and has become quite naturalised, since it sows it own seeds and these germinate readily. For support, it clambers over old stumps or trails about among Heaths and other shrubs. With the welfare of these it seldom interferes, but should it get too much for any of them it is cut back to the base in spring. This is soon followed by beautiful fresh young growth, and as the flowers are produced on the wood of the current year, nothing is lost by this drastic measure.

It is said that C. t. var. obtusiuscula is superior to the type (if it is not a distinct species), but I have not grown it. But the closely-allied climber known to gardeners as C. orientalis (graveolens) with smaller, yellow, slightly fragrant flowers, is equally ornamental in foliage and manner of growth. It is, however, a much taller and stronger plant than C. tangutica, but it also will withstand an annual cutting back should this be necessary. *A. T. J.*

KERRIA JAPONICA.

Few shrubs of equal merit have been so neglected in gardens generally as Kerria japonica, and even the old double-flowered variety, once so familiar in cottage gardens, does not appear to be so common as it was some years ago. K. japonica has many good points. It is a perfectly hardy, deciduous shrub of about five feet, with a slender, upright growth, the glossy green branches rising in a dense sheaf which takes but little space. The foliage is attractive and the rich yellow flowers, nearly two inches across, are borne freely during the spring and, to some extent, throughout the later months. K. japonica, moreover, is a shrub that will put-up with almost any kind of soil or situation, in sun or shade, and the only attention it ever needs is an occasional thinning-out of some of the older branches after flowering.

Although the double-flowered form of K. japonica is more often seen in gardens, it lacks the distinction and refinement of the type, nor has it such a pleasing habit of growth. But its flowers, of course, last longer, and in mild districts this shrub is scarcely ever out of flower, even in the leafless season. There is also a variegated form. K. japonica, in spite of its specific name, is a native of China. But the first plants sent to us, which were of the double variety, came from Japan, and this form may possibly have originated there. It was not until 1834, when the type species was introduced (some thirty years after the above) that its botanical status in the Rosaceae was determined. It was then given the generic name of Kerria, after William Kerr, the collector from Kew, who had sent us the first double-flowered specimens. During later years, K. japonica has been collected in China by both Henry and Wilson.

ELAEAGNUS MACROPHYLLA.

This very beautiful evergreen, a native of Formosa and Japan, whence it came some fifty years ago, is distinctly ornamental at any season, but it is especially attractive in autumn and spring. From November onwards throughout the winter, the contrast between the dark green of the upper surfaces of the leaves and the metallic silveriness of the undersides is particularly strongly marked. These leaves, which are broadly oval and pointed, with a rounded base and a length of three to four inches, have wavy margins which allows the brilliant sheen of their underparts to be more plainly seen. During the month of November the flowers appear in little clusters at the leaf-axils. These are about half-an-inch long, shaped like those of a Fuchsia and entirely covered with silvery scales. They are not conspicuous, but they make amends for this by possessing a delightful Vanilla-like fragrance. The fruits are red, but my own bush, which I have had for about fifteen years, has not yet produced any.

The great beauty of E. macrophylla in spring consists of its young shoots which, from a warm golden-brown, develop a silvery lustre which entirely covers leaves and twigs, and this is maintained until about midsummer. E. macrophylla makes a big bush of shapely habit rising to ten feet or more in height with an even greater width. It does well here in a light, sharply drained loam, and last winter was the first occasion upon which I have known it to suffer from frost. But even then it was injured only at the tips, and some of the leaves came off. It is the finest of the evergreen Oleasters, and appears to be more akin to E. glabra and E. pungens than the others, but it is very superior to these species. E. macrophylla was first described by Thunberg in 1784, and it is one of the comparatively few shrubs which appear to enjoy the "single blessedness" of having no synonyms, forms or varieties. *J.*

HERBACEOUS PERENNIALS FOR THE WOODLAND.

Among the wealth of herbaceous perennials in general cultivation in our gardens to-day, there is quite a large number of strong-growing subjects which are admirably suited for woodland planting, where their charms are well displayed among sylvan surroundings. Such plants will naturally not receive quite such full attention as might be bestowed on them in the herbaceous border, hence they should be of good constitution and able to hold their own without need of constant attention.

The Acanthuses are excellent subjects for woodland planting, their large, laciniate leaves and tall spikes of flowers showing up to advantage against a background of shrubby growth; they also flourish for a number of years without disturbance. The Aconitums, valuable as they are in the herbaceous border, are also highly effective when planted in the semi-shade of the woodland garden, where they grow freely and produce their dense, erect racemes with remarkable freedom. Distinguished by its grass-like foliage, Asphodoline lutea, a bulbous plant, succeeds well and produces stately spikes of flowers in June and July. The Alkanets and Borages are particularly useful for woodland planting because of their late-flowering habit, the trailing little Borago laxiflora being specially attractive when naturalised among other native plants.

Bocconia cordata, with its greyish-green, deeply divided foliage and tiny, creamy-white flowers, is a noble plant of large dimensions which, despite its size, presents a most graceful appearance. Buphthalmum speciosum, a very free-flowering Composite, although almost too heavy for border planting, is an ideal subject for an open space in the woodland. Its large, hairy leaves completely cover the stems which are surmounted with dense masses of orange-yellow flowers of striking appearance. The tall, Cimicifugas never thrive better than they do in a moist, open position of the wild garden, where they grow luxuriantly and display their feathery plumes of creamy-white flowers with great effect.

Several of the Epilobiums are excellent for naturalising, and soon take possession of large areas, their only fault being the one of trespass. The Funkias are invaluable for shady places and often succeed better in sheltered glades of the woodland than in the borders, where their handsome foliage often becomes seared by late spring frosts, thus destroying their beauty; further, they thoroughly enjoy good living and the rich soil of the woodland suits them admirably. Few plants are more admirably suited for woodland planting, than the Willow Gentians, Gentiana asclepiadea and its varieties. They succeed well under trees where the shade is not too dense, and enjoy the deep, cool soil, rich in humus, which such positions provide. They frequently reach a height of three or four feet, and their large, tubular flowers of rich blue, in various shades, are highly attractive.

The Geraniums provide a few of the most useful plants for our rock gardens, but G. armenum and G. ibericum may well find a place in the drier parts of the woodland, and of our native species, G. sanguineum and G. phaeum are worth encouraging. Heracleum villosum, which is quite unsuitable for the border, is worth a position in the woodland, where its bold leaves and stout stems, bearing enormous, flat heads of whitish flowers, form imposing objects. Several of the Spiraeas thrive in moist, cool corners of the woodland, among the best being the handsome S. Aruncus, and both our own Meadowsweet, S. Ulmaria, and the American Meadowsweet, S. lobata. That giant of the race, S. gigantea, is also an admirable plant in a moist position where there is plenty of room for it to develop.

In partial shade, Lysimachia clethroides, with white flowers, and L. punctata, with yellow blooms, grow with remarkable freedom, and are particularly effective in the mass, while for a really moist spot, Rodgersia tabularis is an attractive plant where it may be grown in companionship with the noble Saxifraga peltata. Among Saxifragas, the large-leaved species of the Megasea section are invaluable for planting in the more elevated positions, as apart from their floral display in spring and early summer, their ornamental foliage is attractive at all times, and plays a brilliant part in autumnal coloration.

Most of the Verbascums are first-rate plants for the open woodland. When not in flower their immense rosettes of downy leaves are striking objects, and when in bloom they harmonise admirably with other sylvan plants. Although biennial in habit, they reproduce themselves from seeds fairly freely, and may thus be included as useful plants for the woodland garden. *W. A.*

BULB GARDEN

COLCHICUM SPECIOSUM ALBUM.

Of the forms of the noble Colchicum speciosum in cultivation, none create more admiration than the white variety, Colchicum speciosum album, whose introduction some years ago by Messrs. Backhouse and Son, of York, created so much interest, and led to its rapid introduction to gardens where the best bulbous plants were cultivated, although the initial price of five guineas a bulb was prohibitive to many would-be purchasers.

With the lapse of time, however, and the extremely free production of offsets, this fine Colchicum soon became less expensive, and is now offered at quite a moderate price. The illustration (Fig. 209) is reproduced from a photograph of a corm two years planted, and gives some idea of the beauty of this Meadow Saffron, which was the subject of an excellent note by *M. W.* on p. 267 in the issue of *The Gardeners' Chronicle* of October 6, last. With all written of the beauty of this lovely white Colchicum in that note, the writer, who has known the plant since its introduction, is in full agreement. It is absolutely hardy, and, if planted in good time, in July or August preferably, will bloom the same year and give great delight to every one with its shapely, white flowers of great substance and large size. It can hardly be used amiss, being admirable in borders, beds, rock work or grass.

It is probably finest in the last, but, like other Colchicums, should never be planted in places to which cattle have access, as its foliage is very poisonous. *S. Arnott.*

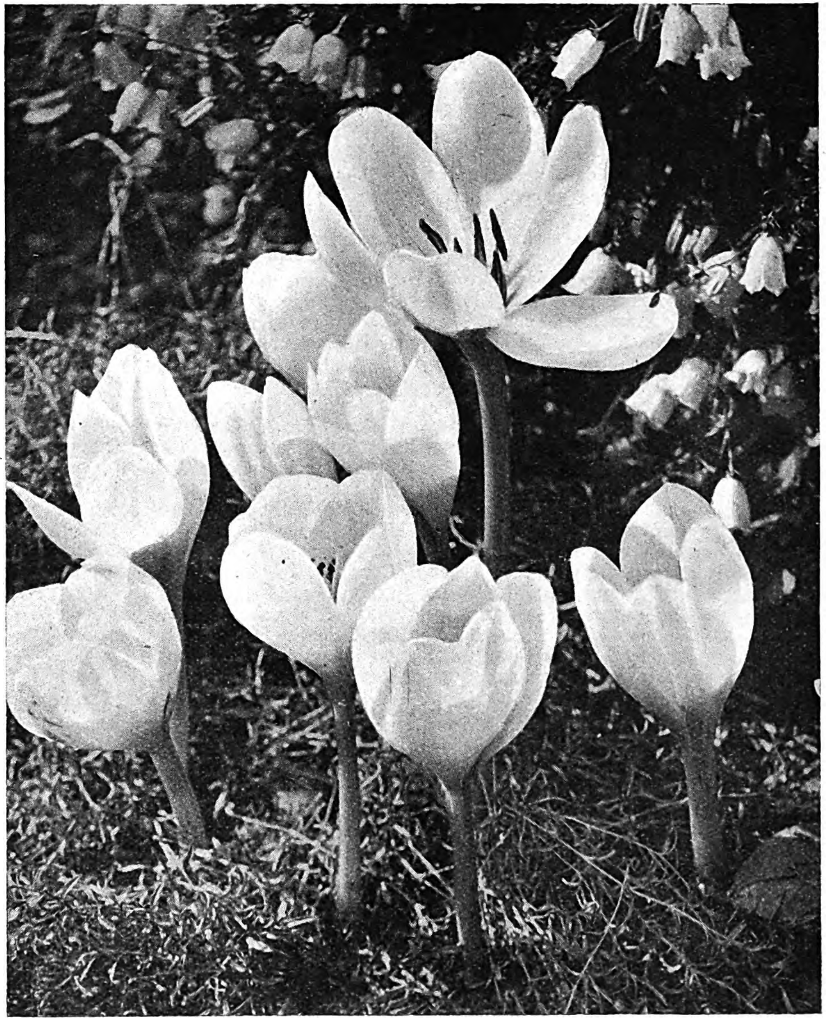

FIG. 209.—COLCHICUM SPECIOSUM ALBUM.

HARDY FLOWER BORDER.

SPIRAEA ARUNCUS

Spiraea Aruncus, the Goat's Beard, is an invaluable herbaceous perennial, admirably suited for the large herbaceous border, but, perhaps, most attractive when grown in the semi-wild portion of the garden, where it may seed itself about to produce a natural effect.

It forms a bushy plant with attractive pinnate foliage, and is surmounted during June with feathery panicles of creamy-white flowers. Spiraea Aruncus flourishes either in full sun or semi-shade, and prefers a moist soil, deep and rich in nature, while if planted on the margins of ponds, in association with Japanese Irises, an extremely pleasing effect may be obtained.

The illustration (Fig. 208) depicts Spiraea Aruncus as it is grown in Mr. T. A. Weston's garden in New Jersey, U.S.A.

THALICTRUM GLAUCUM.

The Thalictrums, or Meadow Rues, as they are familiarly termed, form a popular group of garden plants, chiefly on account of their attractive foliage, but also, in some instances, for their lovely flowers.

For instance, T. dipterocarpum ranks among the most beautiful of herbaceous flowering subjects. It is not easy to grow, and is either the joy or despair of gardeners—while few are not familiar with the lovely T. aquilegifolium, and especially its form atropurpureum. For the rock garden or front of the herbaceous border we have T. minus and T. adiantifolium, both with beautiful foliage which rivals that of the Maidenhair Fern in elegance, and for which it is often substituted in floral decorations.

Although the subject of this note, *i.e.*. T. glaucum, can hardly compare with T. dipterocarpum in floral beauty, or with the dwarf species for daintiness and elegance of foliage, it is yet a desirable herbaceous subject, either for the back of the herbaceous border—it grows to about five feet in height—or for planting in the wild garden, while it also makes a handsome feature if planted boldly on the margin of a pond.

It has the characteristic attractive foliage of the genus, the finely-cut leaves being, in this instance glaucous greyish-green, while the pale yellow flowers, tinted with a brownish hue, although with no pretentions of being striking, are yet not unattractive, produced as they are in feathery heads during July and August. The foliage, when cut, is useful for providing bold decorative effects in conjunction with tall flowering subjects.

T. glaucum is extremely easy to grow. It revels in deep, rich and moderately moist soil, in which it attains huge proportions, although when planted in soil of light texture and in an open sunny position, the glaucous tone of the foliage is accentuated. It is quite hardy, although apparently native to southern Europe, and may be raised from seeds or increased by division. *M. W.*

ROSE GARDEN.

GARDEN AND BEDDING ROSES AT KEW.

In dealing with this subject, it may be of value, in the first place, to describe the conditions under which these Roses are grown at Kew, and also the scope embraced by the collection. As the collection of bedding Roses at Kew now includes close on a hundred varieties, it may thus be considered fairly representative of the varieties most suitable for this purpose. Some may disagree with this statement, and assert that this is a poor representation of the total number of varieties offered for sale. However, considering the conditions, which are by no means ideal, these Roses, on the whole, do fairly well. The soil at Kew is mostly sand and gravel, and this entails the removal of the poor staple soil to a depth of at least two-and-a-half feet, and its replacement with good loam, which is now not easy to obtain in the neighbourhood. The practice is to grow one variety in a bed, and for the particular purpose in view, this method is undoubtedly the best way to display each type of Rose; the number of plants to a bed varies from two dozen to close on two hundred.

While the bulk of these Roses are Hybrid Tea varieties—the largest class grown at the present day—the collection, which aims at being representative, includes a series of the old Hybrid Perpetuals, the varieties grown having been selected for their freedom and length of flowering. Groups of Tea and the Dwarf Polyantha varieties are also grown, a new set of beds having just been completed for this last class. The so-called Musk Hybrids are also well represented, while large beds of the stronger-growing varieties, the growths of which are pegged down, are also a feature of the collection. These Roses are all grown for a purely garden decorative purpose, and no attempt is made at disbudding; in this respect we are frequently adversely criticised, but it must be remembered that the object is to maintain a bright and continuous display of blooms for so long a period as possible. The beds are all on grass, and the public are allowed to examine and enjoy the Roses at close quarters, and the low banks surrounding the two large sunk panels provide suitable seating accommodation for many hundreds. Beyond forking in some decayed stable manure after pruning, no feeding is done, other than the application of a sprinkling of bone-meal and a dusting of lime, or basic slag, every second or third year.

In dealing with the varieties grown at Kew, it must not be imagined that the writer intends being dogmatic about any particular variety or varieties, as it is only a statement of what happens in one particular place, and varieties that have proved failures here may, in other districts, no great distance away, prove successful; for in Rose growing it is undoubtedly a great asset to have a soil that is naturally suited to their cultivation. I am also convinced that stocks are an important factor in the success or failure of many varieties. At Kew, the majority of the Roses are on Briar and R. laxa stocks, and the latter, which are often condemned, have given excellent results, and I do not remember ever seeing suckers on them. The Hybrid Perpetuals are, of course, on the Manetti stock.

In writing of the varieties, I propose to deal with the large group of Hybrid Teas first, grouping them in their colour classes. Among the white varieties, Madame Jules Bouché and Clarice Goodacre have proved most satisfactory, both being strong growers, with shapely buds and fuller flowers than many of the newer varieties. A trial of the newer Marcia Stanhope, in the reserve garden, did not prove encouraging, but it should be borne in mind that new Roses often prove unsatisfactory in their earlier years, the reason for this probably being over propagation.

Among those with flowers in shades of red and scarlet, General McArthur, Hugh Dickson, K. of K., Lieut. Chauré, Mrs. E. Powell, Red Letter Day, Miss C. E. van Rossem, Hortulanus Budde and Adjutant, have all proved satisfactory. General McArthur is still, in some ways, the best red Rose for bedding purposes, and is sweetly-scented. Although not such a strong grower, K. of K. is, in my opinion, better than Red Letter Day, while Miss C. E. van Rossem, a moderate grower, is excellent for a small bed; this variety is described as sweetly-scented, but I have so far failed to detect scent, however, that may be my misfortune. Hortulanus Budde has done well, but unfortunately it loses its foliage early.

Of the crimson-flowered varieties, Etoile de Hollande and Hawlmark Crimson have proved good, although the latter's foliage is not first-class. Covent Garden, Hadley, Hoosier Beauty and Liberty have all been tried, but have been discarded for various reasons. Betty Uprichard is outstanding among those with flowers of deep rose and vermilion shades, being very fine for a large bed, although a few more petals in the individual flower would be a great advantage. This variety produces very strong growths, with the result that the flowering season is often broken, a fault common to most varieties that make strong shoots. Mrs. Wakefield Christie-Miller is another good variety; the flowers may be described as vermilion-rose, although it is extremely difficult to classify Roses according to colour.

Among the coppery-pink shades, Lady Pirrie is still the best, being a strong grower and flowering with great freedom. One large bed has been left undisturbed for eighteen years, which is sufficient tribute to its vigour. Mrs. Alfred Tate, with coppery-red blooms, is very beautiful, but not over vigorous. The pink Roses present a wide range of varying shades, including such well-known varieties as La France and Caroline Testout, which is still one of the best garden Roses, a large bed of it having been established for over twenty years, no plants having had to be replaced. This variety also does well on its own roots, for a bed of such specimens was planted fifteen years ago and is still good. Gorgeous, Madame Segond-Weber, Madame Léon Pain, Lady Alice Stanley, Ophelia, Madame Butterfly, Mrs. Henry Bowles, Pharisäer, Dorothy Page-Roberts, Mrs. Henry Morse, Ethel Somerset, Cynthia Forde, Mary Munro, Madame Abel Chatenay, Radiance and Ivy May, this last a dainty, deep-coloured, miniature edition of Madame Butterfly, but, unfortunately, prone to attacks of mildew, all rank among the best.

Those of yellow shades include Miss Willmott, pale cream, and at its best a charming variety, but apt to die back during the spring; Harry Kirk, Christine, Golden Emblem, Mabel Morse, Mrs. Wemyss Quin, Souvenir de Claudius Pernet, Frances Gaunt, Golden Ophelia, Margaret Dickson Hamill and Madame Ravary. Most of these are more or less successful, but we are still waiting for the ideal yellow garden Rose. Of the foregoing, Mabel Morse has proved a complete failure. Souvenir de Claudius Pernet is an ideal grower with fine foliage and good yellow flowers, but it is essentially a fine weather Rose. Golden Emblem has an unfortunate tendency to die back in the spring; light pruning or deferring it until after the first flowering, is helpful, yet, despite such treatment, annual renewals during the spring proved so heavy that a bed containing a large number of plants has been reduced by one-quarter. This tendency to die back and susceptibility to black spot, still prove the bane of many of the Pernetiana Roses. Among the yellow sorts the newer Ville de Paris seems promising, while Billy Boy, a single-flowered variety, has proved ideal for bedding purposes, but so far Christine has proved the best for our purpose. It keeps its colour well and flowers freely throughout the season; with more vigorous growth and larger flowers it would be ideal for the garden. We require varieties with the vigour of Mrs. Wemyss Quin, but with a better continuity of flowers.

Of the orange, copper and flame coloured varieties, Lamia, Mrs. Aaron Ward, Emma Wright, Lady Elphinstone, Los Angeles, Vanity Fair, James Walley, Duchess of Atholl and Ruth are all grown, the last-named being a charming Rose, but prone to die back during spring.

Mrs. Aaron Ward was grown in one bed here for eighteen years without a renewal, but has now had to give place to others on trial. Among the newer varieties, Shot Silk has done splendidly and has been promoted to a larger bed, while Charles P. Kilham, brilliant orange-red suffused with scarlet, is very promising, and during the wet season of 1927 proved one of our best bad-weather Roses. Elizabeth of York, of good bedding habit and continuity of flowering, has proved very successful, while Duchess of Atholl is very beautiful and a good grower; it has, however, a tendency to start badly after pruning.

The Tea Roses grown at Kew include Marie van Houtte, Molly Sharman Crawford, Mrs. Herbert Stevens, Madame Antoine Mari, a charming Rose; Lady Hillingdon, Lady Roberts, Anna Olivier, Alexander Hill Gray, M. Tillier and George Nabonnand. Many others have been grown from time to time and proved more or less successful.

It may also prove of interest to give a list of the old Hybrid Perpetuals included in the collection. These are Captain Hayward, Victor Hugo, Frau Karl Druschki, Dupuy Jamain, Général Jacqueminot, Ulrich Brunner, Hugh Dickson, Mrs. John Laing, Mrs. Sharman Crawford and the new Madame Albert Barbier. The Bourbon Roses are represented by Madame Isaac Perriere and Souvenir de la Malmaison.

Single varieties include Pink Delight, Billy Boy, Kirsten Poulson, Mrs. Oakley Fisher and Isabel, the last-named being the most beautiful of single Roses, but it is not inclined to start well after pruning.

Dwarf Polyantha Roses are represented by such well-known sorts as Mr. W. H. Cutbush, Ellen Poulsen, Orleans, Crimson Orleans, Golden Salmon, Evelyn Thornton, Katherine Zeimet, Coral Cluster and Marie Pavie, all of which may be propagated readily by means of cuttings and do extremely well on their own roots.

The Musk Hybrids include Moonlight, Prosperity, Pax, Penelope and Vanity; they are good for large beds, grown either as free bushes or pegged down; which leads to Roses suitable for this purpose.

Among the Roses which are suitable for this latter purpose are Madame Isaac Perriere, Ulrich Brunner, Hugh Dickson, Lady Waterlow, Gustave Regis, Mermaid, Gruss an Teplitz and Frau Karl Druschki; the last two have been planted for over twenty years, and have only been removed this autumn as a result of necessary alterations; surely a wonderful tribute to their constitution. All varieties that make shoots five or six feet in length are best pegged down.

In spite of the many new Roses introduced, there is still a lack of really good garden Roses. Many of them are far too thin, the flowers being little better than single when open; others are lacking in constitution and require constant renewal. Unless it has exceptional merit, no variety should be sent out that is subject to mildew and black spot. In this connection, I feel sure that the stronger-growing and hardier Tea Roses have been neglected for breeding purposes, as they are never attacked—in my experience—with mildew or black spot. It may be that one expects too much of Roses. Still, unless there is desire for improvement in many ways there is little chance of attaining perfection, and it would be better if raisers were content to put one good Rose on the market rather than a dozen varieties that are never likely to attain permanence in our gardens.

One is often asked to define a really good garden Rose. Briefly, the qualifications are, in my opinion, (1) a strong, hardy constitution, that will enable a plant to last a reasonable number of years; (2) good, moderate growth forming a free, open bush; (3) good foliage, which is a great asset, and one that many otherwise good varieties lack; (4) flowers moderately full, borne upright on good stems, and produced continually; (5) fragrance—everyone expects to find pleasing perfume in a Rose; and (6) freedom from disease.

J. Coutts.

PRIMULA WILSONI.

Primula Wilsoni, Dunn, was discovered in Yunnan, south China, by Père Delavay and Dr. A. Henry, and was introduced from the same locality by Mr. E. H. Wilson, when collecting for the famous Veitchian firm. It was first described in *The Gardeners' Chronicle*, 1902, Vol. XXXI, p. 413. It has also been known as P. angustidens; Pax, and P. japonica variety angustidens, Franch., and the plants that are depicted in the illustration (Fig. 210), were grown at Earlham Hall, Norwich, under the latter name. This Primula belongs to the well-known and popular Candelabra group, and has close affinities to the older P. Poissoni; like that species, the subject of this note has a rosette of stiff, dark green, glabrous leaves; according to the strength and vigour of the plant the flower scapes may vary from two feet to four feet in height. The flowers are about one inch in diameter, borne in whorls of five or six; they are reddish-purple in colour, fading to pale mauve, and sweetly-scented.

P. Wilsoni is easily raised from seeds and, like most of the species in this group, its successful cultivation presents no difficulty, as it thrives in good loam enriched with well-decayed farmyard manure or leaf-soil. As with the majority of the species in its group, P. Wilsoni enjoys plenty of moisture at the roots during the growing season. *J. Coutts, Kew.*

SOME AUTUMN-FLOWERING ROCK PLANTS.

While the memories of autumn are still with us, it is well to reflect upon the flowers which have given us pleasure in the rock garden and to consider what others we may add so as to have a brighter effect next year. In autumn we have far fewer flowers than in spring, and it is the desire of every lover of a rock garden to make it more attractive in the waning days, so as to help to bridge over the gulf between late summer and the opening days of the New Year. It is possible to do this to some extent, although with our winters we cannot anticipate that the dullest months can give us many flowers. But from August onwards we may secure at least a fair number of plants to give us pleasure as we wander around our gardens.

One of the dependable plants is the little Achillea tomentosa, a low-growing plant of easy culture, with heads of small, bright yellow flowers. What is understood to be of hybrid origin is Achillea Lewisii, a charming creamy-yellow flowered plant resembling the preceding except in the colour of its blooms. It is a precious, long-flowering subject, to be highly recommended.

Some of the Armerias, or Sea Thrifts, are useful also. A. maritima is our native one, and the best variety is A. m. Laucheana, with deep rose flowers. A. m. Vindictive is even brighter. Asters, or Michaelmas Daisies, are, of course, border plants known to everyone, but a good form for the rockery is the somewhat scarce Aster acris nanus, nine inches high, with small, starry, lilac flowers. Convolvulus mauritanicus is useful for trailing over rocks, but, unfortunately, it is only hardy in mild parts of the country. It has blue flowers. The pink Coreopsis rosea, about nine inches high, as a rule is fairly hardy, save in cold districts.

The Heaths, or Ericas, are a host in themselves for autumn bloom, and all the forms of E. vagans, and E. tetralix, or of Calluna vulgaris, are of the utmost value.

A pretty little subject, Erigeron mucronatus, with pinkish, Daisy-like flowers, is almost continuously in bloom. It is generally hardy but where it is lost sows itself freely and reproduces itself in this way.

Gentiana Farreri is good with its cerulean flowers, but still later and more brilliant is G. sino-ornata, of deeper blue and lasting into November. Hypericum fragile, a spreading tuft of foliage with golden flowers, is capital also, but large plants may be lost in severe winters. H. olympicum, also yellow, is very fine and hardy. H. humifusum, yellow, is of different habit from the latter and spreads a good deal. It is not so fine as the preceding species. Nierembergia rivularis, white, and trailing, is very fine, although with a suspicion of tenderness in the north. Ceratostigma plumbaginoides, better known as Plumbago Larpentae, has lovely blue flowers in late autumn, and is very fine in sunny chinks in the rock garden. A long and free-flowering plant, called Potentilla Tonguei, is excellent; with apricot, crimson-blotched flowers. Sedum spectabile is a well-known, erect-growing Stonecrop with heads of rose-pink flowers. The variety splendens or atropurpureum, has deeper-coloured blooms. Silene Schafta, rose-purple, is indispensable, and so is Tunica Saxifraga, a slender plant with white or pinkish flowers. Such Campanulas as C. Portenschlagiana, are rarely out of bloom until winter comes, and even then often prolong their flowering time. Corydalis lutea, yellow, and C. capnoides, also yellow, may be added. Linarias, such as L. alpina and L. cymbalaria, may be grown, but the latter spreads freely. Several others might be named, but enough is as good as a feast, and those enumerated constitute a varied collection of valuable plants for the decoration of the rock work in the late autumn months. Nor should the autumn or winter-flowering Crocuses and Colchicums go unheeded, but ought to be planted with generous hands. *S. A.*

ALPINE GARDEN.

ARMERIA LATIFOLIA.

While the gem of the Armerias, or Thrifts, for the rock garden is A. caespitosa, we sometimes come across the fine A. latifolia, introduced from the south of Europe in 1800, which also bears the names of A. formosa, A. Cephalotes, A. mauritanica and A. pseudo-armeria. It was figured in the *Botanical Magazine*, t.4128.

Its comparative scarcity in rock gardens is probably due to the length of the flower stems, which are upwards of a foot in height and are sometimes so tall as two feet. This is a drawback in any but the most sheltered positions, as the wind generally renders them almost prostrate, and any method of supporting the stems is unpleasing in the rock garden, although many condone this on account of the appearance of the tufts of grassy leaves and the fine heads of large, bright pink flowers.

From what I have observed, there appears some confusion between this plant and A. plantaginea, but the latter, as I know it, has broader leaves, and is not of such fine colouring, although both species vary in colour when raised from seeds.

A. latifolia should be planted in light, well-drained soil and a sunny position. It is sometimes lost when large, but a stock may be maintained by careful division, cuttings or seeds, which should be sown under glass in spring. Plants raised from seeds should be carefully noted when in flower, and the poor-coloured forms destroyed. *A.*

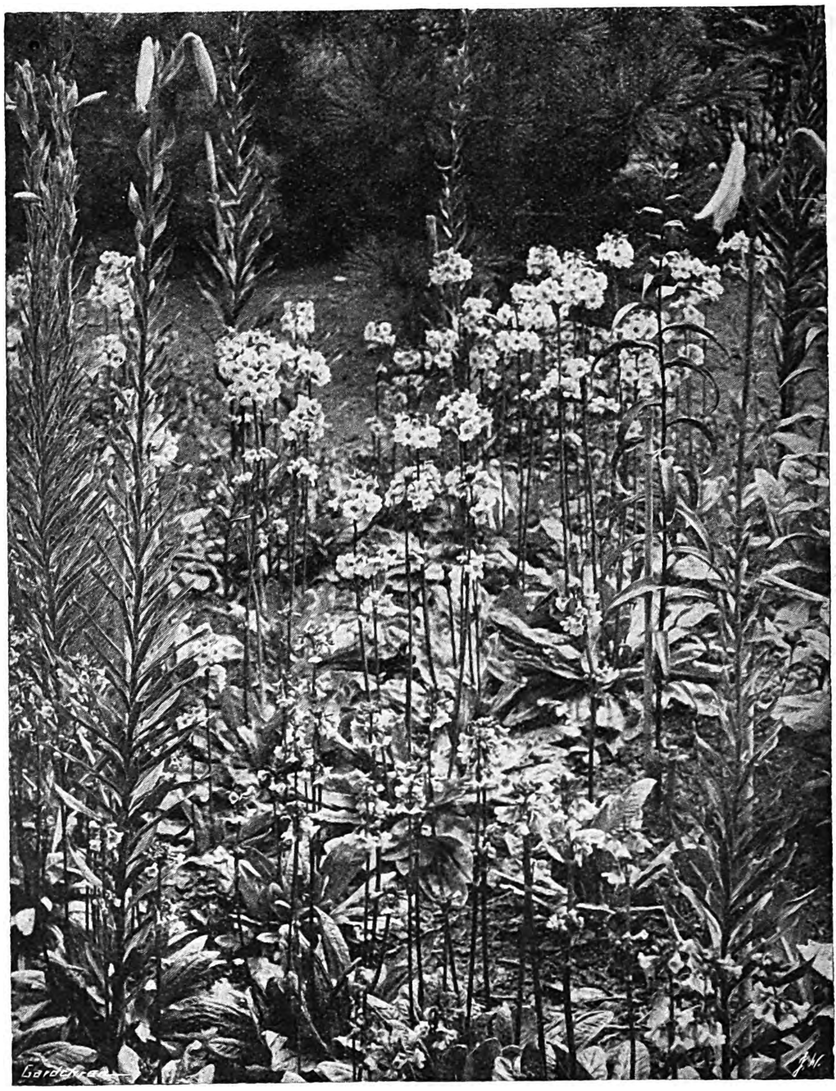

FIG. 210.—PRIMULA WILSONI.

EDITORIAL NOTICES.

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Editors and Publisher.—*Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

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PLANT HISTORY IN NOMENCLATURE.

(*Continued from p.* 431.)

POPPIES AND OPIATES.

THE Poppy has been celebrated for ages. It can hardly be said, like the Phoenix, to have risen anew from its ashes; but it is not a little curious that it should be so intimately associated with war on the one hand in China, and Victory, on the other, in Flanders. With this aspect of the subject, however, we are not immediately concerned, although for many it far outweighs all others. We have to enquire into the relations of the plant with language and literature; to trace the history of the words Poppy and Opium with their synonyms and derivatives, and to show how these have become interwoven into the speech of many lands. Incidentally, we shall see how great has been the influence of these opiates on history and letters, morals and political relationships, and thus find opened to our gaze a chapter in the history of plants which is of no mean importance. This is a sidelight which the student of botanical science cannot afford to pass unnoticed.

The every-day dictionary defines the Poppy as a plant having a white narcotic juice and large, showy flowers, from one species of which, in particular, opium is obtained. If it attempts etymologies it will add that the word Poppy is derived from the Anglo-Saxon *poppig*, and comes to us from the Latin *papaver* with loss of the final letters, through the Italian *papavero*. If we press the matter still further we shall find that the name must have been very early introduced into this country, and that its form affected that which it assumed on the continent. Thus we find in Brachet's very useful *French Dictionary* the following explanation:—"PAVOT, a Poppy; from the Latin *papaver*. The Provencal *paver* shows that the first syllable had been dropped early. Thence the word fell to *paot* in the thirteenth century, and returned again to *pavot* in the fourteenth century. Littré calls attention to the Anglo-Saxon *pappig* or *poppig* as having influenced the later formations of *paver* and its derivatives."

This familiarity with Roman herb-lore on the part of our Saxon ancestors is well brought out by Professor Earle in his valuable little work on English plant names from the tenth to the fifteenth century. When we press our enquiries further, however, and endeavour to learn something about the Latin *Papaver*, which has been adopted by botanists as the scientific name of the plant, we find ourselves in a region of doubt and uncertainty. Someone has suggested that the word means the true (*vera*) pap, as though to show that it had been named from its proved qualities as a soother for children and others!* In German, another word found favour, and from the term *Mohn* the Normans derived their name for the Poppy, viz., *mahon*. These suggest the Greek *Mekon*, from which we get Meconopsis.

The Poppy Order is a well-known one of temperate climes, but in the east is familiar only as a cultivated plant or as a weed of civilisation. Thus in the plains of India, while no species is found wild, the Mexican or Prickly Poppy is spread, to use the words of Bentham, "like a weed all over the tropics, where oil for lamps is extracted from the seeds. The garden Poppy (P. somniferum), red, white and purple, is seen growing in fields alike in India, China and Japan, attaining its highest perfection, perhaps, in Central India. Hooker, in his *Himalayan Journals*, tells us that near Chittagong the Poppy fields resembled a carpet of dark green velvet sprinkled with white stars, or a green lake studded with Water-Lilies. In Nairne's work on the *Flowering Plants of Western India*, the names given for the Poppy are *Daruri* and *Kante-dhotra*, neither of which, however, throws any light on the history of the plant.

The influence of the Poppy on our Dictionaries is best seen when we come to the study of Opium. This is the milky sap of the plant, obtained chiefly from the capsule for commercial purposes, the active principle of which is an alkaloid which has been named morphia or morphine from Morpheus, the creator or shaper of dreams. Thus we are led into the realms of literature, and recall the names of De Quincey, Coleridge and others. The term Opium comes to us through the Latin from the Greek, and is ultimately derived from *opos*, which meant juice, sap, gum or resin, and was especially applied to the milky, acrid and other juices of such plants as the Fig or Poppy. Hence, the further derivative, opiate, or the sleep inducer.

It is natural in this connection to enquire whether Opium has left any traces on the languages of the east. Do we find by the study of Oriental vocabularies any evidence that the Poppy was known in China and Japan, Malaya and India as an indigenous plant, or does linguistic study throw any light on its introduction into the east? When we find such words as *apien*, *alipeen*, *yeepyen*, *yapping* and *yappay* in the dialects and languages of Japan, China and other Asiatic countries, we can hardly doubt their association with the term which was used by western traders when speaking of the product of the Poppy. The dictionaries give a dozen different Chinese names for Opium, but the regular word is *a-pin*, variously pronounced and transliterated. The word for smoking is *in*, and this sometimes gets into combination with the word for Opium, while at others it is added, giving us such forms as *apin-in* and the like. These words have no native derivation in the Chinese or related languages, but are borrowed from the west, exactly as we have borrowed the word Tea from the east.

The Alpine Poppy (Papaver alpinum), sometimes called the Naked-stemmed Poppy (= P. nudicaule) is a native of North Arctic and cold temperate regions, and has been found apparently indigenous around Peking and in other parts of northern China. Further, both the Chinese and the Japanese have native names for the Poppy. But it is the Opium Poppy (P. somniferum) in particular, together with the common Scarlet Poppy (P. Rhoeas) which is found under cultivation, while, as in India, the Mexican Poppy (Argemone mexicana, flourishes as a weed. Further into this question) with the history of the Opium war, and its far-reaching effects alike on the Chinese and ourselves, it is not necessary to go.

It is impossible to deal with all the words which are connected in one way or another with the Poppy, but Laudanum should not be overlooked, as it was the great Opium eater's favourite opiate. The name reaches us from Persia by way of the Greek and Latin tongues, and has a long and interesting history. It was originally used to designate a sweet-smelling gum obtained from the Cistus from which pomander was made. From the Persian *lada* it was named Cistus Ledon, the Greek *ledanon* or *ladanon* being the derivative, and giving us the Latin *ladanum*, or *laudanum*. Here is a curious side-light on the vocabulary obtained from plant history.

From the days of Homer down to the present time, the Poppy has in one way or another affected our vocabularies and our literature. The drooping of the Poppy head was ages ago employed by the poets symbolically, while the Opium-eater has given us vivid word pictures as the result of his unhappy indulgence. It would seem, however, that the great world war and Armistice Day are to give the Poppy a totally new lease of life, and every year the new industry of Poppy-making becomes increasingly important. A common, wayside plant may, therefore, play an important part in the history of a race, and the tracing of that history cannot fail to be of interest alike to the botanist and gardener, the historian and the linguist. *Hilderic Friend.*

(*To be continued.*)

NOTICES OF BOOKS.

Rock Gardens.

SINCE it is American in intention as well as in atmosphere, this handbook* is unlikely to appeal to English readers, especially as its price is high for a book of only eighty-four pages, and which attempts little more than the rudiments of rock-garden construction. But, remembering as we must that the rock garden is a new thing in America, the author of this little book must be given credit for approaching his subject with a balanced judgment and seemly restraint. If we must differ from him on some matters, there are others, notably the advice regarding watering ("irrigation"), drainage, top-dressing and soil-mixtures, upon which his information is often good, so far as it goes. In his constructional details, however, there are faults in design as well as in technique. There is, for example, a sectional drawing of that atrocity the "mound" rock garden, but we must do the author justice by stating that if there are almonds stuck all over the pudding he has had them hammered well in. Again, in the cross-section shown of a "wall rock garden" there is on the outer-side an earth space of half the diameter of the stones between each block, which, whether the face of the wall is vertical or leaning, must ultimately have but one result and that a calamitous one.

The few remaining drawings (there are no photographs) are not any more helpful, and for descriptions of plants the reader is "referred to the catalogs." There are some columns of plants and shrubs for various sites and soils given at the end of the book, but the information accompanying them is very brief, its accuracy patchy and it is often too vague to be of any practical value. Thus Rosa lucida is included among the "most dwarf" of the Roses in a list of "very dwarf" rock shrubs. We are told that there are (for rock gardens) "comparatively few really dwarf evergreens," other than dwarf Spruces. "Rhododendrons" are said to be "too large and too heavy for even the background," and Sciadopitys verticillata is recommended since it only attains a height of "twelve to fifteen feet"! Members of the genus Oxalis are included among the bulbs for rock garden planting, and as examples of the frequent use of the generic name only, one reads that "Genista" is a dwarf shrub with yellow flowers and "Veronica" a plant with blue flowers.

This handbook leaves one with the feeling that the author has still a long way to go in the pursuit of rock-gardening. *J.*

A Simple Guide to Rock Gardening.

WE are told in the preface to this little book† to hand some time ago, that the author wrote it "at the instigation of many readers of my previous writings on this subject." It is our devout prayer that they will not be more disappointed with its contents than we have been, for it is a long while since such a mass of inaccuracies has been placed before us in print. Indeed, the greater part of the 126 pages is such a maze of errors in spelling and description that one hesitates to take the book seriously. Half-a-dozen brief chapters are devoted to the construction of "rockeries" (that distressing word is repeated throughout), and from them those who understand something of the rudiments of the work may possibly glean one or two digestible crumbs. But the remainder of the book, which covers six or seven of the principal families of alpine plants, and concludes with "selections" of subjects suitable for various aspects and soils, is rendered so misleading and confusing by its palpable faults that one can only hope that the author will at least get his proofs read by some competent person should he ever again be unable to resist the pleadings of his friends.

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* Johnson in his *Gardeners' Dictionary* states the word Papaver is from papa, pap or thick milk; referring to the juice. Might it not be from a word for breast, on account of the shape of the capsules?

* *Rock Gardens*, by F. F. Rockwell, The Home Garden Handbooks, Macmillan Co., New York, 1928. Price 4s. 6d. net.

† *A Simple Guide to Rock Gardening*, by Sir Jas. Cotter, The Sheldon Press, Northumberland Avenue, W.C.2. Price 2s. 6d.

Excuse may, perhaps, be made for the novice who trips over the spelling of Aubrietia and who omits the first t in Pentstemon. But on nearly every page of this book the attempts at spelling are so pathetic that over a hundred plant names are almost unrecognisable, save as helpless wrecks in the sea of simple orthography. Further, species are called varieties with irritating persistence, varieties are termed species, species regarded as genera, and each specific name is given a capital letter—all of which might be amusing, even funny, in anything which purposes to be other than a "guide."

We are told by the author that Anemone Hepatica angulosa has flowers nearly three inches across, and that "A. Angulosa Major" has "even larger flowers"; that A. blanda alba is a white form of A. palmata; that A. nemorosa Robinsoniana has blue rose and purple flowers; that Primula involucrata is "only an annual, unfortunately"; that A. vernalis and Water Lilies are good bog plants, and that Juniperus hibernica compressa is a prostrate shrub! But the above are only a few examples taken at random from a host of similar "howlers."

As to the "selections of alpines" which, in single columns, fill several pages towards the end of the book, these are likely to be more mystifying than helpful to any beginner who searches the labyrinths of this *Simple Guide* for guidance. For not only is the information given as to the season of flowering and the most suitable conditions for the plants superficial, vague and often wholly misleading, but in most instances the generic name only is given. Thus, in the "selection of plants for sunny or partially sunny positions," we have perforce to be content with "Saxifraga," "Polygonum," "Silene," "Thalictrum," "Rubus" and so on, to the confusion of all who attempt to benefit by such nebulous advice. The book contains no illustrations, and the brief index is little more than a table of contents. *J.*

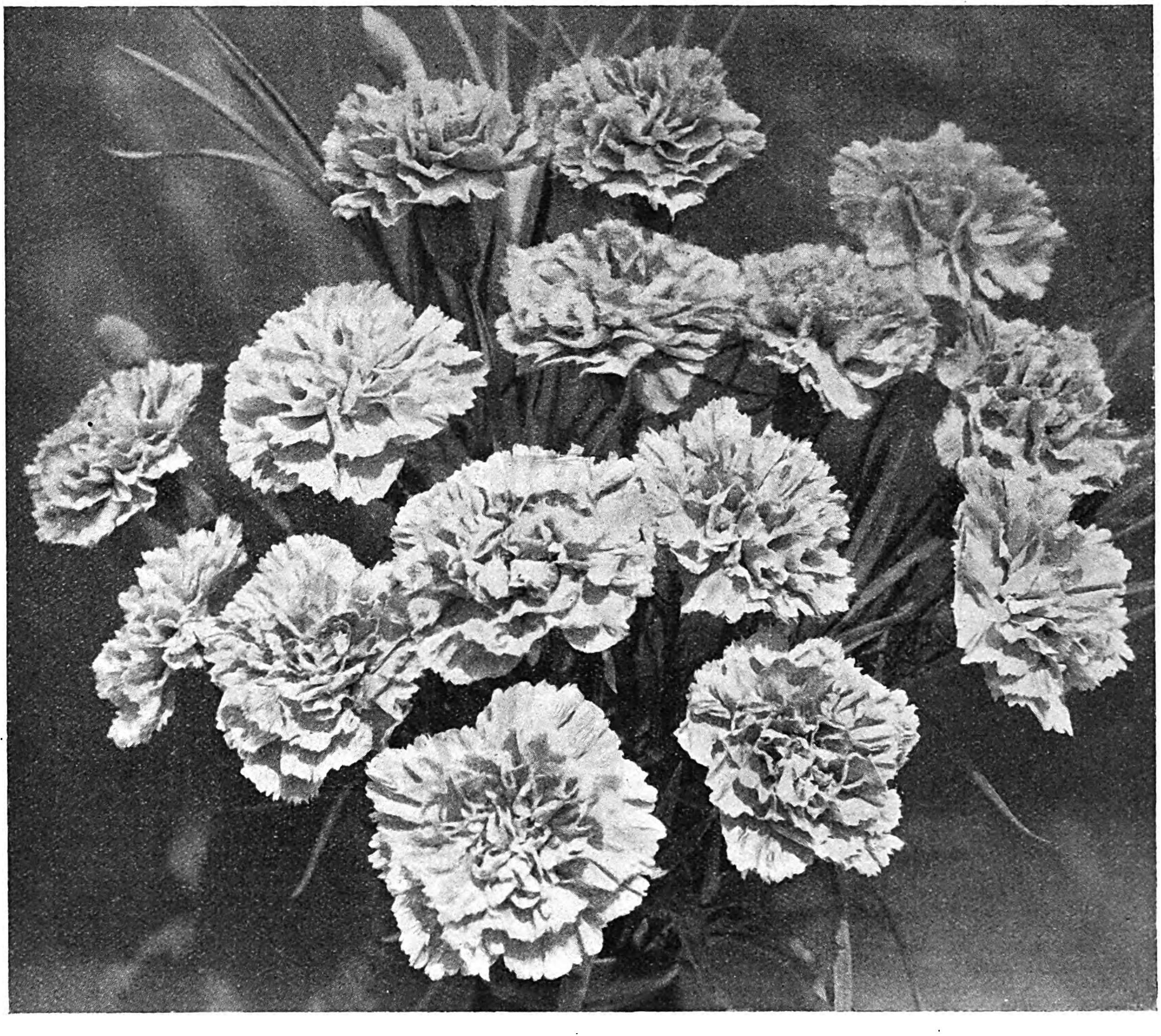

FIG. 211.—CARNATION RAPTURE.
(see p. 476).

Paeonies.

In the gardens of this country Paeonies play a useful but not important rôle. They are grown mainly in herbaceous borders; few amateurs specialise in Paeonies as appeared from the small number of exhibits staged at the R.H.S. meetings for the cups offered by Mrs. Edward Harding, and, with one exception, no nurserymen appear to make a prominent feature of this plant. It is very different in the United States of America, where the Paeony rivals the Iris in popularity. The reason for the popularity of garden Irises and Paeonies in the States is not far to seek; both grow well in most parts, with the exception, as regards Paeonies, of the south-west. They are very hardy, and the hot and rainless springs and summers suit them admirably. More than thirty nurseries specialising in Paeonies advertise in the volume under review.

The *Manual* of the American Peony Society,* a Society which in 1926 had seven hundred members, is a collection of articles and lists written by specialists. We begin with the Check Lists of Chinese Paeonies (Paeonia albiflora), divided into Double; Japanese (semi-double, in which many of the anthers have become petaloid); and Single Paeonies. The lists give the date of introduction, colour and marking of each variety. The maximum marking is ten, and Paeonies rated at less than 7·5 are recommended for discarding by the Directors of the Society, who also consider certain other Paeonies too highly rated; the marking is done by voting by all members of the Society, and is revised from time to time Le Cygne (Lemoine, 1907), a double white, has the highest rating, 9·9; next comes Kelway's Glorious (Kelway, 1909), also a double white, with 9·8; Alice Harding (Lemoine, 1922), "the best French seedling Paeony," 9·5; Walter Faxon (Richardson), 9·3; Festiva Maxima (Miellez, 1851), 9·3; Kukeni Jishi, Tamate-boku, Ama-no Sode—all Japanese varieties—are rated at 9·5, 9·4 and 9·2, respectively.

The Check List contains about 1,700 names and is followed by a description list of all Chinese Paeonies rated at 8 or above. A number of new Paeonies, *e.g.*, Dr. A. van der Tak, have yet to be marked. The notes and descriptions are first-class, and any variety can easily be found by reference to the index in Appendix A, which includes all Paeonies mentioned in the *Manual*. The R.H.S. Lists of Awards contain fourteen names of Paeonies which do not appear in the Check List, but these varieties may be no longer in commerce. A notable omission is Mr. Cranfield's Orion, which won the Cory Cup in 1926 and would probably be higher rated than Ama-no Sode, which it closely resembles; probably the explanation is that Orion is not in commerce.

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* *Peonies: The Manual of the American Peony Society*, edited by James Boyd and published by The American Peony Society. Price $6.

After a chapter on "Favored Peonies in America," Mr. James Boyd gives advice on growing and propagating Paeonies. Nothing could be sounder than "remember that a little bone-meal in the fall, and frequent cultivation during the spring, will give fine flowers without additional fertilisers of any kind"; perhaps bone-flour is even better than bone-meal. Dr. Freeman Weiss, of the United States Department of Agriculture, writes on "Fungous Diseases and Pests of the Peony," and recommends the use against Botrytis of a copper-lime dust which does not spot the leaves as Bordeaux mixture does. No real remedy appears to be known for stem- and root-rot, which are possibly largely due to unfavourable cultural conditions; diseased and injured parts should be removed at once. This section is well illustrated and also includes a "questionnaire."

Next comes a chapter on "Peonies for the Market," and it is very interesting to note that P. fragrans, introduced from China by Banks in 1805, shares with two other old Paeonies, Queen Victoria (Whitleyi) and P. edulis superba, the distinction of being the best for the flower market. An excellent chapter by Mr. Harry F. Little, of the Indian Spring Farms Nursery, tells how to prepare Paeonies for exhibition; a grocer's half-pound paper bag is slipped over the most promising buds and held by a rubber band under the bud. This section is completed by a very full statement divided into "Practical" and "Historical," by Mr. A. F. Saunders, on "Peony-Breeding," and goes fully into the questions of pollenation and sowing of seeds—there seems no way of hastening germination. It appears that in 1596 thirty varieties were grown in China, and Mr. Saunders supports the view that all the true Chinese Paeonies are derived from P. albiflora.

Mr. John C. Wister, who is well-known in this country as President of the American Iris Society, deals with "The Moutan Tree Peony," and quotes Farrer on his first sight of the Moutan growing wild in Kansu in 1914. Nieuhof, of the Dutch East Indian Company's mission to China in 1656, furnished the first description by a European of the Moutan, and Sir Joseph Banks, excited by reading this description, engaged a Mr. Duncan to import the plant from Canton; it flowered in 1787 or 1789, and was named P. Moutan Banksii. The first single white was imported by Captain Prendergast for Sir Abraham Hume, and flowered at Wormley Bury in 1806. Notes on cultivation and propagation follow. A bibliography of the Moutan Paeony brings us to the Check List for this species and a colour description (*Ridgway Colour Chart*) with tentative rating; of European varieties, Bijou de Chusan (double pale pink), and Reine Elizabeth (double rose-red) alone have high marking; the Japanese single and semi-double Moutans excel. Information is asked for with regard to varieties of Italian origin, raised by Casaretto, Burdin and others.

The last section of the *Manual* deals with Paeonia species, and is written by Mr. A. P. Saunders. This gives short notes on each species with its varieties, and deals with the confusion between the varieties derived respectively from P. officinalis, P. lobata and P. paradoxa. P. obovata alba is regarded as probably the same as P. Willmottiae, and this we know to be the view of Miss Willmott. They have, however, been separately certificated by the R.H.S.

The *Manual* ends with biographical sketches of persons and firms prominently connected with the Paeony, and with a Bibliography of the Paeony compiled by Mr. A. P. Saunders. In addition to the Appendix referred to above, there is a full index.

There are many beautiful plates both in colour and black and white; indeed, the colour plates of Mikado, Solange and Walter Faxon could not be better. Mr. James Boyd and his collaborators deserve the warmest praise for an admirably compiled work. Not only is it full of accurate information from cover to cover—336 pages of small print—but the book with its admirable indexes and lists is a model monograph of a genus from a horticultural point of view. The *Manual* is indispensable, and should have a ready sale in this country. *William Lawrence.*

MESEMBRYANTHEMUM.

(*Continued from p.* 313.)

22.—DINTERANTHUS, Schwant.

Stemless perennials. Each growth with one pair (or when making new growth, two pairs) of very thick and fleshy leaves, which are united at the base for one-third to two-thirds of their length and are convex on the face, causing them to be united higher up at the middle part than at the edges, distinctly dotted, and with a very minutely granulated surface. Flower solitary, terminal, appearing sessile, the flat and acutely two-edged pedicel, which is visible in the fruit, being entirely concealed between the united part of the leaves. Calyx subequally 6-8-lobed; some of the lobes having membranous edges. Petals numerous, free, spreading horizontally. Stamens numerous, erect, exposed to view from their base; filaments bearded at the base. Stigmas 6–9, subulate, diverging. Ovary inferior, flattish at the top, 6-9-celled; placentas on the outer wall of the cells. Capsule shortly and broadly obconic, flattish with slightly raised sutures on the top, with 6-9 valves and cells; valves widely spreading or recurved when expanded; expanding-keels closely contiguous into a central keel, with broad membranous margins; cell open, without cell-wings and without a placental tubercle. Seeds very numerous in a cell, very minute.—Schwantes in *Zeitschr. f. Sukkulentenkunde*, 1926, p. 184, and in *Mollers Deutsche Gartner Zeitung*, 1927, p. 223.

Species 3 (one may not belong) native of Great and Little Namaqualand, the type of the genus being D. microspermus, Schwant.

The name is given in honour of Professor K. Dinter, the suffix being derived from the Greek *anthos*, a flower.

When this genus was originally published, no character was mentioned by which it could be distinguished from Rimaria, and as I had not seen any specimen of the type of the genus, and only a seedling of one of the other plants placed with it, I referred D. microspermus to Rimaria. But now that I have obtained adult living plants with ripe fruits attached to them of both D. microspermus and D. Margaretae, I find that they are quite distinct not only from Rimaria, but also generically from each other, as, indeed, Schwantes himself considers them to be (*Mollers Deutsche Gartner Zeitung*, 1927, 223-224), for he places D. Margaretae in a sub-genus which he calls Lapidaria, and quotes the plant as Lapidaria Margaretae, Dint. and Schwant., but still gives no definite structural characters by which these genera can be distinguished from Rimaria. Upon comparison, however (including a difference in habit, which, taken alone, of course, is of no generic importance), I find the following distinctions, which I here put in tabulated form for comparison, and probably, when contrasted alive, the flowers will furnish further distinctive characters.

1. Leaves dotted, their surface microscopically granulated; old plants with only one or (when making new growth) two pairs of leaves present on each growth at the same time; petals in about two series, widely spreading from their base, so that the basal part of the column of stamens is fully exposed to view; cells of the fruit open, without cell-wings, and the expanding-keels contiguous into a central keel; stigmas 6–9. **Dinteranthus.**

Leaves not dotted; petals in 3 or 4 series, ascending-spreading so as to form a sort of cup in which the basal part of the stamens is more or less concealed; cells of the fruit roofed with membranous cell-wings and the expanding-keels diverging, at least at the upper part; stigmas 6-11. **2.**

2. Surface of leaves microscopically granulated; old plants with 3-4 pairs of leaves always present on each growth at the same time, and the leaves, when not at rest, more or less separated; flowers yellow. **Lapidaria.**

Surface of leaves smooth, not microscopically granulated; old plants with only one or (when making new growth) two pairs of leaves present on each growth at the same time, and the leaves (when not in flower), more or less closed together; flowers white or pink. **Rimaria.**

The following are the species of Dinteranthus at present known.

1. **D. microspermus,** Schwant., in *Zeitschr. f. Sukkulentenkunde*, 1926, Vol. II., p. 184, and in *Mollers Deutsche Gartner Zeitung*, 1927, p. 223. M. microspermum, Dint. and Derenb. in *Zeitschrift. f. Sukkulentenkunde*, 1926, p. 264 and 267, with figs., and Dint. *Sukk. in Sudwestafrika*, II, p. 105, etc. Rimaria microsperma, N. E. Br. in *The Gardeners' Chronicle*, 1927, Vol. LXXXI, p. 85, f. 46.

This plant was fully described under Rimaria at the place quoted.

Great Namaqualand, Dinter. Little Namaqualand, Maughan Brown 709.

2. **D. puberulus, N. E. Br.**—Growths 9–18 lines high, with the two leaves united for one-third to one-half of their total length, the free parts diverging, 6–10 lines long, 6–8 lines broad and 4–6 lines thick, oblong, obtuse, slightly convex on the face, rounded on the back and bluntly keeled at the apex, microscopically granulated-puberulous, and velvety to the touch, greyish-green, dotted with darker green. Flowers not seen. Capsule, when closed, 1½–5 lines in diameter, shortly and broadly obconic, flattish or slightly convex, with 6–7 raised sutures on the top, and with 6-7 valves and cells; when expanded, 5–8 lines in diameter; expanding-keels contiguous into a stout central keel, brown, with broad membranous marginal wings; cells open, without (or in the largest capsule seen with rudimentary) cell-wings. Seeds about ⅙-line long, Pear-shaped or sub-globose with a point, smooth, brown.

Little Namaqualand, Maughan Brown 703.

3. **D. Pole-Evansii,** Schwant, in *Mollers Deutsche Gartner Zeitung*, 1927, p. 223. Rimaria Pole-Evansii, N. E. Br. in *The Gardeners' Chronicle*, 1926, Vol. LXXIX, p. 156, f. 77. M. Pole-Evansii, N. E. Br. in *Journ. Linn. Soc.*, Vol. XLV, p. 90.

Prieska Division: Precise locality unknown. McLeod.

I placed this doubtfully under Rimaria, as I had not then, and have not now, been able to examine flowers and fruits of it, nor does Schwantes appear to have done so.

Under this genus is also enumerated D. inexpectatus, Schwant., in *Zeitschr. f. Sukk.*, 1926, p. 184, and 1927, p. 30, without a description or reference, but evidently founded upon M. inexpectatum Dint. in Dinter's *Sukk. in Sudwestafrika*, p. 106, which again is only mentioned by name, without any description, and therefore both names are invalid, and the plant intended may not belong to this genus. *N. E. Brown.*

(*To be continued*).

THE GENUS PRIMULA.

(*Continued from p.* 455).

HAKUSANENSIS (Franch.). Hakusan P.
(Cuneifolia.)

This plant is no doubt a microform of P. cuneifolia, although it was considered a good species by Franchet. It produces a tuft of smooth, non-mealy leaves, one inch to two inches long, with thin, oval or rounded-oval blades tapering into short, narrowly-winged, wedge-shaped stalks; margins above the middle furnished with sharp, saw-like teeth. Flower stem slender, two to three inches tall, bearing an umbel of three to five rose-violet blossoms on slender stalks up to three-eighths-of-an-inch in length. Corolla nearly one inch across, divided into five rounded, very deeply cleft lobes; tube cylindrical, longer than the calyx.

Grows in damp, half-shady places on the mountains of central and northern Japan, reaching an elevation of 7,500 feet above sea-level.

Culture: As for P. cuneifolia.

HANDELIANA (W. W. Sm.). Handel-Mazzeti's P.
(Nivales.)

A handsome, robust, papery-leaved species from northern China, with a tuft of oblong-lance-shaped, elliptic or nearly circular leaves, pointed or rounded at the tip, gradually tapering to a narrowly-winged stalk more or less equalling the blade in length, in all three to five inches long; margins edged with numerous sharp, saw-like teeth; upper surface deep green with conspicuous nerves, underside glaucous, probably mealy. Flower-stem nine to eighteen inches tall, sometimes bearing two umbels of about a dozen yellow blossoms. Corolla about one inch across, with oblong or narrowly egg-shaped, entire lobes; tube about three-quarters-of-an-inch long, with a distinct ring in the mouth. Flowers in July. Not in cultivation.

Grows in damp, open spots on the slopes of Tai-pei-shan, in the province of Shen-si, northern China, at 8,000 to 9,000 feet above sea-level.

Culture: Rich, somewhat heavy loam, and an open spot well supplied with water when the plant is in growth, are the conditions indicated.

HARRISSII (Watt). Harriss's P.
(Farinosae.)

This attractive plant is regarded as a sub-species of P. rosea, but, unlike that species, its foliage is well developed when it is in flower. Leaves about two inches long, spathulate, blunt, tapering to a short, broadly-winged stalk, dilated into a sheath below; margins sub-cartilaginous and more or less acutely toothed; both surfaces covered with pitted glands. Flower stem stout, smooth, one-and-a-half inch to two-and-a-half inches long, bearing an umbel of about six rose-coloured blossoms on short, stoutish stalks. Corolla five-eighths-to three-quarters-of-an-inch across, deeply divided into five broadly heart-shaped or egg-shaped, entire or deeply notched lobes; tube about three-eighths-of-an-inch long, cylindrical below, swollen above and mealy above the stamens. Flowers in May.

Grows in damp situations on the mountains of Afghanistan and north-western India, at 8,500 to 11,000 feet above sea-level.

Culture: Plant it in a compost of peat and sandy loam, and treat as a bog plant.

HARSUKHII (Craib). Harsukhi's P.
(Denticulata.)

A perennial, now regarded as a sub-species of P. denticulata. Root-stock short, thick, with long, thick roots. Leaves in a rosette, undeveloped at flowering time, oblong-lance-shaped or oblong-spathulate, pointed, about three-and-a-half inches long and one inch wide when mature, tapering to broadly-winged stalks; margins revolute, furnished with sharp, curved teeth; upper surface more or less smooth, underside sparsely covered with sulphur-coloured meal. Flower stem three to five inches tall, stout, more or less smooth, covered with sulphur-coloured meal upwards among the blossoms, which are borne in a fairly dense head, on short but distinct stalks. Corolla about half-an-inch across, divided into five rounded, bilobed segments; tube cylindrical, about half-an-inch long, downy outside, rugose within. The colour of the blossoms is not recorded, but is probably some shade of purple.

Grows in damp places in the Kurram Valley, in the north-western provinces of India, reaching an elevation of 8,000 feet to 11,000 feet above sea-level.

Culture: As for P. denticulata.

HAZARICA (Duthie). Hazara P.
(Obtusifolia.)

A desirable little perennial species with a rosette of thin, egg-shaped or spathulate leaves, tapering to a more or less winged stalk, in all from one to three inches long; margins sharply toothed; upper surface green, underside coated with white meal. Flower stem fairly stout, two to five inches tall, bearing many bright purple flowers in a loose umbel; at times but a solitary blossom is produced in starved plants. Corolla about three-quarters-of-an-inch across, divided into five broadly heart-shaped lobes; tube cylindrical, two to three times longer than the calyx.

A common plant in damp soil in the upper parts of the Kagan and Siram valleys, in the western Himalayas, at 10,000 feet to 14,000 feet above sea-level.

Culture: Good fibrous loam and grit, in a damp, half-shady spot, should suit it.

HELODOXA (Balf. f.). Marsh P.
(Candelabra.)

A beautiful, deciduous, perennial species of tufted habit, with smooth, broadly lance-shaped or oval leaves, six to eight inches long, tapering to a broadly-winged stalk; margins finely-toothed and recurved. Flower stem rather stout, two to two-and-a-half feet tall, bearing six to eight superposed umbels of about a dozen soft yellow blossoms, three-quarters-of-an-inch to one inch across, on stalks of varying length. Corolla slightly concave, divided into five broadly oval or wedge-shaped, overlapping lobes, each with a shallow notch at the tip. Flowers in June and July. *Gard. Chron.*, 1916, Vol. LIX, p. 291, Figs. 123 and 124.

Grows in mountain marshes in Yunnan, western China.

Culture: Plant it in rich, moist loam, in sun or shade; it is best treated as a bog plant and is quite hardy. *A. W. Darnell.*

(*To be continued*).

STEAM STERILISATION OF POTTING SOIL AND THE EFFECT OF ARTIFICIAL SUNLIGHT RAYS ON SEEDLINGS.

On Friday, November 30, 1928, through the courtesy of Dr. Roy, Chief Medical Officer to the Cheadle Royal Mental Hospital, Cheadle, Cheshire, a practical demonstration of soil sterilisation by means of steam, was given by Mr. Allan Falconer, the gardener at the Institution, to a large and representative gathering of private and commercial horticulturists and others in the district. The meeting had been organised by Mr. E. Holmes Smith, B.Sc., the Advisory Mycologist at Manchester University.

Prior to the actual demonstration, Mr. Falconer gave a detailed description of the apparatus employed and its method of working. To ensure success with the process, he emphasised the absolute necessity of having the soil of the right consistency at the start. It must neither be too dry nor too wet, as then the steam would either blow through it too quickly without penetrating the whole bulk of soil, or would produce a sticky and impervious mass which would require drying-out before use. If the proper conditions obtained, his apparatus could sterilise one ordinary cart-load of potting soil—roughly, about three-quarters to one ton—in exactly forty minutes. In brief, the apparatus consisted of a rectangular brick-walled and cement-floored trough divided into two compartments, each of which contained exactly one cart-load of soil. Sunk into grooves in the cement floor of each compartment and attached to the main steam-pipe coming from a vertical boiler (capable of developing up to 70 lbs. pressure), were two rectangular grids composed of four lengths and two end pieces of three-quarter-inch steam-piping, with holes one-sixteenth-of-an-inch in diameter bored every six inches on the upper side and in the intervals between these on either side. A slight drop in the levels of the grids permitted of any condensed steam in the pipes being drained off before turning on the full pressure of steam. An upwardly sliding iron door formed the front of each compartment so as to facilitate emptying, cleaning out, etc., while a couple of large sacks formed the cover on top to imprison the steam and absorb moisture, etc. Excluding the boiler, the cost of the whole apparatus was about £5.

Mr. Falconer stated that second-hand boilers were easily obtainable at auction sales or engineering shops and were quite suitable for the purpose, so long as they were able to provide and maintain a pressure of from 50 lbs. to 60 lbs. steam, which was most essential. Instead of using a thermometer as indicator, a medium-sized Potato was placed just underneath the top layer of soil. When this Potato was cooked and ready for eating—approximately forty minutes—the soil was ready to be removed and another lot put in. To gauge the actual temperature attained by the soil in the vicinity of the Potato, one of the party applied a Brewer's thermometer, and it registered exactly 212°F., showing that actual boiling point had been reached throughout the mass. When turned out, the soil had a delightful aroma and was in perfect condition for potting. Mr. Falconer stated, however, that it was advisable to let a few days elapse before using it. For raising Tomato and Cucumber seedlings, he had found its use indispensable, and was now employing it regularly for all propagating work, as he seldom lost a single seedling through disease or pest, and obtained a far more vigorous and healthy stock of young plants.

In the course of the discussion which followed, Mr. A. J. Sowman, late Horticultural Superintendent to the Lancashire County Council, said that it was the best and simplest arrangement which he had ever seen, and that it would almost pay a man to put up soil treated in that way in handy-sized bags. A portable boiler and grid could easily be employed in a similar manner for sterilising soil *in situ* in greenhouses, frames, etc.

Mr. W. W. Pettigrew, Chief Superintendent of the Manchester Corporation Parks Department, in proposing a vote of thanks to Mr. Falconer, congratulated him upon the simplicity and extreme efficiency of his sterilising plant, and stated that he, personally, was so satisfied with the results that he intended introducing similar methods in his department immediately. In seconding, Mr. Holmes Smith drew attention to the immense economic value of such a process. If more generally adopted by growers, soil sterilisation would not only reduce the amount of troubles with which they had to contend in the form of diseases, pests, host weeds, etc., but would materially lighten his work as Advisory Officer. He was convinced that such an apparatus as they had just seen demonstrated, would prove a thoroughly sound and economic investment, as it would last for several years and pay for itself handsomely.

Mr. Falconer, in replying, attributed much of his success as a practical horticulturist to following scientific advice. Nowadays, if a practical grower wanted to progress and make things pay, he must adopt scientific methods. He was not a scientist himself, but he was always ready and willing to try out the latest scientific methods, and prove their efficiency and worth, and pass on the good results to his fellow gardeners. It had been a very great pleasure for him to do so on that occasion.

Mr. Falconer then showed the visitors how he had been enabled to overcome the lack of sufficient sunlight in Manchester during the early months of the year for the production of early and vigorous Tomato and Cucumber seedlings, by employing artificial sunlight-ray lamps. When electrical current was available at a low rate per unit, the use of these lamps had enabled him to germinate and raise Tomato and Cucumber seedlings within forty-eight hours, and eventually obtain from them strong, deep green, thick-stemmed and healthy plants two to three weeks earlier than usual. Such fine sturdy plants had always produced full yields of fruits of maximum size and superior quality, which had won for him many prizes.

Each lamp cost about 30s., and was of five hundred watts capacity. A special prismatic reflector was supplied which gave the equivalent advantages of a 1,500 watt lamp without any disadvantages peculiar to such a high wattage lamp. On one occasion, at very short notice, he had been asked to supply a large quantity of Daffodil blooms. As an experiment, he cut the required number of unopened blooms, set them in water, and with the aid of the artificial sunlight rays, succeeded in getting them into full bloom within eight hours. He had also been very successful in getting Lily-of-the-Valley plants in full bloom at Christmas time, with foliage of a perfect deep green colour as if grown out-of-doors. If he were a regular market grower, he was sure that he could make quite a small fortune in raising Lily-of-the-Valley, Tulips, etc., in that way.

In the discussion which followed, Mr. Jones, gardener at the Barnes Institution, Stockport, stated that he had obtained a consignment of early Tomato plants from Jersey last spring which were weakly and afflicted with stripe and mosaic diseases. He intended adopting Mr. Falconer's methods and raising his own seedlings this spring. The methods seemed to him to solve many of their local problems. He had already introduced the steam sterilisation of soil with very excellent results and he would now introduce artificial sunlight lamps, as he considered them ideal for the purposes to which they had been applied.

Mr. Falconer was cordially thanked for the trouble and time he had spent in arranging such an interesting and valuable practical demonstration, and Mr. Holmes Smith was complimented on organising the meeting and bringing to their notice such practical and useful measures for overcoming some of their local and pressing troubles.

AMERICAN GOOSEBERRY MILDEW.

During the past season, two experiments were carried out to test the efficiency of two sprays for the control of the above disease. The sprays were as follow:—(1) 1 lb. copper sulphate, 2 lbs. washing soda, and ½ lb. soft soap, to ten gallons of water; and (2) 1 lb. washing soda and 2 oz. soft soap, to four gallons of water.

No. 1 spray was used in a plantation where the bushes were of various ages and not named. No winter spraying preceded the experimental spraying, but tipping the young shoots the previous autumn had been practised. The dates of spraying the eighty Gooseberry bushes with copper sulphate, etc., were May 29 and July 3, and both days were favourable for the operation. On May 29, the bushes were carrying good crops of fruits, the berries, foliage and shoots being apparently free from mildew. The spray was applied in the form of a fine mist.

On July 3, after a careful examination of the bushes which had been sprayed, quite a large number of fruits, especially those towards the centre of the respective bushes, were showing traces of the disease, while the foliage and young shoots were not attacked. The second application of the copper sulphate spray was given as before.

On September 24, the lower break of Gooseberry bushes, forming half of the experimental area, had been "tipped" by the grower. This measure was deemed necessary to assist in the control of the disease, as this break was severely attacked. The upper break had not been "tipped" at this date, and here the young growths, especially the tips, showed severe infection. On both breaks the mildew had appeared on the young growths about the first week of August, and most of the fruits were affected by mildew.

Considering the cost of this spray, the additional care required in mixing, and the objectionable deposit left on the fruits, it appears to have nothing to recommend it for the control of American Gooseberry Mildew.

No. 2 spray was employed in a plantation where fifty-three bushes were sprayed on May 25 and June 21. A small proportion of the bushes are fairly old, but the remainder have been planted only two years and include the varieties Lancashire Lad, Whitesmith, Early Sulphur, Keepsake, Langley Green, Langley Gage, Lancer, White Lion, Cousen's Seedling, and Crown Bob. During this and past years, all the bushes were sprayed by the grower with copper sulphate in February, but the bushes and fruits had always been badly mildewed in spite of the copper sulphate winter wash.

On May 25 the bushes, with the exception of the younger ones, were showing good crops of clean fruits. The bushes received the first spray with washing soda on this date, and in favourable weather. On June 21, after a careful examination of all the bushes, no mildew was found on the fruits, leaves, or young growths. They were then sprayed a second time as a precautionary measure.

An examination on September 27 showed that among the aged bushes, six shoots of the current season's growth were showing American Gooseberry mildew. In each case the shoots attacked were in the centre of the respective bushes and had been partially protected from the spray by surrounding shoots and foliage. One bush of Early Sulphur showed two shoots infected; these again were in the centre of the bush. All the other young bushes, with the exception of those of Langley Green, showed no signs of mildew attack on this date. The variety Langley Green was badly attacked; practically all the young shoots of the current season being mildewed. According to the grower, this is the first year a clean crop of Gooseberries has been harvested in this plantation. It is, therefore, evident from this experiment, that washing soda, as a summer spray, can be confidently recommended as a control measure in warding off the disease from the fruits. The small amount of diseased tissue found on the bushes, with the exception of Langley Green, compared with past years, points to its effectiveness as a good control measure against American Gooseberry Mildew.

The variety Langley Green may require three sprayings to ward off the disease. Next year it is intended to apply three sprayings on this variety, while the other varieties will receive two sprays.

I am indebted to the growers who provided facilities for these experiments, and for the observations they made during the season. *John W. Hall, Edinburgh.*

INSECTICIDES AND FUNGICIDES.

(*Concluded from page* 454.)

Fumigants.

Properly speaking, these could have been discussed under the insecticides, since their action is almost entirely directed against insect pests. Fumigation is rather a special subject, however, and apart from the use of hydrocyanic acid (prussic acid) against scale insects, the chief use of the fumigants is in the treatment of stored cereals, etc., for weevil.

Prussic Acid.—Apart from its well-known use, particularly in glasshouses and on nursery stock, against certain classes of insects, prussic acid has also found considerable application in fumigation against vermin, the treatment of food-stuffs in storage, and of furniture, etc., and, indeed, in all cases where an enclosed space is available or may be provided. The dangers attending its evolution from potassium cyanide and acid are quite well appreciated, and for this reason attempts made to use it in the form of powder are of interest.

These powders are generally composed of materials such as kieselguhr, or other highly absorbent substances, from which the previously absorbed prussic acid is gradually liberated on exposure, or from which it is expelled by the aid of heat. Such methods are much safer than the older acid and cyanide procedure, but suffer to some extent from the slowness of production of the gas. If the powder is well spread out and no dissipation or diffusion of the gas to the outside atmosphere is possible, this does not matter so much, but with any risk of leakage it is necessary to build up the toxic concentration of gas as quickly as possible, and in this the powders leave much to be desired.

Chloropicrin.—This substance, which chemically is nitrochloroform ($C\,Cl_3NO_2$), is one of the war gases and has found some use in the treatment of grain for weevil and for general fumigation of ships, warehouses, etc., against vermin. It is a colourless liquid of penetrating smell, and produces respiratory injuries in almost all concentrations. The aggressive action is therefore cumulative, and successive treatments are likely to produce the required effect, which in the case of prussic acid is not necessarily the case. In the treatment of stored grain, a concentration of one in ten thousand is used over a period of from forty-eight hours to a week, the chloropicrin being sprayed undiluted or mixed with carbon tetrachloride. The results generally have been good. For most of the higher animals an exposure for twenty minutes to a concentration of one in ten thousand is sufficient to cause ultimate death. If good penetration is provided, this proportion should therefore leave nothing inimical alive after the long periods used in practice.

More extended use of chloropicrin is likely in the future, but it should be handled with care and knowledge, owing to its dangerous character. It does not seem probably, however, that it will find much application for strictly agricultural or horticultural purposes.

Ethyl Acetate.—A mixture of ethyl acetate and carbon tetrachloride has been found very suitable as a fumigant in place of the better-known carbon bisulphide, the highly inflammable and dangerous nature of which has much limited its use. The mixture is particularly adaptable for the treatment of stored Wheat, since it is completely volatile and leaves no unpleasant after-effects. The vapour is non-inflammable and much more deadly to insects than was anticipated. It is possible that other uses will be found for this, or similar mixtures of organic esters.

Future Development.

It seems clear that with the growing demand for insecticides and fungicides there will be a gradual advance in the discovery of new materials. As indicated at the beginning of these articles, there is much room for it. E. C. Holton, writing in 1926, stated: "An insecticide greatly to be desired is one that will prove as harmless to the foliage as arsenate of lead and as deadly to the insect as Paris Green and nicotine, as cheap as lime-sulphur, and no more harmful to the soil than lime sulphur or nicotine." Although well expressed, even this does not sum up the whole situation, for each of the materials quoted could, in itself, be much improved, even in the direction in which it is most suitable. As pointed out previously, what is required is standardisation on the one hand, and systematic search for new materials on the other.

There is particular need for the discovery of a group of organic substances toxic to insect pests but non-poisonous to man or the domestic animals, or alternatively, easily removed from food products before human consumption.

In this country we have, in the past, been rather slow in the adoption of new remedies for plant diseases. It is rather much to hope, therefore, that we will quickly take foremost place in the discovery of new materials, but it is to be hoped that we will display progress in the matter. It is very important, too, that materials known and approved elsewhere should be tried systematically by growers under the right conditions for their use. Nothing hinders the adoption of suitable treatment more than failure in early trials and demonstrations, and this, of course, is one of the dangers liable to attend the use, in particular, of proprietary plant medicines, the exact composition of which is not disclosed. Proprietary brands of pesticides cannot always be compared with each other or with the standard formulae of the experimental stations. Yet, if bad results occur, the reputation of that pesticide as a whole is liable to suffer.

The remedy seems to lie in closer co-operation between manufacturers and growers and between manufacturers and the experimental station advisers, or, at any rate, in the use of new or only partially known materials under careful scientific control of whatever source. What is needed is a counterpart of medical practice, with a "pharmacopoeia" of approved formulae, prescription by qualified practitioners, disclosure of composition of proprietary articles and a ban on patent medicines. *S. J. M. Auld, D.Sc.*

HOME CORRESPONDENCE.

Ribston Pippin Apple.—In your issue of December 1, Major Dent states, "It may interest some readers to know that the original Ribston Pippin Apple, raised in 1709, was blown down and destroyed by a squall of wind." I am rather interested in the supposed history of this famous Apple, and venture to suggest that the tree Major Dent describes is not the original but a sucker-like growth from it, and this would make the tree now blown down about ninety-five years old. Dr. Hogg, one of the greatest pomologists of his time, stated that the original tree was blown down by a violent gale in 1810 but lingered and bore fruits until 1835, when it died. He stated that a growth was produced about four inches below the surface of the ground, "which, with proper care, may become a tree." This, no doubt, it did, and is the tree that Major Dent now refers to. The history of this celebrated Apple appears to be involved in much mystery. Hargrave, in his *History of Knaresborough*, states that the original tree was raised at Ribston Park in the year 1688 from seeds brought from France. Be that as it may, I shall be pleased to hear what older readers have to say about this celebrated Apple tree. *Howard Grace, Brislington House Gardens, Bristol.*

——Is your correspondent, Major Dent, quite correct in stating that the original Ribston Pippin Apple, raised in 1709, was destroyed by a squall on November 19? Dr. Hogg stated that the Apple did not become generally known until the end of the eighteenth century. The quantity grown at the Brompton Park Nursery seems to have expanded from twenty-five plants in 1785 to two hundred plants in 1791, and to 2,500 in 1847. Dr. Hogg also wrote rather guardedly, "One account states that about the year 1688 some Apple pips brought from Rouen were sown at Ribston Hall, and one turned out to be the variety in question. The original tree stood until 1810, when it was blown down, but lingered and died in 1835. Since then a young shoot has been produced and with proper care may become a tree. It must surely be this Ribston Pippin, the second, that Major Dent writes of. The original tree would, of course, be on its own roots, which provided this second tree. I have seen it asserted, with some authority, that the Ribston Pippin comes true from seeds—can anyone confirm this statement? *E. C. M. Streetly, Staffs.*

Record Potato Crops.—In *The Gardeners' Chronicle* of November 17 appeared a paragraph, under the heading of "Record Potato Crops," and it ends with the question, "Can anyone beat this?" When I was at Mongewell Park, Wallingford, Berkshire, as foreman, Mr. J. Pound, who was then head gardener, gave me a Potato weighing just under two ounces, and asked me to make the most of it. By propagation, I obtained eighteen sets, which were duly planted out-of-doors, and given liberal treatment during the growing period. I think the crop was lifted about the third week in September, when it was weighed and turned the scale at 114 lbs. 8 ozs. This was recorded in *The Gardeners' Chronicle* of, I think, October, 1905, or about that period. The variety was Northern Star. *E. Percival, West Porlock, Taunton.*

Eomecon chionantha.—Mr. S. Arnott (p. 428) is right in calling attention to this very pretty plant; but why does he go out of his way to consider this plant is "burdened by the botanical title," and then suggest in the place of the one word "Eomecon," "Poppy of the Dawn"—four times as many words and twice as many letters! Both the specific and generic names of this plant are derived from the Greek and well constructed, the whole name meaning "the snow-white-flowered Dawn Poppy." Latin, of which most gardeners possess some knowledge, would, however, have been better, but both languages would be understood in all countries. This brings me to the question of nomenclature, and I am strongly of opinion that specific or varietal names should always consist of a single word, preferably Latin; and should call attention to the characteristic of the plant, not to an individual. Mr. Arnott, however, errs in good company; does not Reginald Farrer talk of Gentiana Przewalskyi as going "through life unfairly hampered by its truly unpropitious name." Yet, to a Russian, are such names as "Oeconomierat Echtermeyer," a Weeping Plum; Andenken au Loudon, a Pelargonium; Cyrtanthus Haageundschinidtii; Asun Galindez de Chapa and Souvenir d'Angele op de Beck, two Roses (one French and one Dutch) or even Betty Uprichard, with the long U, or Lady Inchiquin, less unpropitious than Przewalsky? I have a very beautiful tree called Pyrus Aucuparia subarachnoides munda, while Mr. Perry grows lots of Ferns with names such as Athyrium setigerum congestum cristatum. And this is why I hope the Nomenclature Conference will decide upon a single, Latin name. *William Lawrence, Burford.*

Royal Horticultural Society.—Sir William Lawrence's remarks in your issue of December 1, relative to some of the problems that are now confronting the Council of the Royal Horticultural Society, are full of interest. In the first place, I do not ever remember the Fellows being asked to express an opinion on any matter that is being considered by the Council, before the Council itself has directly or indirectly indicated the course of action they consider best for the Fellows to follow and adopt, unless it is that Sir William is "flying a kite" on behalf of the Council, of which he was up to last year a prominent member. Sir William infers that the Council is considering further large outlays at Vincent Square and Wisley. I would ask the late Treasurer—where is the money to come from at the moment? One hears that the expenditure on the New Hall has been about £180,000, and I suppose if everything is taken into account it will be near £200,000. Now, writing from memory, the surplus cash resources of the R.H.S. when the hall was started were, I believe, in the neighbourhood of £100,000. The Society's annual surplus income is about £20,000. A few years ago, at one of the annual meetings, we were told by Sir William that the cost was to be about £130,000. Had this been so, the hall would have almost been paid for by now. I expect we shall find, when the accounts are submitted, that the Council has had to borrow to the extent of some £50,000 to find the balance. Surely it would have been prudent to wait until the expenses attached to the running of the new hall for a year or so had been ascertained, so that it could have been seen what effect they would have on the finances of the Society. Can any member of the Council be contemplating selling the new hall directly it is open, or borrowing another £40,000 or £50,000 and mortgaging the further surplus income of the Society before the new hall is paid for? Now as to Wisley. This, doubtless is, and always has been, a very difficult and intricate problem. The running of Wisley already costs the Society over £10,000 a year, and does Wisley make an adequate return to horticulture in general for such expenditure? I do not presume to answer, but I suppose the Council considers it does, otherwise they would not now be considering the question of building a hostel and making playing fields for the students. The main yearly expenditure at Wisley is, I fancy, bound up with the student question, with its many and varied activities and channels for spending money arising therefrom. Therefore, before increasing the same, one would like to know the Council's opinion as to how far such expenditure is justified, and the best test surely is, what effect does the teaching he receives have on the after life of the student? A return of all these who have passed through Wisley since the war would be very interesting, showing how many have made good in the horticultural world owing mainly to the training received. In considering the new hostel, etc., proposals as outlined by Sir William, would it be possible to extend the training period? Two years is all too short. Then there is the advisability of a longer horticultural experience previous to entering Wisley so as to fit them more thoroughly to receive the future scientific training. Again, if the expenditure is justified by results, and the hostel idea is developed, bound up with it could there be some form of grant or inducement to enable selected students to stay on for a third year? It is well-known that many youths develop their body at the expense of their brains; in other words, they are somewhat backward owing to their physical development, and the third year in such cases might be a great help in future life. I venture to write thus briefly on the subject of Sir William Lawrence's communication, as he seems to invite expressions of opinion. I may be wrong in some of my facts, but writing away from home must be my excuse. *R. W. Wallace, Tunbridge Wells.*

Vita Glass.—From time to time, letters have appeared in *The Gardeners' Chronicle* asking for experiences of the use of "Vita" glass for horticultural purposes. As your readers are aware, a number of experiments have been carried out during the past two or three years, but, unfortunately, very few have been of a sufficiently scientific nature to warrant their publication. Since the inception of the "Vita" Glass Marketing Board in March last, we have appreciated the importance of research work in connection with horticultural purposes, and a number of experiments are being carried out by independent authorities under the most scientific conditions possible at the present time. A considerable period is likely to elapse, however, before the results of these researches can be made known. In the meantime your readers may care to have extracts from letters we have received from amateurs and others who have used "Vita" glass for horticultural purposes, although these cannot be accepted as scientific data on the subject. From time to time, it has been said that "Vita" glass transmits more heat than ordinary glass. Scientists, however, have been unable to deduce any reason as to why this should be so, but in order to satisfy a great many enquirers on the subject experiments of a truly scientific nature were carried out by an independent authority. The net upshot was that it was proved quite conclusively that "Vita" glass and ordinary glass transmit exactly the same amount of heat, thickness for thickness. The reason why so many people have asserted that "Vita" glass does transmit more heat than ordinary glass is one simply and solely of physiology. It is a well-known fact that if menthol is put on the back of the hand or forehead a cold effect is produced, although in point of fact the temperature of the skin and blood has neither been raised or lowered. The same principle holds good with "Vita" glass and the ultra-violet rays. The ultra-violet rays are responsible for sunburning, but they are not heat-bearing rays. The effect of extra warmth is purely one of sensation resulting from the activation of ergosterol in the skin by the ultra-violet rays. Precisely what is the effect of these ultra-violet rays on plants, we do not at present know, but, suffice it to say, that over a long period and in a considerable number of cases, seedlings of various kinds grown under "Vita" glass have come on very much more quickly than those grown under ordinary glass. The most important research work referred to above is being carried out by the Horticultural Department of Reading University, and it is our intention to publish at the earliest possible moment, full results, whether they are favourable or unfavourable, on the use of "Vita" glass for horticultural purposes. *R. R. Byrne.*

NURSERY NOTES.

MESSRS. ALLWOOD BROTHERS.

To none is more praise due for the great development and increased popularity of the Perpetual-flowering Carnation during recent years than to the firm of Messrs. Allwood Bros., which, owing to its marvellous enterprise and unflagging perseverance, undoubtedly occupies an unique position in the horticultural trade.

It was our pleasure, some short time ago, to be conducted around the famous Carnation establishment at Wivelsfield, Haywards Heath, by Mr. Montagu C. Allwood, and no more delightful day could have been spent. Mr. Montagu C. Allwood combines shrewd business abilities with a genial temperament; his knowledge of Carnations of all classes is profound, and his enthusiasm unbounded, so that as we made our way through the various departments and inspected the numerous varieties and types being grown, we were persuaded that the future still held unbounded possibilities for the Carnation, and we marvelled at the genius that controls this business, which is so well organised and so far-reaching in its activities; there must be few countries where the name of Allwood is not known, or where Carnations that originated at Wivelsfield are not grown.

The glasshouses, modern in their construction and equipment, form an extensive range, one set of small, low structures being devoted to propagating, all the doors at one end opening into a corridor where the work of making the cuttings and potting them on, when rooted, is done. Others are devoted to the growing on of stock plants, which are not allowed to flower, so that strong, healthy cuttings are assured. These latter are struck in pans of river sand; when rooted, they are hardened off in a cool house prior to being potted, and by this method sturdy, healthy plants are secured. We were able to inspect several hundreds of pans of cuttings, and all seemed to be in splendid condition. Not all of the cuttings, however, are potted, as many are despatched so soon as rooted, large numbers being sent by air-mail to continental countries, big consignments going annually to France, Germany and Norway especially. For dispatch to South Africa, however, the small plants have necessarily to be established, and in this respect difficulties are encountered, for the regulations governing the importation of plants into that country state that no soil must be attached to them, so that Messrs. Allwood Brothers have now, perforce, to discover some material, other than soil, in which to establish the plants intended for export to South Africa. Plants in all stages are sent out from the Wivelsfield nursery, from rooted cuttings, as stated, to flowering specimens of full size, while we also learned that a big business is done in Carnation seeds.

Several large houses were filled with flowering specimens of the innumerable varieties offered for sale, and although the blooms are cut daily, a large and popular business being done in the dispatch of cut Carnations by parcel post, there was yet a grand display of flowers, so that we were able to note the qualities of the most outstanding varieties, and especially the recently introduced novelties. Rapture (Fig. 211) and Wivelsfield Buttercup, for instance, which both received Awards of Merit from the Royal Horticultural Society quite recently, give promise of being really first-rate varieties. The former should prove very popular for table decoration, for the large, compact and well-shaped blooms are a delightful shade of salmon-rose, lightened with pinkish shading, while its habit is good and the growth vigorous. Wivelsfield Buttercup, as its name implies, is buttercup-yellow in colour, and it is probably the richest yellow coloured Carnation in cultivation at the present day; the blooms are of splendid shape, the guard petals being good and the centre well-filled.

Guy Allwood, another 1929 novelty, looked extremely promising; it is a seedling from the well-known variety Laddie, with the same soft salmon-pink shading to the flowers, which are, however, produced with much greater freedom and are carried more erectly. Among white-flowered sorts we noted White Pearl and Wivelsfield White, both with well proportioned, richly-scented blooms, while such fine sorts as George Allwood, Master Michael Stoop, Mrs. T. Ives, Mary Allwood and Salmon Enchantress, seemed to be upholding the almost universal faith in them, all being in robust health. Wivelsfield Claret Improved is an advance on the type variety, the weak flower stem having been corrected, while growth is strong and healthy and it flowers freely all the year round. Edward Allwood, intense scarlet, and Spectrum, rich bright red, were outstanding, while many specimens of Mrs. A. J. Cobb were flowering freely, as also were those of the American variety Topsy, with rich, bright crimson blooms.

Perpetual-flowering Malmaison Carnations are grown fairly extensively by Messrs. Allwood Bros., while they also have a splendid collection of Border Carnations. This firm is well-known as the originator of the section which bears its name, *i.e.*, the Allwoodii group, which is now so popular for bedding purposes, while the latest departure is in the direction of a race of Pinks suitable for the rock garden, raised from crosses between the Allwoodii varieties and Dianthus deltoides, D. caesius, D. alpinus, etc., the group going under the name of Allwoodii alpinus. The work of raising this type of Pink is yet in its infancy, but Mr. Montagu C. Allwood is extremely optimistic of the possibilities of this type alone, and we were able to see many hundreds of seedlings growing in the open, with a view to determining their habit and hardiness. Lastly, attention may be drawn to Messrs. Allwood Bros.' Sweet Wivelsfield, the annual Sweet William, which, when first introduced, was received with incredulity, but which has now been developed into a fine strain, requests for seeds being received from all over the world in such numbers that it is impossible to meet the demand.

One day is insufficient to review all the work that is going forward at Wivelsfield, and we had, for instance, time only to glance at the scent department and the publications department, from which are despatched numerous books and booklets dealing with the cultivation of all types of Carnations, including possibly the finest book ever written on this beautiful group, namely, *Carnations for Every Garden and Greenhouse*, by Montagu C. Allwood, F.L.S.

MARKET FRUIT GARDEN.

November was a month of gales and rain, with hardly a hint of the cold snap which is often experienced at this time. The rainfall amounted to 4·23 inches, which is very much over the average for the month. Considering the severity of the gales, very little harm was done in my plantations. Three or four fruit trees were blown over and a few limbs torn from shelter trees. Fortunately, stakes and ties had been renewed where necessary earlier in the autumn. The trees which were affected were, as usual, Apples of bush form on Doucin stock. This has such poor anchorage that it should not be used in exposed situations, particularly as it is difficult to stake a bush-shaped tree effectively. Whenever the land was not too wet, the work of laying new drains and attending to old ones was continued, and good progress was made with pruning.

Light Crop of Apples.

Now that all the Apples have been sold, I find that the total crop was a little less than half that of last year. The only varieties which gave a heavier yield were Blenheim Pippin, Devonshire Quarrenden, Rival, Queen, Norfolk Beauty and Golden Spire, several of which are grown on quite a small scale. Cox's Orange Pippin came very close to last year's heavy yield, and was worth more. Beauty of Bath also approached the results of 1927 with respect to both crop and return; but Worcester Pearman was light. The heaviest decrease was in cooking varieties, notably Bramley's Seedling, which gave only about one-third of the previous crop. Fortunately the general quality of the Apple crop was very good, and market prices were at a satisfactory level throughout the season, so that the financial result was much better than might have been expected.

Cost of Spraying.

In my opinion, the weak point about fruit-growing as a business is the high cost of production. Money comes in freely during the short season of marketing; but it is not until too near the end that one can hope to overtake the expenditure incurred during the much longer season of preparation. As time goes on the quality of the fruits demanded by the public becomes higher and higher; and growers are continually called upon to adopt additional measures for securing this quality, all of which means more expense. Take spraying, for instance. This has become much more effective in recent years, as a result of knowledge gained with regard to the control of pests and diseases; but we are obliged to do more of it than we used to and to employ more expensive materials. In order to show the cost, I cannot do better than quote from a paper read by Mr. R. G. Hatton at the recent Imperial Fruit Show. In this he described a typical spraying schedule used for plantations of Apples ten to fourteen years old at the East Malling Research Station, as follows:—

January—"Ten per cent. tar distillate wash. Average cost of application on fourteen-year-old trees slightly under 8d. per tree, or £7 6s. per acre (trees at fourteen feet).

April.—"Pink spray." Lime-sulphur (one in thirty) +arsenate of lead (4 lbs. to 100 gallons), +1 lb. gelatine per 100 gallons. Average cost, about 4½d. per tree (fourteen-year-old), or £4 3s. per acre.

May.—"Post blossom." Lime-sulphur (one in 100) +arsenate of lead and gelatine as before. Nicotine (5 oz. per 100 gallons) was also added. Average cost, 5½d. per tree, or £5 per acre.

June.—"Second post blossom." Colloidal sulphur (5 lbs. per 100 gallons), soft soap (5 lbs. per 100 gallons), nicotine (6 ozs. per 100 gallons). Average cost, about 2¾d. per tree, or £2 11s. per acre."

This is a comprehensive schedule intended for the control of scab, aphis and sawfly. While it would probably be the maximum spraying that any grower would require to do, it also represents the minimum need for scab susceptible varieties in districts where capsid is troublesome. The total cost is about £20 per acre. This is obviously a serious item of expense. It means that a grower with fifty acres of Apples must spend something like £1,000 on spraying. Mr. Hatton suggests that on varieties liable to scab, a cost approaching this must be faced by a grower aiming at fruits of first quality. This programme of spraying gave, on the average, over ninety per cent. control of scab in the past season. In this case the cost was more than balanced by the improved possibilities of marketing fruits of such high quality. At the same time, it must be remembered that it is an expense necessitated by the modern demand for perfectly clean fruits, and it must be incurred even in seasons when there is little crop. For other crops beside Apples, we are called upon to do more spraying. Black Currants, for instance, used never to be sprayed. Dipping the tips of the shoots was enough to control the comparatively mild attacks of aphis that were experienced. Now this pest is so troublesome that winter spraying with tar distillate is practically essential. In addition, growers are advised to spray with lime-sulphur to control bud mite.

Economy in Cultivation.

Since there is no escape from a heavy outlay on spraying, one must look in other directions for means of reducing the cost of fruit production. In a good many cases this might be managed by a revision of the system of cultivation. Speaking on this subject recently, Professor Barker, Director of the Long Ashton Research Station, suggested that growers were running a risk in keeping to the bush form of tree in cultivated plantations. Growers, he said, must concentrate on growing Apples as cheaply as they could, bearing in mind that it was useless to let quality fall below a certain point. He believed that experience would show, in the long run, that the cheapest method which would give good fruits was the grass orchard with standard trees, or the adoption of the methods largely used in Canada and the United States, where growers followed clean cultivation at the beginning of the season, but let the ground go to a sown cover crop, or to weeds and grass, for the second half of the growing season. This latter method, while reducing the cost of cultivation considerably, has been found overseas actually to induce the trees to crop better than under clean cultivation all the year round. I do not know why the cover crop method has not been tried more extensively in this country. It might prove to be the most successful system in districts where the rainfall is too low for orchards under permanent grass to be successful. The plantation would be ploughed in early spring, and cultivated until some time in July, when a cover crop would be sown or weeds and grass allowed to grow. It would remain under the green crop or the weeds throughout the winter, until ploughed in the following spring. Such a plan, besides leading to economy in the cost of cultivation, also enriches the soil in humus, and therefore obviates the need for the use of farmyard and other expensive organic manures. Comparatively cheap mineral fertilisers, when used in conjunction with the annual ploughing in of a green crop, probably answer equally well.

Wound Dressings.

Last winter, when pruning some trees which were passing through a stage of rather severe canker, I tried various dressings for the wounds, applying them after cutting out as much as possible of the diseased tissue. These dressings included grafting wax, graphite paint, undiluted tar distillate wash, and a proprietary canker dressing which appears to be nothing more than a mixture of petrol and linseed oil. An attempt was made to use also a solution of copper sulphate, but it was found that this would run into drops instead of covering the wood properly. Some trees were left without any dressing, the wounds being simply pared out with the knife and left unprotected. I cannot say that any of the dressings, except possibly the grafting wax, has assisted the healing of the wounds. Healing has progressed just as far on the untreated wounds as on the others. If there is any exception in the case of some of those covered with grafting wax, it is so slight a difference as to be hardly worth notice. Since it appears to be impossible to do much to assist healing, it would seem to be wise to choose a dressing which gives the best protection to the wound against the entrance of disease spores. Of those mentioned above, the graphite paint, sold for treating corrugated iron buildings, is probably the best. At the present time the paint is still uncracked, and it has not harmed the new tissue. I think it gives a sounder and more lasting coating than ordinary white lead paint, which is often used for this purpose. Whether it actually defies disease spores, I do not know. It may be remembered that, as an outcome of investigations in silver-leaf disease, a special prescription for white lead paint was recommended a few years ago. I tried this at the time, and found that it gave a very good coat; but it was rather a nuisance to prepare and keep in condition. As a matter of fact, all paints are a nuisance when they have to be kept handy in the field throughout the winter, as they must on a fruit farm. They dry up and the brushes harden. For this reason there is much to be said in favour of gas tar, which is what I used for years. In cold weather this can be thinned down with linseed oil. It has been shown that a tarred wound is not proof against silver-leaf; but it is less open to infection than one that is unprotected. Anyhow, the tar smothers the canker fungus if any of it has been left in the wound. There is possibly no need to dress canker wounds at all; but one always feels inclined to do so.

Vegetatively Propagated Stocks.

In my last notes, I invited opinions on a lecturer's statement that vegetatively propagated root-stocks were bound to deteriorate in time. I am assured that this question has had the attention of the research stations from the very first. Cases of deterioration in plants, alleged to be from this cause, have, on investigation, never been found to hold water. The so-called running out, on close examination is the result of specific disease. The application of bad methods of vegetative propagation, which fail to eliminate such things as virus disease, give people who do not go far enough into the question the superficial impression that the plant is running out. The Doucin stock may be mentioned to show how little foundation there is for this bogey. This was handed down to us at least from the seventeenth century, and still has the health and hardiness which make it the most widely sought root-stock. It shows no sign of running out after three centuries of vegetative propagation. With reference to my remarks as to the possibility of producing trees of uniform vigour in seedling stocks by adopting the method of root-grafting, I am informed that it is yet unproved whether root-stock influence resides entirely in the piece of stock-stem included in the make-up of the tree. Trees are now growing at East Malling which are grafted directly on the roots of different stocks, which will give an answer to this question in due course. *Market Grower.*

SOCIETIES.

ROYAL HORTICULTURAL.

December 11.—The last fortnightly show of the year was distinctly brighter and better than many of similar previous occasions. There was a pleasant variety in the floral exhibits and sufficient sundries and artistic exhibits to fill the remaining spaces in the Horticultural Hall at Vincent Square. There were several very good collections of Orchids, among which Cypripediums were very prominent. The Orchid Committee recommended two First Class Certificates and five Awards of Merit. Chrysanthemums, Carnations and hardy shrubs were the chief exhibits before the Floral Committee, which recommended four Awards of Merit to novelties.

The Fruit and Vegetable Committee recommended a new variety of Brussels Sprout for Trial at Wisley, but had no other business of importance to transact.

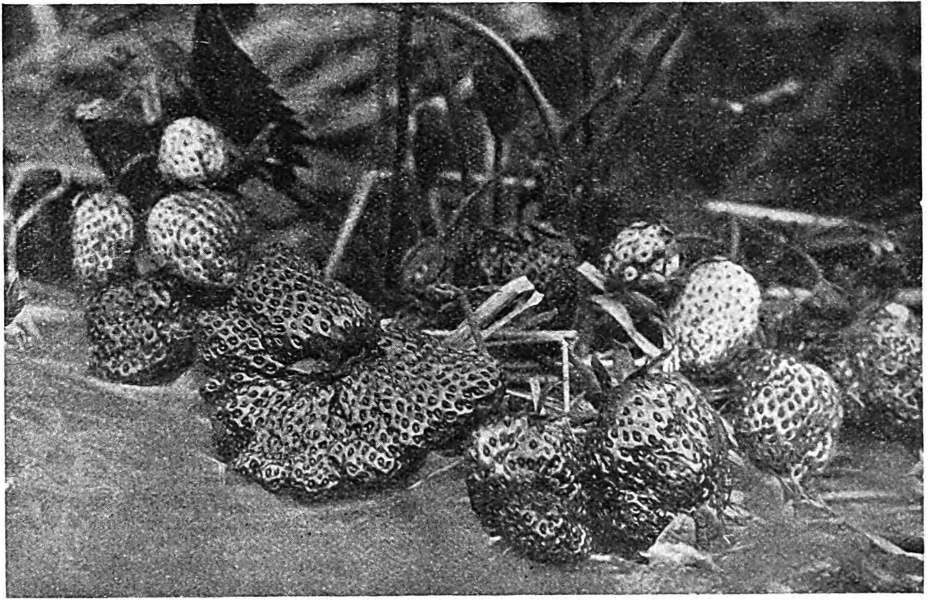

FIG. 212.—A NEW LATE-FRUITING STRAWBERRY.

FRUIT GARDEN.

A NEW LATE-FRUITING STRAWBERRY.

I enclose a specimen of Strawberries picked from the open on November 10; the variety is a seedling of my own raising, and the pedigree is rather interesting. My idea was to obtain a good late Strawberry with plenty of alpine strain in it—which should promote hardiness. The variety sent produces a mid-season crop of handsome fruits which never come deformed. It is very self-fertile, and in the bud stage, in spring, the calyx is unusually pronounced and pointed, which lessens the risk of damage by late frosts. In the autumn the plants produce a few trusses of shapely fruits, but do not crop heavily enough to overtax the plant. In most autumn-fruiting Strawberries, such as St. Fiacre, the first crop is poor; in this case the order is reversed. Having only a very small bed of plants, it is too soon to say whether this new variety will prove of any commercial value, but the characteristics of the plant are rather unusual. I enclose a photograph showing the result of my first cross (Fig. 212) and of the self-fertilised second generation. The pedigree is as follows:—

Bedford Champion (late summer-fruiting) × St. Fiacre (Vilmorin—perpetual-flowering), produced St. Jean (Vilmorin), a late summer—but occasionally an autumn-fruiting variety. St. Jean × Tuckswood Early (early summer and autumn) produced Seedling No. 1 (see Fig. 212), late summer-fruiting, which was selfed and produced a summer-fruiting and late autumn-cropping variety. *F. Stonor, Parkgate, Southampton.*

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Mr. Gurney Wilson (Hon. Secretary), Mr. Fred. J. Hanbury, Colonel Stephenson Clarke, Mr. Lionel de Rothschild, Mr. Stuart Low, Mr. Wilson Potter, Mr. E. R. Ashton, Mr. T. Armstrong, Mr. A. McBean, Mr. J. C. Cowan, Mr. J. E. Shill, Mr. Charles H. Curtis, Mr. Fred. K. Sander, Mr. H. G. Alexander, Mr. S. Flory, Mr. A. Dye and Mr. Richard Thwaites.

First Class Certificates.

Laelio-Cattleya Aconague, Dell Park var. (*L.-C. Schroderiana* × *Cattleya Maggie Raphael*).—A splendid hybrid with big flowers of fine form and substance. The sepals and petals are white and the lip is purple, shaded with ruby-purple, and with a wide golden area in the throat. Shown by Baron Bruno Schröder (gr. Mr. J. Shill), Dell Park, Englefield Green.

Odontoglossum Eldorado, Claygate Lodge var. (*O. eximium* × *O. Lakeniae*).—A strikingly distinct form, in which the red markings are very regularly placed on the blush ground. The petals are fringed, and the lip has a large frontal area. Shown by the Executors of the late Mr. J. J. Bolton (gr. Mr. S. Lyne), Claygate Lodge, Claygate.

Awards of Merit.

Cypripedium Grace Darling (*Phantasy* × *Gwen Hanmer var. Veronica*).—A large and bold hybrid but a trifle insipid in regard to colour. The big dorsal sepal is white, save for a small green base. The petals are pale green, as also is the lip. Shown by Messrs. Black and Flory.

Potinara Royal Purple, Node var. (*Brasso-Laelio-Cattleya Gerald × Sophro-Cattleya Westfieldensis*).—A very distinct Orchid but of dull magenta-purple colour; the lip, however, is dark ruby-crimson. Shown by Mrs. Carl Holmes (gr. Mr. W. Penton), The Node, Welwyn.

Brasso-Laelio-Cattleya Africa var. Aureola (*L.-C. Ixion × B.-L.-C. The Baroness*).—A charming Orchid of lovely colour for this late season. The flowers are of modest size, clear light orange-tinted yellow, with a carmine-shaded apex to the frilled lip. Shown by Messrs. Charlesworth and Co.

Brasso-Laelio-Cattleya Priapus, Brockhurst var. (*L.-C. Carmencita × B.-L.-C. Luciman*).—A bright and attractive Orchid, with orange and golden-orange sepals and petals, and a carmine, ruby-shaded, gold-veined lip of great beauty. Shown by F. J. Hanbury, Esq. (gr. Mr. Farnes), Brockhurst, East Grinstead.

Odontoglossum Purple Empress (*Doreen × Purple Emperor*).—The shapely flowers of this hybrid are of deep reddish-purple colour, with a few blush-white points at the edges of the petals and around the lip. Shown by F. J. Hanbury, Esq.

GROUPS.

A choice collection of Orchids was set up by Messrs. Charlesworth and Co., Ltd., Odontoglossums, notably O. Toreador, O. Italia, O. crispum xanthotes and O. Serapis being outstanding, while other good specimens were of Brasso-Laelio-Cattleya Golden Casket, B.-L.-C. Africa and B.-L.-C. Lilian; Laelio-Cattleya Cynthia and L.-C. Renown; together with Cypripediums, such as C. Christopher, C. Nydia and C. Maudiae.

S. G. Brown, Esq., Brownlands, Shepperton, had a charming group which contained a magnificent specimen of Zygopetalum intermedium, Brownlands var., with four large flower-spikes (Cultural Commendation to Mr. Thurgood, grower). There were numerous well-flowered plants of Epidendrum vitellinum, and one of Cymbidium Hanburyanum, while other notable sorts were Calanthe Veitchii, Oncidium tigrinum, Vanda coerulea and Odontoglossum eximium xanthotes.

Numerous Cypripediums were staged by Messrs. Cowan and Co., among them being C. Mimosa, C. Memoria F. M. Ogilvie var. The King, C. Maudiae magnificum, C. Papyrus and C. Tristan. They also had good examples of Sophro-Laelio-Cattleya Magnet, Miltonia Bleuana, Brasso-Cattleya British Queen and Lycaste Balliae.

Well-flowered specimens of Cypripediums were exhibited by Mr. T. Bones, while Cypripediums also constituted the bulk of the display set up by Messrs. H. G. Alexander, Ltd., whose best examples were of C. Corsair, Holford's var., C. Garibaldi, C. Golden Fleece, Westonbirt var., C. Lord Wolmer, C. Ballet Girl, C. Our Prince and C. Minotaur; they also had a fine specimen of Cymbidium Ilmo.

Messrs. Sanders, in their attractive group, displayed Cattleya Fabianid, Cymbidium Doris, Laelio-Cattleya Fulva var., Brasso-Cattleya heatonensis, and numerous Cypripediums, while Messrs. Stuart Low and Co., had fine specimens of Odontoglossum crispum, Brasso-Laelio-Cattleya Idey var. Vinosa, Sophro-Laelio-Cattleya Anzac and Brasso-Cattleya Ruby.

Mr. Harry Dixon had a small collection of Cypripediums, including C. Actaeus Undine, C. Princess Mary, C. Eurybiades and C. Montcalm; Mr. J. Evans showed grand specimens of Masdevallia tovarensis, Laelio-Cattleya The Prince, Vanda coerulea, Calanthe Evansiae, Sophro-Laelio-Cattleya Ramona and several Cypripediums; while magnificent flower-spikes of Calanthe Harrisii, and grand specimens of Laelio-Cattleya Aconagua var. magnifica, L.-C. A. var. grandiflora and L.-C. Janet, Dell Park var., were exhibited by Baron Bruno Schröder (gr. Mr. J. Shill), Dell Park, Englefield Green. Messrs. Black and Flory had several very choice Cypripediums.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. J. F. McLeod, Mr. Arthur Turner, Mrs. Ethel M. Wightman, Mr. Courtney Page, Mr. William Howe, Mr. J. M. Bridgeford, Mr. Donald Allan, Mr. E. R. Janes, Mr. M. C. Allwood, Mr. R. Findlay, Mr. A. E. Vasey, Mr. James B. Riding, Mr. W. B. Gingell, Mr. D. B. Crane, Mrs. Helen Lindsay Smith, Mr. Charles E. Pearson, Mr. G. W. Leak, Mr. C. F. Langdon and Mr. W. D. Cartwright, Secretary.

Section B.—Mr. Gerald W. E. Loder (in the chair), Mr. W. J. Bean, Mr. G. Reuthe, Mr. F. J. Preston, Mr. Mark Fenwick, Lady Beatrix Stanley, Mr. Reginald Cory, Mr. Amos Perry, Mr. L. R. Russell, Mr. A. Bedford, Sir William Lawrence, Bt., Mr. W. G. Baker, Mr. Charles T. Musgrave, Mr. R. C. Notcutt, Mr. E. A. Bowles and Mr. N. K. Gould, Secretary.

AWARDS OF MERIT.

Begonia Eges Favourite.—This fibrous-rooted variety may be described as a larger and brighter B. Gloire de Lorraine. Shown by Baron Bruno Schröder, Dell Park, Englefield Green.

Chrysanthemum Friendly Rival.—An incurving Decorative variety of flattish shape and rich golden-yellow colour. The broad petals are of good substance. Shown by Messrs. Keith Luxford and Co.

Chrysanthemum Mrs. John Norman.—A bright rosy-mauve coloured sport from Gloriosa. The florets are broad and stout and paler on the reverse sides. Shown by Mr. John Norman.

Carnation Wanda.—This Carnation has large flowers of a light shade of crimson, the fimbriated petals being closely packed to make a compact bloom. The habit and constitution appear to be quite good. Shown by Messrs. C. Engelmann, Ltd.

GROUPS.

In a very attractively arranged collection of Chrysanthemums, Mr. A. J. Vinten included good vases of Mrs. W. E. Catlow, Mr. J. A. Barrell, Portwinia and Challenger, of the Single-flowered varieties, and such valuable market Japanese sorts as Mrs. A. Vanstone, Winter Cheer, Golden Buttercup, Golden Glory and Balcombe Crimson.

Against a wall space near the entrance, Messrs. Keith Luxford and Co. set up a good collection of Chrysanthemums. A large vase of the golden-bronze Pompon Hilda Canning, which recently received a First Class Certificate at the N.C.S., illustrated its decorative value. They also had vases of Crimson Conquest, Royal Red, Soni and Challenger of the Singles, and Mrs. A. Vanstone, Phryne and Adrian's Pride, of the market Japanese varieties.

On a low tabling, Messrs. Sutton and Sons made a most pleasant display with cut blooms of Chrysanthemums raised from seeds sown at the end of last February. It was also stated that the plants had neither been stopped nor disbudded, but grown naturally. Many sprays of decided decorative value were the result. These were mostly of the Single and Quilled types, but included a fair proportion of double flowers. All were of good type and exceedingly pleasing colours.

In the collection of greenhouse Carnations shown by Messrs. Allwood Bros., a goodly vase of the orange Fancy sort, Maud Allwood, indicated its value as a cut flower. Harmony, another recent Fancy, also possesses decorative value. Besides a number of standard varieties, Messrs. Allwood Bros. set up charming bowls of dainty Dianthus Allwoodii varieties. Next to their Orchids, Messrs. Stuart Low and Co. staged vases of Ruby Glow, Spectrum, Philip Sassoon, Radiolite, Thomas Ives and other useful Carnations. Such valuable market varieties as Laddie, Red Laddie, Sceptre, Citron and Sunny were well shown by Messrs. C. Engelmann, Ltd.

Messrs. L. R. Russell, Ltd., grouped a number of bushy little plants of Skimmias bearing quantities of bright berries, and also had a neat rock garden exhibit containing well grown plants of various Sempervivums, Saxfrages, Primulas and other appropriate alpines There were good batches of Iris unguicularis coerulea and Iris Histrio, with Primula Barrowby Gem and P. Wanda in the exhibit of Messrs. Wm. Wood and Son, Ltd., with a background of dwarf Conifers, Berberis in variety, Pernettyas and Cotoneaster frigida.

The Misses Hopkins had a neat rock garden exhibit, where they displayed a very good strain of Blue Primroses and other appropriate plants. Mr. George E. P. Wood had various hardy shrubs in pots and miniature gardens. Mr. Stephen Sims planted many shapely little Conifers in a small rock garden, and Mr. R. V. Rogers staged some very floriferous plants of the bright yellow Primula Barrowby Gem.

Fresh and fragrant Violets were shown by Mr. Baldwin Pinney and Mr. G. Zambra, while the latter, to illustrate the mildness of the South Devon climate, also brought vases of Roses, Scabiosa caucasica, Eupatoriums, Hydrangeas, Genistas and Acacia Baileyana from the open garden. A collection of Topiary specimens in evergreen Box was shown by Mr. J. Klinkert.

As is usual at this season of the year, exhibits of paintings and garden sundries were a prominent feature of the show. A magnificent and extensive collection of coloured illustrations of varieties of Irises was exhibited by Mr. W. J. Caparne, Saints Bay, Guernsey, while garden designs were shown by Messrs. Bakers and Messrs. S. and G. Paris. Miss Lilian Neish had framed water-colour paintings of gardens and flowers, as also had Miss Marion Broom, Miss Winifred Walker, Miss E. Franncis Drake, Miss Agnes Strickland, Miss Margaret Linnel, Miss Eva Kirkpatrick, Miss Alice F. Wilkinson and Miss Ellen Warrington.

Garden designs were also shown by Messrs. Wm. Wood and Son, Ltd., while Miss Ellenore S. Ough had a nice collection of paintings, as also had Mrs. Henry Spencer, Miss Edith A. Andrews and Mrs. M. Townsend.

Horticultural sundries, such as labels and plant supports, were exhibited by several firms. Jeyes' Sanitary Compounds Company, Ltd., staged insecticides and fungicides; Mr A. J. Clarkson had ornamental tubs, etc., and Mr. C. A. Jardine showed pruning implements, while there were also several exhibits of jam and preserves.

Fruit and Vegetable Committee.

Present: Mr. C. G. A. Nix (in the chair), Mr. Jos. Cheal, Mr. W. Poupart, Mr. G. F. Tinley, Mr. H. S. Rivers, Mr. J. Basham, Mr. E. Beckett, Mr. A. Poupart, Mr. H. Prince, Mr. W. W. Divers, Mr. E. A. Bunyard, Mr. H. Bullock, Mr. J. Wilson and Mr. A. N. Rawes (Secretary).

Brussels Sprout Filbert, which was exhibited before this Committee by Mr. F. Streeter, gardener at Petworth Park, Sussex, was recommended for trial at Wisley.

GROUPS.

An excellent collection of Apples and Pears was exhibited by Lady Juliet Duff (gr. Mr. H. Weaver), Coombe Court, Kingston Hill. Among Pears, there were splendid examples of Santa Claus, Doyenné du Comice and Beaurré Diel, while of the many varieties of Apples staged, perhaps the best specimens were of Tyler's Kernel, Rival, American Mother, Bismarck, Cox's Orange Pippin, Blenheim Pippin, Charles Ross, Gascoyne's Scarlet, Emperor, Alexander and Newton Wonder, all highly coloured and in splendid condition.

The following awards have been made to the undermentioned vegetables by the Council of the Royal Horticultural Society, after trial at Wisley.

Brussels Sprouts.

AWARDS OF MERIT.

Spiral No. 2 (15), sent by Professor Sprenger; and *Evesham Special* (45, 46), sent by Messrs. Bunting and Messrs. Speed.

HIGHLY COMMENDED.

Early Dwarf (1), sent by Messrs. Daehnfeldt and Jensen; Fest und Viel—One and All—(10), sent by Messrs. Daehnfeldt and Jensen; Spiral No. 4 (17), sent by Professor Sprenger; Spiral var. Nunhem (18), sent by Messrs. Zeazacavereeniging, Nunhem; Standard (22), sent by Messrs. Barr and Sons; Forex (25, 26), sent by Messrs. Harrison and Messrs. Barr and Sons; Supreme (61), sent by Messrs. Middlehursts; and Hartlebury Giant (64), sent by Mr. H. Masters.

Commended.

One and All (9), sent by Messrs. Heinemann; Fest und Viel (11), sent by Messrs. Olsen; Offenham (33), sent by Messrs. Speed; Bedfordshire Strain (42), sent by Messrs. Watkins and Simpson; Darlington (58), sent by Messrs. J. W. Scarlett; Favourite (63), sent by Messrs. Dobbie and Co.; Masterpiece (66), sent by Messrs. Harvey; and Late Hartlebury (70), sent by Mr. H. Masters.

The varieties classed as being alike are Early Dwarf and Fest und Viel (Messrs. Daehnfeldt and Jensen); Spiral No. 4, Spiral var. Nunhem, and Standard; and One and All and Fest und Viel (Messrs. Olsen).

THE ORCHID CLUB.

The meeting of the Orchid Club, held at Manchester on December 7, was the occasion of a capital display of finely-grown Orchids, Cypripediums being the dominant feature.

Premier Diplomas.

Odontioda Naomi, Dr. Craven Moore's variety.—A medium-sized flower of perfect shape, having all the segments a rich, deep chestnut-red.

Odontoglossum crispum var. J. H. Walker.—A white seedling O. crispum having flowers three-and-a-half inches across, of perfect shape and good habit, the flowers being well spaced on the long, gracefully arching spike. The only colour is a few crimson spots on the lip. The plant bore a full spike of twelve flowers. Both these were from Dr. Craven Moore.

Diplomas of Merit.

Cypripedium Onward, Cussons' var. (*C. King George* × *C. Dixon Thorp*).—A well-balanced flower nearly circular in outline. The dorsal sepal is white, heavily spotted with pink and the broad petals and lip are chestnut-brown. From A. T. Cussons, Esq.

Cypripedium Memoria J. H. Walker var. Saracen.—A medium-sized flower of an intensely brilliant colour. The flat dorsal sepal is of a uniform bright crimson colour, with a white tip and a narrow white margin. The well-displayed petals and lip are a rich mahogany-red. From B. J. Beckton, Esq.

Cypripedium Dixon Thorp.—A finely-grown flower of this well-known hybrid. From Sir William Thom.

Cypripedium Mary Thom (*Lord Wolmer var. Plutus* × *Elise II. var. Grand Monarch*).—A pleasing flower of good form. The round dorsal sepal is a lively green, spotted with dark brown and margined with white. The well-proportioned petals and lip are rich golden-brown. From Sir W. Thom.

Cypripedium Charlesworthii, Cloudeslee var.—An exceptionally fine variety of this beautiful species, the dorsal sepal being a full three-and-a-quarter inches across, of good shape and rich colour. From F. T. Paul, Esq.

Groups.

Sir William Thom (gr. Mr. R. Williams) exhibited a selection of interesting and meritorious Cypripediums, including C. Warrior, C. Minotaur, C. Mulatto splendens, C. Undaunted and several new seedlings. Sir John Rutherford, Bt. (gr. Mr. J. Lupton), showed a well-arranged group of Cypripediums and Cattleyas, including a magnificent plant of Cypripedium King George with over forty growths, for which a Certificate of Cultural Commendation was awarded to Mr. Lupton.

Dr. F. Craven Moore (gr. Mr. W. Gilden), exhibited a highly attractive group composed of some twenty Odontoglossums, all carrying full spikes, and a selection of the best Cypripedium hybrids, including large, well-grown plants of C. Merlene, C. Redwing, C. Melody, C. Makeda, C. Perseus and several varieties of C. Prince Albert, in both the Chardwar and the Mecca types. The Odontoglossums included good types of O. crispum Doin seedlings and O. c. xanthotes, the front of the group being set off with several plants of the sweetly-scented Oncidium cheirophorum.

B. J. Beckton, Esq. (gr. Mr. W. A. Stewart), exhibited a small group of select Cypripediums and Orchid species. Among the latter was a beautiful plant of the rare and curious Catasetum Darwinianum, bearing two long arching spikes of twenty-eight and thirty flowers respectively; a Certificate of Cultural Commendation was awarded to Mr. W. A. Stewart. Good plants of Odontonia Longowoyi, Cypripedium Swallow, Westonbirt var., and the brilliant C. J. M. Black, Beckton's variety, were also conspicuous.

A. T. Cussons, Esq. (gr. Mr. Dalgloish), staged an extensive group of Cypripediums, among which flowers of C. Pynalex, C. F. M. Ogilvie var. The Premier, C. Baldur and C. Corsair were specially noted. F. T. Paul, Esq., showed a small selection of Cypripediums, including C. Charlesworthii, Cloudeslee var., C. Hestia and a pretty C. niveum hybrid. Mrs. Stockwell (gr. Mr. Weaver) staged fine examples of C. Ballet Girl, and a few others.

CORBRIDGE AND DISTRICT CHRYSANTHEMUM.

This Northumberland Society held its twenty-fifth annual show on November 17. As usual, there was a very good attendance, and the Cottage Hospital, to which the proceeds are devoted, will, we have no doubt, have benefited thereby.

In addition to the fine display of Chrysanthemums there were several classes for fruits and vegetables; the latter included classes for Leeks, and the local pitmen exhibited some enormous examples.

In the class for four vases of Japanese Chrysanthemums, distinct, J. C. Straker, Esq. Stagshaw House, Corbridge (gr. Mr. A. Hay), was first, with fine blooms of Majestic, Queen Mary, Mrs. R. C. Pulling and Mrs. A. Davis. The Dowager Lady Allendale, Bywell Hall (gr. Mr. J. Thomas), was second, showing good examples of Majestic, Mrs. R. C. Pulling, Mrs. Gibson and Miss Brunton.

For two vases of Japanese Chrysanthemums, distinct, J. C. Straker, Esq. was first with good flowers of Mrs. A. Davis and Mrs. Fleming; Lady Allendale was second, showing fine flowers of Queen Mary and Tom Abbot. For three Japanese blooms in one vase, not less than two varieties, J. C. Straker, Esq., was first; J. Dickinson, Esq., Slyford Hall (gr. Mr. R. T. York), second, and Lady Allendale, third; while for three blooms of a white Japanese variety, Lady Allendale was first, with grand flowers of Cissie Brunton; J. C. Straker, Esq., was second, with Queen Mary. The best three blooms of a yellow Japanese variety were staged by J. C. Straker, Esq., who showed exceptionally fine blooms of Mrs. R. C. Pulling; Lady Allendale was second, with specimens of the same variety.

For a single vase of three pink Japanese blooms, J. C. Straker, Esq., was first, with examples of Mrs. A. Davis; Lady Allendale being second; while in the class for three bronze Japanese blooms, J. C. Straker, Esq., was again successful, with very fine flowers of Golden Champion; also for three crimson Japanese blooms, with fine flowers of Mrs. G. Monro, jun.

The Single Chrysanthemums in the disbudded classes made a very fine display and fully illustrated their effectiveness for decorative purposes. In the class for two vases, ten blooms in each vase, J. Straker-Smith, Esq., Howden Dene (gr. Mr. J. Winder), was successful, showing good flowers of Susan and Golden Dott; he was also first for four vases.

The Decorative classes were well filled, and the beautifully-grown specimen plants were most attractive.

In the fruit section, Mr. A. Hay was first for nine dishes of Apples, with good specimens of Alfriston, Charles Ross, Lane's Prince Albert, Emperor Alexandra and Mére de Mènage. In the class for four dishes of Apples, two dessert and two cooking, Mr. Cannell was first. Mr. J. Winder showed the best six kinds of vegetables.

Obituary.

Francois Peeters.—We regret to learn of the death of the veteran Belgian Orchidophile M. Francois Peeters, at the age of seventy-one. He was for many years well-known in Orchid-growing circles in Brussels, a constant exhibitor at horticultural shows, and many Orchids bear his name. He was a man of a very kindly disposition, and has left many friends who will mourn his loss almost equally with the members of his family.

ANSWERS TO CORRESPONDENTS.

Cyaniding for Mealy Bug on Vines and Peaches.—*E. M.* Two ounces of sodium cyanide to each 1,000 cubic feet may be safely used for vines during the dormant season, but much will depend on the structure; should this be old and not very air-tight, use two-and-a-quarter ounces to the thousand square feet. In very bad cases, the cyaniding should be done on two occasions, before pruning and again after the loose bark has been removed. Sodium cyanide may be safely used on Peach trees at one-and-a-half ounce to the thousand cubic feet. Great care is necessary when using this deadly poison, therefore everything should be prepared in readiness for the operation, placing a wide board or tin directly over the receptacle at the height of one foot, so that the fumes do not play directly on one part of the trees or vines. As mealy bug hides in crevices on walls and trellises, the house should be painted and the walls limewashed. Watch the vines carefully in spring, when the vines are breaking into growth in case some mealy bugs should have escaped destruction, and apply methylated spirit to the pests by means of a small brush.

Names of Fruits. — *S. P. S.* 1, Newton Wonder; 2, Maltster.—*J. MacG.* 1, Fondante du Panisel (syn. Délices d'Angiers); 2, Passe Crassane.—*R. W.* Damaged and decayed.—*W. E. C.* 1, Apple Ashmead's Kernel; 2 and 3, Pear Hessel.—*A. B.* Apple Colonel Vaughan.—*H. W. B.* 1, Chaumontel; 2, General Todleben; 3, Beurré Diel; 4, Doyenné du Comice; 5, Beurré d'Amanlis; 6, Marie Louise; 7, Easter Pippin (syn. French Crab); 8, Lord Derby; 9, Beauty of Hants; 10, Rival.—*Altho.* Apple Reinette du Canada; Pear Chaumontel de Ete.—*F. W. O.* 1, Reinette du Caux; 2, Claygate Pearmain.—*J. M.* 1, not recognised; 2, Christmas Pearmain; 3, Joséphino d'Malines; 4, Zéphirin Grégoire; 5, Doyenné de Comice.—*F. W. B.* 1, Baron de Mello; 2, decayed; 3, Beurré d'Anjou.

Palm Roots infested with Mealy Bug.—*M. B.* From your description, we have no doubt that the roots of your Palms are infested with mealy bug; strange as it may seem, our experience is that this pest seems to do no harm to the plants; in fact, they are only found where there is a mass of healthy roots. This is no doubt due to the fact that the bottom of the pot is well-aerated by the network of roots; in any case, we have never observed mealy bug in cases where the plants had very few roots. You would be well advised to leave the roots alone or, at most, syringe the intruders off with clean water, as the use of insecticides may cause damage, the roots of Palms being very susceptible to injury.

Communications Received.—S. R.—E. G. D.—H. S. R.—W. B.—L. G.—E. O.—W. W. P.—A. D. C—J. F.—J. C.—J. S.—J. P. C.—G. H. M.—T. H—W. F. S.—T. B.

MARKETS.

COVENT GARDEN, Tuesday, December 11*th*, 1928.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the day in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in the day.—Eds.

Plants in Pots, etc. : Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz. ...	10 0-12 0
—elegans ...	10 0-12 0
Aralia Sieboldi	8 0—9 0
Araucarias, per doz.	30 0-40 0
Asparagus plumosus ...	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistras, green ...	16 0-60 0
Aspleniums, doz.	12 0-18 0
—32's	24 0-30 0
—nidus ...	12 0-15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Chrysanthemums per doz. ...	15 0-24 0
—white, per doz.	15 0-24 0
—yellow „	18 0-24 0
—pink „	21 0-24 0
—bronze „	12 0-18 0
Crotons, per doz.	30 0-45 0
Cyclamens, per doz.	24 0-36 0

	s. d. s. d.
Cyrtomiums ...	10 0-12 0
Erica gracilis, per doz. ...	24 0-30 0
— — 60's, per doz.	12 0-15 0
— — 72's, per doz.	6 0—8 0
— — hyemalis, per doz. ...	24 0-30 0
—nivalis, per doz.	24 0-36 0
— — 60's, per doz.	12 0-15 0
— — 72's, per doz.	6 0—8 0
Nephrolepis in variety ...	12 0-18 0
—32's	24 0-36 0
Palms, Kentia,	30 0-48 0
—60's	15 0-18 0
Pteris in variety	10 0-15 0
—large 60's ...	5 0—6 0
—small... ...	4 0—5 0
—72's, per tray of 15... ...	2 6—3 0
Solanums, per doz.	18 0-21 0
— 60's, per doz.	8 0—9 0

Cut Flowers, etc. : Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	— 15 0
—cuneatum, per doz. bun. ...	9 0-10 0
Anemone, St. Brigid, per doz.	6 0—9 0
Arums (Richardias), per doz. blooms ...	6 0-10 0
Asparagus, plumosus, per bun., long trails ...	2 6—3 0
—med. sprays	2 0—2 6
—short „	— 1 0
—Sprengeri, bun. long sprays...	2 0—2 6
—med. „ ...	1 0—1 6
—short „ ...	0 6—1 9
Autumn foliage, various, per doz. bun. ...	6 0-12 0
Camellias, white, per doz. blooms	2 0—2 6
Carnations, per doz. blooms	3 0—4 6
Chrysanthemums—	
—white, per doz. blooms ...	3 6—7 0
—yellow, per doz. blooms ...	3 6—6 0
—bronze, per doz. bunches ...	12 0-18 0
—bronze, per doz. blooms ...	3 6—7 0
—pink, per doz. bunches ...	18 0-24 0
—pink, per doz. blooms ...	4 0—7 0
—single varieties, disbudded, per doz.	3 0—4 0
—single varieties, spray, per doz. bun.... ...	12 0-18 0
Cornflowers, blue, per doz. bun.	3 6—4 0
Croton leaves, per doz. ...	1 9—2 6
Daffodils, single, per doz. blooms	4 0—4 6
Fern, French, per doz. bun.	10 0-12 0
Forget-me-nots, per doz. bun.	12 0-15 0

	s. d. s. d.
Freesia, white, per doz. bun.	3 6—4 0
Gardenias, per doz. blooms	9 0-12 0
Heather, white, per doz. bun.	9 0-12 0
Hyacinth, Roman, on bulbs, per doz.	4 0—5 0
Iris tingitana, per doz. blooms	5 0—7 0
Lilac, white, per doz. sprays ...	5 0—6 0
Lily-of-the-Valley, per doz. bun.	18 0-30 0
Lilium longiflorum, long, per bun.	3 6—4 0
— — short, per doz. blooms...	3 0—4 0
—speciosum rubrum, long, per doz. ...	4 6—5 0
— — — short, per doz. ...	2 0—2 6
Marigolds, per doz. bun. ...	4 0—6 0
Myrtle, green, per doz. bun.	1 6—2 6
Narcissus, Paper White, per doz. bun.... ...	3 0—4 0
Orchids, per doz.	
—Cattleyas ...	18 0-30 0
—Cypripediums	6 0—8 0
Poinsettias, per doz. blooms	18 0-30 0
Roses, per doz. blooms—	
—Mme. Butterfly	6 0—9 0
—Columbia ...	6 0—8 0
—Golden Ophelia	5 0—6 0
—Richmond ...	5 0—8 0
—Roselandia ...	6 0—9 0
—Molly Crawford	2 6—4 6
Smilax, per doz. trails ...	4 6—5 0
Tulips, scarlet, on bulbs, per doz. blooms...	4 0—4 6
—white, on bulbs, per doz. blooms	3 6—4 6
Violets, Prince of Wales, per doz. bun.... ...	2 6—4 0

Cut Flowers — continued.

	s. d. s. d.
French Flowers—	
—Acacia (Mimosa), per doz. bun.	15 0-18 0
—Chilies, loose, per pad ...	5 0—6 0
—Eucalyptus foliage, per pad	6 0—7 0
—Marigolds, per pad	6 0—8 0
—Narcissus, Paper White, per doz. bun.	3 0—4 6

	s. d. s. d.
French Flowers—	
— Narcissus, Soliel d'Or, per doz. bun. ...	3 0—4 0
—Roses, Safrano, per pkt. 24's	2 6—3 0
—Ruscus foliage, per pad ...	6 0—7 0
—Solanum berries, loose, per pad	6 0—8 0
—Violets, Parma, large, per bun.	4 0—5 0

Remarks.—In this department business has shown some improvement during the past week, Chrysanthemum prices having risen. Carnations have been somewhat erratic in price, those which have increased in value being Lady Northcliffe, Eileen Low, Delight, Topsy, Laddie, Lassie, Spectrum, Royalty, Wivelsfield Pink and Mrs. Ward; white-flowered sorts have remained unchanged in value. Roses are gradually decreasing in quantity, and prices are becoming firmer for best quality blooms of Madame Butterfly, Madame Abel Chatenay, Richmond, Golden Ophelia, Roselandia and Molly Crawford. Richardias are now in good condition, but supplies are somewhat shorter. Lilium longiflorum blooms, up to the moment, are as quoted last week, but prices may advance in a day or so. The newest lines in this department are Daffodils, Freesias, Iris tingitana, Poinsettias and white and scarlet Tulips. French flowers are now receiving more attention, white and yellow Narcissi and single Violets being in good condition. Marigolds and yellow Marguerites are somewhat limited in quantity, while a few Anemones and Ranunculi have been received in good condition. Small consignments of Mistleto are arriving almost daily, and the quality generally is clean, the sprays being well-berried. The best berried Holly at present to hand is from Cornwall. Supplies of Christmas Trees are increasing daily, large trees at present being most in demand. Heavy supplies are anticipated during the next week.

Fruit : Average Wholesale Prices.

	s. d. s. d.
Apples, English—	
—Cox's Orange Pippin, ½-bushel	10 0-22 0
—National Mark Standard Cases	30 0-40 0
—Bramley's Seedling	6 0-14 0
—Newtown Wonder	6 0-10 0
—Lane's Prince Albert ...	6 0-10 0
—Blenheim Pippin. ½-bushel	3 0—6 0
— Californian— Newtown Pippin, per case	11 0-14 0
—American Jonathan... ...	10 6-11 0
—Oregon, per case	11 0-14 0
—Spitzbergen...	10 0-12 0
—Nova Scotian—	
—Ribston Pippin	28 0-30 0
—King of the Pippins ...	26 0-32 0
—Golden Russet	30 0-36 0
—Baldwin ...	26 0-32 0
—Wellington ...	28 0-32 0
Bananas, per bun.... ...	22 6-35 0
Dates, dry, in cartons ...	4 0—6 6
Grapes, English—	
—Muscat of Alexandria, per lb.	4 0—7 6
—Alicante ...	1 3—2 6
—Gros Colmar	1 6—3 0

	s. d. s. d.
Grapes, Almeria, per barrel ...	16 0-26 0
Grape Fruits—	
—Honduras ...	— 20 0
—Jamaica ...	— 20 0
—Florida ...	— 25 0
Lemons, per case—	
—Messina ...	12 0-32 0
—Malaga ...	10 0-14 0
Nuts—	
—Brazil, cwt. ...	— 90 0
—Chestnuts, Italian, bag	25 0-30 0
— — French „	— 15 0
—Walnuts „	10 0-12 0
Oranges—	
—Cape Valencia	13 0-22 6
—Jaffa ...	14 0-15 0
—Jamaica ...	— 15 0
—Murcia ...	12 6-16 0
—Denia ...	14 0-20 0
Pears, English—	
—Doyenné du Comice, trays, specials, per doz.	6 0-12 0
—trays, medium	3 0—5 0
—American—	
—Washington Winter Nelis	18 0-20 0
—Californian Doyenné du Comice, case	21 0-24 0
Pineapples, case	27 0-40 0

Vegetables : Average Wholesale Prices.

	s. d. s. d.
Asparagus, English	8 0-12 0
—French ...	12 0-14 0
—Italian ...	5 0—6 0
Beans—	
—Worthing, per lb.	1 6—1 9
—Guernsey, per lb.	1 6—2 6
—Madeira ...	2 6—4 0
Beet, per bag....	5 0—6 0
Brussels Sprouts, ½-bag. ...	2 6—4 0
Cabbage, per doz.	0 9—1 3
Carrots, ½-bag...	2 3—2 6
Cauliflowers, English—	
—Cornish, crates, 18's, 24's ...	5 0—8 0
Kent, 15's...	4 0—5 0
French— St Malo ...	5 0—6 6
Celery, washed, per doz. ...	18 0 24 0
Cucumbers, doz.	15 0 20 0
Lettuce, Cabbage, English, doz.	0 6—1 0
—French, indoor, 48's	4 0—6 0
— — outdoor...	4 0—6 0

	s. d. s. d.
Mint, per doz. bun.... ...	6 0—8 0
Mushrooms—	
—cups, per lb.	2 0—3 0
—broilers „	1 8—2 0
—" field " ...	1 0—1 3
Parsnips, cwt....	6 0—7 0
Peas, hothouse, per lb. ...	0—6 0
Potatos—	
—English, cwt.	3 6—7 0
—Azores, new per case ...	12 0-20 0
—new hothouse, per lb.	1 0—1 6
Rhubarb, forced, per doz. ...	3 0—4 0
Savoys, per doz.	2 6—3 0
Seakale, punnet	2 0—2 6
Tomatos, English, New Crop—	
—pink... ...	6 0—8 0
—pink and white ...	6 0—7 6
—white ...	5 0—6 0
—blue ...	4 0—5 0
—Guernsey ...	2 0—4 0
—Canary Island, per bundle ...	12 0-16 0

Remarks.—We cannot report satisfactory conditions as trade generally has been poor. As is usual at this time of the year, the demand for hothouse Grapes is fairly good. The enquiry for good English Apples has been maintained and has been assisted by the fact that imported Apples at the moment are on the short side. Pears are expensive, Doyenné du Comice in particular being now quoted at comparatively high prices. The few English fruits of this variety available are also selling well. New Crop English Tomatos are moving at higher prices due to scarcity, and Tomatos from the Canaries are also selling well. Cucumbers are scarce and costly, supplies being very small. Mushrooms maintain a steady price level, but supplies are variable. Asparagus is only in moderate demand, and small quantity of forced English Asparagus has not been doing particularly well just lately. Hothouse Beans keep at satisfactory rates, although there is no demand for them unless they are of first-grade, as the competition of Madeira Beans affects sales. New Potatos are only a quiet trade and unless very good, they sell with difficulty. Hothouse Peas are not plentiful and the few good ones arriving make high prices. Some forced Rhubarb is available and selling comparatively cheaply. Salads from France sell fairly briskly. Cauliflowers from St. Malo and Cornwall are not selling too badly considering that the green vegetable trade, although better than of late, leaves considerable room for improvement. The trade in old Potatos is not entirely satisfactory, but prices remain fairly steady.

GLASGOW.

A fairly good business was transacted in the cut flower market last week, except on Saturday, when supplies were beyond the purchasing needs, and prices of the cheaper qualities of Chrysanthemums declined sharply. Among Chrysanthemums, Jean Pattison was worth from 10d. to 1s. 3d. for 6's; Florrie King, 9d. to 1s. 2d.; Cranfordia, 1s. to 1s. 3d.; Peggie and Golden Marvel, 1s. 3d. to 1s. 6d.; White Thorpe, 9d. to 1s.; Lemon Thorpe, 1s. 3d to 1s. 6d.; P. A. Dove and Framfield Pink, 2s. 6d.; Rose Chocole. 1s. 6d. to 1s. 9d.; Autocrat, 2s.; Ada Brooker, 2s. to 2s. 6d.; Red Almirante, 1s. to 1s. 3d.; La Pactole, Blanche de Poiton and Almirante, 10d. to 1s.; Balcombe Beauty, 8s. for 12's; and No. 5 Pink, 4s. Carnation prices were unchanged at 2s. to 4s. 6d. per dozen, but Roses were dearer, pink varieties being sold at 4s. to 6s.; and red and white, 2s. 6d. to 3s. Richardias realised 6s. per bunch, but Narcissi were cheaper at 2s. 6d. to 3s. 6d. per dozen bunches. Solanum sold at 6s. to 10s. per case, and Ruscus at 5s. to 10s.

In the fruit market good prices were obtained for two cargoes of Oranges from Valencia and Jaffa, values being as follows:—Valencia, half-cases, 200-240's, 19s. to 24s.; 300's, 17s. to 24s.; 360-390's, 15s. 6d. to 18s. 6d.; 504's, 14s. 3d. to 16s.; large cases, 420's, 30s. to 35s.; 714's, 26s. to 28s.; Jaffa, 144's, 15s.; 152's, 15s. 6d.; 180's, 16s.; and 120's, 13s.; Mandarins, 1s. 6d. to 2s. per tray, and 15s. to 23s. per case. Grape Fruits made 19s. to 20s.; Almeria Grapes, ordinary, 14s. 6d. to 17s. 6d.; special, 18s. to 20s.; and fancy, 21s. to 28s. Home-grown Grapes sold at 2s. 6d. to 3s. 6d. per lb.; Royal, 1s. 4d.; and Teneriffe Tomatos, 17s. to 24s. per bundle.

The only change in vegetable values was in Cucumbers, which advanced from 21s. to 24s. per dozen. Spanish Onions were steady at 4's, 9s. per case; 5's, 13s. 6d. and 6's, 13s. Mushrooms realised 2s. to 2s. 6d. per lb.

CATALOGUES RECEIVED.

J. W. Cole and Son, Midland Road, Peterborough.—Chrysanthemums, Pelargoniums, Dahlias, etc., and Greenhouse Plants.

Dickson, Brown and Tait, Manchester.—Garden Seeds.

Barr and Sons, 11, 12 and 13, King Street, Covent Garden, W.C.2.—Bulbs, Hardy Perennials, Alpines, etc.

Sutton and Sons, Reading.—Flower and Vegetable Seeds; Potatos and Sundries.

Dickson and Robinson, Cathedral Street, Manchester.—Flower and Vegetable Seeds.

Perry's Hardy Plant Farm, Enfield, Middlesex.—Japanese, European, American and Indian Lilies.

J. W. Barr, Daffodil Nurseries, Three-Legged Cross, Wimborne, Dorset.—Gladiolus; Bulbs.

Dicksons Seeds, Ltd., Chester.—Flower and Vegetable Seeds, Seed Potatos, Tools, etc.

Little and Ballantyne, Ltd., The King's Nurserymen, Carlisle.—Forest and Fruit Trees; Ornamental and Evergreen Trees, Conifers, Alpines and Roses.

Harrison and Sons (Leicester), Ltd., St. James' Street, Leicester.—Flower and Vegetable Seeds.

Foreign.

Robert Blossfeld, Potsdam, Germany.—Flower Seeds.

GARDENING APPOINTMENTS.

Mr. T. Young, of the City of Birmingham Parks Department, previously of Kew, as Superintendent of Parks and Recreation Grounds, Hampton, Middlesex. [Thanks for 2/6 for R.G.O.F. Box.—Eds.]

Mr. F. Berry, for the past three years in charge of the wild gardens at Moreton Paddox, Moreton Morrell, Warwick, as gardener to Captain and the Hon. Mrs. Carland Emmet of the same address. [Thanks for 2/6 for R.G.O.F. Box.—Eds.].

Mr. Chas. Marchment, for the past seven years gardener to Lt.-Col. R. J. L. Ogilby, D.S.O., Moreton Hall, Moreton Morrell, as gardener to C. Armytage Moore, Esq., Winterfold House, Cranleigh, Surrey. [Thanks for 2/6 for R.G.O.F. Box.—Eds].

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Gardeners' Chronicle
No. 2191.—SATURDAY, DECEMBER 22, 1928

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SUPPLEMENT PLATE:
The Summit, Loughton: The Heath Garden.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 38·6°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, December 19, 10 a.m. Bar. 30.5 Temp. 42°. Weather, Misty.

The Glasshouse Plant and its Environment: I.—In Relation to Health.

THE grower of plants under glass has many advantages over his confrère who grows plants in the open; but only the very skilled among cultivators are able to turn these advantages to full account. The reason for this lies, of course, in the fact that whereas the glasshouse gives the grower a larger opportunity for controlling the environment of his plants, only long experience, keen observation and sound knowledge of the ways and needs of plants empower a man to exploit that opportunity to the full. Since one of the chief functions of applied science is to simplify and clarify action, it is reasonable to suppose that scientific study of plant life in greenhouses should lead to conclusions which would enable the generality of growers of plants under glass to lessen the gap which now separates the fairly competent from what may be called the perfect grower. In a recent paper read by Dr. Bewley before the Association of Economic Biologists, the better control of environmental conditions of plants under glass was dealt with in a masterly manner. He showed, for example, that careful experiments, such as those which he and his colleagues are carrying out at the Lea Valley Research Station at Waltham Cross, provide sure data with respect to the most suitable conditions for the growth of the given plant. Dr. Bewley gave as an example the experiments which have been made with respect to the soil and air temperature most suitable for Tomatos in their young stage of growth. When seeds are sown in December it is found that the soil temperature must be kept at 60°F., and in no case allowed to fall more than 3° below that point if root growth and, indeed, growth of the whole plant is to proceed steadily. A soil temperature below 57°F. checks root and stem growth, some roots die and the leaves turn purplish-green. An equally close relation exists between air temperature after planting and crop production. During the growing season air temperatures varying from 55°F. to 70°F. were maintained by means of thermostats. At air temperatures between 63°F. and 65°F. growth was excellent, fruits set freely and weighed twenty-eight per cent. more than those obtained when the air temperature was 3° lower (60°F.), or 5° higher (70°F.). As compared with growth at 63°F., that at 60°F. was sturdier, darker in colour and slower; while at a yet lower temperature (55°F.) plants were greatly retarded, and their leaves signified their discomfort, much as human beings would do in comparable circumstances, by assuming a purplish hue. At 70°F., on the other hand, growth was too rapid and soft, and at this temperature, moreover, Stripe disease made a severe attack upon the plants. Needless to say, although for experimental purposes the several environmental conditions of temperature, humidity and sunlight must be investigated one by one, no good experimenter with practical experience would be content with that. He knows, as all who grow plants intelligently know, that the environmental factors must be considered ultimately all together. Thus, as Dr. Bewley points out, the amount of sunlight which the glasshouse plant is allowed to receive must be considered in relation with temperature. For example, bright sunlight tends to counteract the growth-softening effect of high temperature. The latter makes for soft growth, the former for mature and hardened growth. Therefore, "the successful cultivator of glasshouse plants reduces the temperature in dull weather and drives his boilers in sunny weather." No less important is the fact, well recognised by good growers, that sudden and wide differences between day and night temperatures are sure means of checking growth and reducing crops. Yet other conditions, humidity of the air and of the soil, contribute to the environmental complex on which the health of plants under glass depends. These, however, may be postponed since they will come into the story when, in our next issue, we complete this summary of Dr. Bewley's most interesting contribution to a subject which deserves the attention of every cultivator, whether he be a grower of plants under glass or in the open.

Good Wishes.—The Directors and the Editorial and Publishing Staffs of *The Gardeners' Chronicle* offer heartiest good wishes for a happy Christmas and a prosperous New Year to all friends—contributors, advertisers and readers.

"The Gardeners' Chronicle" Almanac for 1929.—Our Almanac for 1929 is now being prepared, and we are anxious to include in it as many dates of horticultural meetings and exhibitions as possible. Secretaries of horticultural, botanical and floricultural societies are therefore requested to send us the dates of their shows and meetings for the coming year on or before Tuesday, January 1, 1929.

Southport Floral Fête.—A very detailed and interesting account of the receipts and expenditure in connection with the Southport Show of 1928 was presented to the Borough Council a few days ago. The total receipts amounted to £11,275 10s. 1d., while the items of expenditure came to £9,227 13s. 7d., leaving a balance of £2,047 16s. 6d., which was carried to the Appropriation Account. Under this latter account, £1,433 1s. 9d. has been expended in contributions to the Capital Account, and even after capital expenditure has been met the net profit for the year amounts to £614 14s. 9d., while the liabilities in the Balance Sheet are met by cash at bank to a similar sum, *i.e.*, £503 15s. 2d. Thus, at the end of its fourth year, the Southport Floral Fête has produced a substantial net profit, and the large initial expenditure—capital outlay—has been redeemed.

Legacy to Gardener.—The late Mrs. Eliza Wigfull, of Ash Grove, Clarkehouse Road, Sheffield, who died on October 29, left £100 to her gardener, Mr. Thomas Lucas.

A Mole-draining Demonstration.—A demonstration of modern mole-draining, which consists in pulling a large, bullet-shaped mole through heavy soil by motor or steam traction, in place of the costly operation of laying pipes, was recently given in the grounds of Studley College for Women, at Studley, Warwickshire. It was the last of the series for the year inaugurated by the Ministry of Agriculture. The demonstration was not so spectacular as some of the series. The water did not rush out of the moles into the main drain immediately they were made; probably all the better for the drainage, for the mole-drains in heavy, moist clay may stand all the better if they are given a little time for the air to get at them and harden the inside surfaces before the water comes. But, however that may be, the demonstration did provide an opportunity for Warwickshire horticulturists and farmers to see the different types of mole-ploughs and get an idea of the powers of the latest farm tractors and other machines used in the process. They had a chance to survey the work done by each and compare the costs before deciding to buy or hire mole-draining apparatus. There can be no question that expenditure on mole-draining on large estates which have the right heavy texture of soil and are in need of drainage, is money extremely well spent. Mole-drainage, which will usually cost something under £1 an acre on ordinary suitable soils, is, of course, only advisable for heavy land, and will have to be renewed after a period of years, according to the texture of the soil and the depth of the drain.

Mr. J. G. Murray, F.L.S.—In the list of Examiners appointed by the Senate of the University of London appears the name of Mr. J. G. Murray, F.L.S., the Lindsey (Lincs.) County Council Horticultural Organiser, as External Examiner in Horticulture for 1929 for all examinations above Matriculation, including the Intermediate and Final B.Sc. (Hort.).

The Canning of Peas.—The preservation of green Peas is a considerable industry in France and also in the United States. In the latter country, indeed, more Peas are canned than any other fruit or vegetable, with the exception of Maize and Tomatos. During the past few years fruit-canning has made headway in England in spite of the somewhat uncertain yield of fruits, due to the exigencies of the English climate. It is rather surprising, therefore, that more attention has not been paid to the canning of Peas, as this vegetable grows remarkably well in this country, and, provided contracts were made with the growers in advance, there should be no deficiency of produce, and the canneries should be kept busy throughout the season. The Ministry of Health regulation prohibiting the use of copper sulphate in the greening of Peas caused a certain amount of loss to the few firms canning Peas last year, as the public were not accustomed to the yellow or natural Pea. The difficulty has now been overcome, and methods of producing green Peas to conform with the new food laws are in use commercially in this country on a large scale. At present, the canning of Peas is carried out in only three or four centres in England, but, in them, there appears to be no difficulty in getting farmers to grow Peas for the canneries.

It is one of the most popular of our vegetables, and we are not up against competition from America to any extent with this product, so that there appears to be marked possibilities both for the grower and the canner in this branch of industry. In America, the pack had increased from about 800,000 cases in 1885, to 12,317,000 cases in 1920. During the past three seasons, some thirty varieties of Peas have been grown in the experimental grounds at Campden, and tested for their suitability for canning in the Research Station of the University of Bristol, at Campden, which has done so much to assist the development of the canning industry in the interests of producers. Of the varieties grown, the following gave the best yields:—Lincoln, Alaska, Sangster, Chemin Long, Delicatesse, Thomas Laxton, British Lion, Senator, Johnson's Victor, Johnson's Magnificent, Bountiful, Harrison's Glory, Yorkshire Hero. The highest yield of Peas from pods was given by:—Chemin Long No. 4, Lincoln, Senator, Harrison's Glory and Delicatesse. The best canned products were obtained from the following:—Small Peas: Alaska, Chemin Long No. 4, Annonay, and Gontier Blanc. Medium Peas:—Bountiful, Scimitar, Delicatesse, and Advancer. Large Peas:—Lincoln, Prince of Wales, Gradus, and Yorkshire Hero. Senator was remarkable for the number of Peas which split during the canning operations, and for this reason is not considered at all suitable for this purpose.

Elimination of Bracken.—Discussing "The Deterioration of Mountain Pastures," before the members of the Glasgow University Society of Agricultural Science, at which Principal Paterson presided on Tuesday night, Sir Robert Greig, Chairman of the Department for Agriculture for Scotland, remarked that one of the remedies for the deterioration of our rough grazings was the elimination of Bracken. A line of attack which might produce some result was now opening up. It was found that in several parts of Scotland Bracken was suffering from a fungus attack. This disease undoubtedly killed out, or lowered the vitality of the Bracken. It was not known if it could be spread by means of inoculation or infection, but experiments were in progress by Professor Braid and Mrs. Alcock, and they were hopeful that these would prove successful and provide a means of controlling the pest. Another method of increasing the carrying capacity of rough grazings was by the reclamation of bogs and heaths, and in this connection he spoke of the scheme for the reclamation of bog land in Lewis. Referring to the decline in the number of live-stock in the Highland grazing counties, Sir Robert suggested that his investigations had indicated that the extension of deer forests had not been an influential factor in the diminution of sheep stock, as was often supposed.

Gloriosa richmondensis.—The plant which received an Award of Merit (subject to the verification of the name) when shown by Messrs. L. R. Russell, Ltd., on July 31, under the name of Gloriosa Plantii, has been found to differ from that species, and Messrs. Russell have named it Gloriosa richmondensis.

A Disputed Potato Deal.—In the Court of Session, last week, the Judges of the First Division gave judgment in an action raised by Messrs. J. R. Shanks and Co., Meigle, against Robert Lymburn, Potato merchant, Glasgow, in which they claimed £120 under a contract that provided for the sale of twenty tons of King Edward Potatos at £7 per ton. Of that quantity only five tons were delivered, and as the defender failed to take delivery of the balance the pursuers stated that they had suffered loss as stated above. The defence was that the five tons were not of merchantable quality, and that the remainder was not delivered timeously. The action was originally raised in Perth Sheriff Court, where the decision was in favour of the defender, who was awarded £13 12s. 2d. as damages under a counterclaim. On appeal, the Sheriff Principal affirmed the Sheriff-substitute's interlocutor as to the unmerchantable quality of the five tons, but held that the defender had failed to give pursuers instructions with reference to the remainder, and he awarded the pursuers £85, with expenses. By a majority of three to one the judges of the Court of Session sustained the pursuer's appeal, and granted decree in favour of Mr. Lyburn for £19 4s. 8d., the amount of the counterclaim, and awarded him expenses.

Mr. W. H. Hatcher.—As a clever grower and equally clever exhibitor of Orchids, Mr. W. H. Hatcher occupies a foremost position among Orchid trade specialists. Although well-known in London and the south of England, he is even better known in the north, and has always been a useful and enthusiastic supporter of the North of England Horticultural Society, and was one of its earliest members. In his earlier years, Mr. Hatcher sought and obtained experience among Orchids at several leading establishments, notably those of Messrs. S. Low and Co., Messrs. Sanders, Messrs. Cowan, of Liverpool, and Messrs. Charlesworth and Co. Twenty-two years ago he went to Rawdon, near Leeds, where, in partnership with Mr. Mansell, he has assisted in building up a capital business in the cultivation, importation and raising of Orchids. His firm has specialised in the importation of Orchids from Burma and other far eastern countries and in this connection it has been particularly successful. For forty years, Mr. Hatcher's business life has been devoted solely to Orchids, hence his knowledge of these plants is extensive, and that knowledge is placed at the service of the Royal Horticultural Society's Orchid Committee, of which he has been a member for many years.

MR. W. H. HATCHER.

The "Gardeners' Chronicle" Medals, 1928.—*The Gardeners' Chronicle* Medals have been awarded to the following during 1928:—Brighton Show, Mr. R. W. Wheare, Danny Park Gardens, Hurstpierpoint, Sussex; Aberdeen Show, Mr. John Davidson, 323, Hardgate, Aberdeen; Southport Show, Mr. A. Falconer, Cheadle Mental Hospital, Cheadle, Cheshire; Ghent, Belgium, Mr. Berthold Graetz, Cologne (Gold Medal); R.H.S. of Ireland, Dublin, Captain Lewis, Old Conna, Bray, Ireland (gr. T. Webster); Shrewsbury Show, Lady Hall and G. R. Mellor, Tan-y-Bryn, Abergele (gr. C. Price); Royal Caledonian Society, Edinburgh, Mr. John Gray, Middlewood, Uddingston, Midlothian; York Gala, Mr. Winn, Moorgate, York; Glasgow Show, Colonel Kennedy, Doonholm, Ayr (gr. Mr. J. S. Cowan); Wolverhampton Show, Mr. T. H. Justice, 143, Lea Road, Wolverhampton; Midland Daffodil Show, Birmingham, Mr. A. H. Bassano, Hadenhohne, Old Hill, Staffordshire; Plymouth Show, Mr. F. Rogers, St. Dominic, and Mr. H. Langman, Tamerton Foliot; National Sweet Pea Society, Bournemouth, Sir Randolf Baker, Ranston, Blandford (gr. Mr. A. E. Usher); National Chrysanthemum Society's Show, London, the Hon. Sir John Ward (gr. Mr. C. Beckett), Chilton, Hungerford; Guildford Gardeners' Association, Lt.-Col. Browne, Send (gr. Mr. E. Hewitt); Dundee Show, Mr. David Smith, 25, Heron's Lane, Lochee; Cheltenham Show, Mrs. E. V. Butler, Tewkesbury (gr. Mr. A. J. Collins); and Colchester Show, Mr. C. W. Diggens, East Hill, Colchester.

Captain F. Kingdon Ward.—We learn that Captain F. Kingdon Ward has concluded his plant-collecting expedition in Upper Assam, early accounts of which have appeared in *The Gardeners' Chronicle*; he is now homeward-bound, the latest report being that he has arrived at Calcutta.

Shop Window Displays.—In all towns and cities the annual Christmas displays in shop windows invariably arrest the attention, and while children and young people generally are those most attracted, old folk cannot resist the temptation of wares disposed in bright and artistic fashion. In London, there are miles of attractive shop windows, but among the many none are more arrestingly attractive than those of Messrs. James Carter and Co., at Cheapside, at Holborn and in Regent Street. All have somewhat similar displays, but the Regent Street shop affords the finest opportunity, and this has been taken full advantage of. A few of the items on view in this bower of beauty, overhung with Clematis, are Azaleas, Daffodils and Heaths in fancy pots and pans, small Ferns, Palms, Araucarias, and a host of desirable and artistic bowls filled with fibre and containing bulbs of many kinds in various stages of growth. These bowls are beautiful in shape, design, pattern and colour, while the special glass bowls to hold floating flowers are exquisite. Quaint ornaments made from Teasel-heads and Fir-cones; miniature Japanese gardens, from a few square inches to several square feet in extent; flower perfumes of almost every kind; bulbs in great variety, and attractive packets of seeds, are set out delightfully and in such happy association that Londoners in large numbers enter and purchase Christmas presents, and so create and extend a love of horticulture.

Agricultural Research Bureaux.—Following on the recommendations made by the Imperial Agricultural Research Conference, 1927, as announced in our issue of July 21, 1928, p. 42, that a series of bureaux, or clearing houses, of information be established, meetings of representatives of the various parts of the Empire have been held recently in London, and definite proposals have been formulated and laid before the Government. If these are adopted they should have far-reaching effects on the advancement of scientific agricultural research throughout the Empire, for it is proposed that eight new bureaux be established, and these should greatly facilitate the interchange of knowledge, as each bureau would, under these proposals, deal with a distinct branch of agricultural science, and all the bureaux would be financed from a common fund, contributed to by the different Governments. The scheme provides for the formation of an Executive Council, composed of representatives of the subscribing Governments, and this would be responsible for the control of the fund, together with the general administration of the bureaux. The several bureaux, it is proposed, would be attached to existing research stations, the governing bodies of which are already in agreement with the general principle of the proposal. It is suggested that the Bureau of Soil Science be established at the Rothamsted Experimental Station, Harpenden, Hertfordshire; of Animal Nutrition at the Rowett Institute, Bucksburn, Aberdeen; of Animal Health at the Veterinary Research Laboratory, Weybridge; of Animal Genetics at the Animal Breeding Research Department, Edinburgh University; of Agricultural Parasitology at the Institute of Agricultural Parasitology, near St. Albans; of Plant Genetics (for herbage plants) at the Welsh Plant Breeding

Station, Aberystwyth; and of Fruit Production at the East Malling Research Station, Kent. It is further proposed that the directors of the research stations to which the bureaux would be attached should be directors of the Bureaux, and this would mean that men of world renown in their respective fields of science would be associated with the bureaux from their inception, namely, Sir John Russell, Dr. J. B. Orr, Dr. W. H. Andrews, Professor F. A. E. Crew, Professor R. T. Leiper, Professor Sir Rowland Biffen, Professor R. G. Stapledon, and Mr. R. G. Hatton. It is further proposed that each director should have a body of official correspondents, specialists in their respective sciences and nominated by the different Governments, to assist him in the work of the bureau; one correspondent would be nominated for each bureau by each of the contributing countries. Sir Robert Greig, Chairman of the Board of Agriculture for Scotland, has been proposed for the post of Chairman of the Executive Council. Another announcement is that the Government of South Africa has agreed that the veterinary research station at Onderstepoort shall serve as a link in the Imperial stations.

Colonial Appointments. — The following appointments, as announced in the *Kew Bulletin of Miscellaneous Information*, No. 10, 1928, have been made by the Secretary of State for the Colonies:—Mr. R. M. Davies, B.Sc. (Agric.), to be Superintendent, Agricultural Department, Nigeria; Mr. J. D. Broatch, B.Sc. (Agric.), and Mr. C. L. Skidmore, B.Sc. (Agric.), to be Assistant Superintendents of Agriculture, Gold Coast; Mr. J. E. Bruce, to be district Agricultural Officer, Tanganyika Territory; Mr. G. C. Auchinleck, Deputy Director of Agriculture, to be Director of Agriculture, Gold Coast, in succession to Mr. C. H. Knowles, who retires.

Tree-lopping at Richmond. — Considerable concern has been expressed locally and in the London Press at the rather severe lopping which has been carried out on the large Elm trees at the famous Terrace Gardens, Richmond, Surrey. A careful examination disclosed the inevitable fact that, on account of age, many of the limbs of the Elms were so decayed as to be a source of danger—and the lopping became an urgent necessity.

The "Botanical Magazine."—Part IV, Vol. CLII of the *Botanical Magazine*, dated October, 1928, contains descriptions and illustrations of the following subjects: Tulipa lanata, E. Regel (t. 9151), which has flowers of brilliant scarlet-vermilion, with a large, black blotch, usually bordered with yellow and of varying size and shape, at the base of the tepals (perianth divisions) and is a native of Bokhara, although it has been cultivated in Kashmir, from about the sixteenth century, on the roofs of mosques; Ozothamnus Antennaria, Hook. f. (t. 9152), a shrub from Tasmania, which has proved to be one of the hardiest among the Antipodean shrubs in cultivation at Kew; Berberis Hookeri, Lem. (t. 9153), which was figured in the flowering state only as B. Wallichianum in *Bot. Mag.*, t. 4656 (1852); Solanum laciniatum, Ait. (t. 9154), a native of Australia and considered to be morphologically and geographically distinct from the New Zealand species, S. aviculare, with which it is often confused in floras; Paphiopedilum Robinsonii, Ridley (t. 9155), an Orchid from Malaya with broadly purple-banded, dull yellowish-green petals and a purple and green lip; Rhododendron hippophaeoides, Balf. f. et W. W. Sm. (t. 9156), a dwarf—the height is given as 1—5m., but should read 1·5m.—species from Yunnan with clusters of varying colour from lavender-blue to rose-pink, which, when better-known, should prove a popular garden plant, being especially suitable for the rock garden; Muscari armeniacum, Baker (t. 9157), the popular Heavenly blue Grape Hyacinth, extensively cultivated in gardens at the present day; Cestrum psittacinum, Stapf. (t. 9158), a tall climbing subject, believed to be a native of Central America, with racemes of bright orange and green flowers,—it was figured and described from a specimen that has been growing at Kew for about thirty years; Saxifraga amabilis, Stapf. (t. 9159), a plant of unknown origin in cultivation at Kew, but considered to be a natural hybrid between S. Stribrnyi and S. Sempervivum; Hypericum Leschenaultii, Choisy (t. 9160), a rare species from Java which has, however, been grown for many years at the Glasnevin Botanic Garden, the specimens figured having been received from that garden; and Guevina avellana, Molina (t. 9161), an evergreen shrub or tree from southern Chile which produces edible seeds and is known variously in its native country as the Guevin, Huevin or Avellano, and which has proved to be quite hardy in Ireland and south-west England.

Appointments for the Ensuing Week. — Thursday, December 27: Paisley Florists' Society meets; Bideford Horticultural Society meets. Saturday, December 29: Leeds Paxton Society meets.

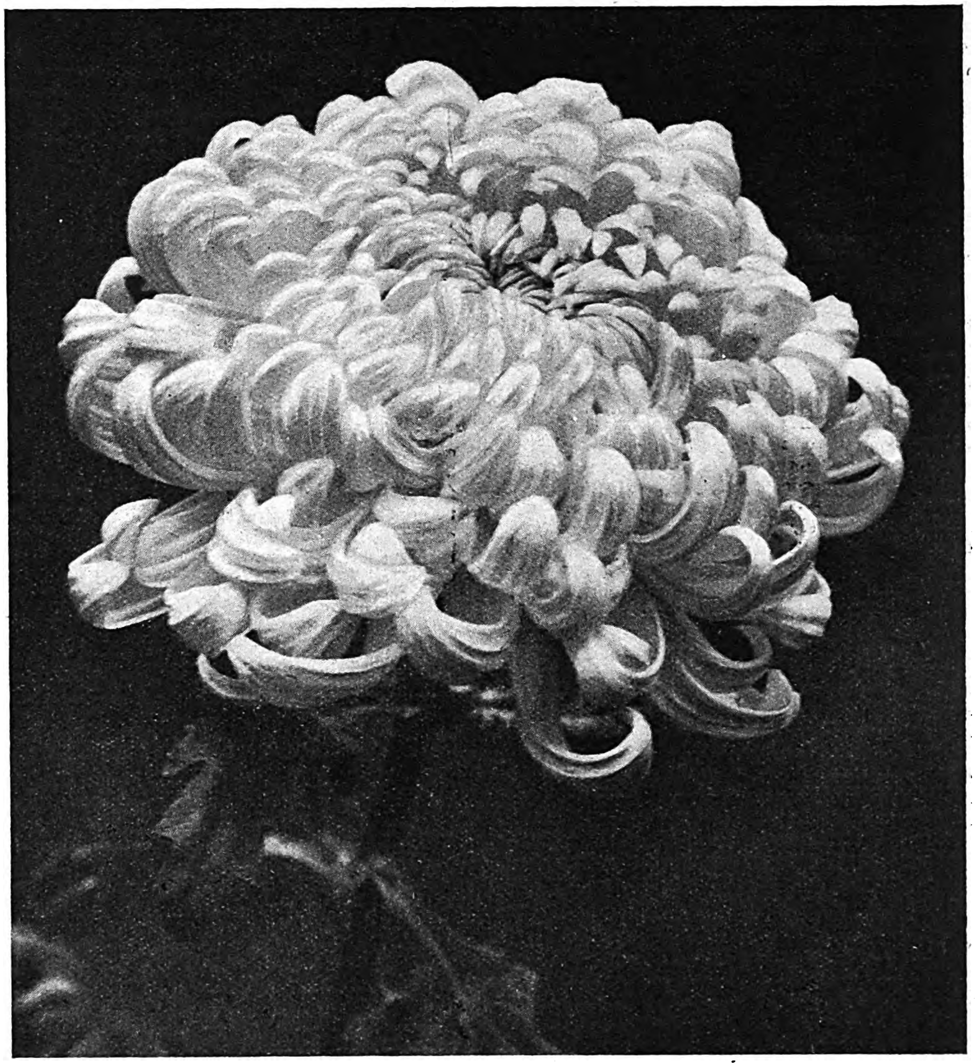

FIG. 213.—CHRYSANTHEMUM FRIENDLY RIVAL.

N.C.S. First Class Certificate, December 10; R.H.S. Award of Merit, December 11. Flowers golden-yellow.
Shown by Messrs. Keith Luxford and Co.
(see pp. 478 and 498).

"Gardeners' Chronicle" Seventy-five Years Ago.—*Fruit Culture in Sicily.*—I cannot help smiling in noticing the different opinions of your correspondents, with regard to "annual liftings," "root pruning," "composts," "soils," "drains," "grafting," "pruning," etc., of fruit trees. I have lived for nearly thirty years abroad (chiefly in the garden of the world—Sicily), and nearly all fruit trees there are left to themselves, from the day they are planted. I have myself set Peach stones (the fruit weighing seven ounces each) in the open fields, and the trees began bearing in the fourth year, at the height of seven feet! This, you will recollect, was without manuring, grafting, pruning, lifting, root-pruning, draining, etc. I left the plants at the mercy of the weather. Almonds and all other stone fruits bear without grafting, and also Chestnuts, Nuts, Walnuts, etc.—Oranges and Lemons excepted. The only plant that is pruned is the Vine. I have seen Vines some thirty years old, with the stems as thick as my leg, spreading branches (on rough trellis-work) some twenty yards, intersecting each other and sending down bunches of Grapes from 4 lbs. to 7 lbs. each, and berries as big as small eggs, one bunch of Grapes nearly filling a middle-sized tray. The peasants don't "thin" the bunches, neither do they remove odd shoots; indeed, they only attend twice a year to their Vines, viz., in January, when they prune them, and in September and October, when they gather their crops. Some of these large Vines grow on the sides of garden walks, which are paved, flagged, macadamised, or pebbled, and the soil just like a rock, without a particle of manure. I have seen Peach and Apricot trees as big as our Elm and Ash trees (of course, in that country they are all standards), and not one single branch pruned, though some forty or fifty years old. The Vines from which wines are produced grow on barren chalky soils, and also in sandy soils of the worst description, and without any manures, drainings, etc., etc. What I have said can be proved, therefore I am not opening a new controversy, as it were. *J. W. H.*, 41, *North John Street, Liverpool.* [But what analogy is there between the climates of Sicily and Great Britain?] *Gard. Chron.*, *December* 17, 1853.

Publication Received.—*Annual Report of the Board of Regents of The Smithsonian Institution*, for the year ending June 30, 1927; United States Government Printing Office, Washington.

The Week's Work.

THE ORCHID HOUSES.

By W. Gilden, Orchid Grower to Dr. F. Craven Moore, Manchester.

Summer-flowering Cypripediums.—C. Rothschildianum, C. Druryi, C. Stonei, C. philippinense, C. Morganiae and others, thrive during the winter in the warm house, but they require very careful watering at this season. The roots are growing, but they are not so abundant as in the robust Selenipediums, therefore the compost remains moist for long periods and saturation must be avoided, or loss of roots will occur; it is best to make sure that the compost is dry before affording water at the roots at this season. Thrips, etc., should be kept in check by vaporising the division occasionally, and if the pests have gained a hold in the growths they should be eradicated with an approved insecticide, using a small camel-hair brush or a wing feather for this purpose.

Affording Water to Orchids.—With regard to this important subject in connection with Orchid culture, to be able to give the requisite amount of water to the roots at this season is probably one of the most difficult problems that the grower has to decide. Orchids cannot be treated collectively in this respect. Each plant must be studied separately and treated according to its special requirements. Outside weather conditions must be considered, as during mild and damp weather no great amount of fire heat is necessary to maintain the required temperature and keep the atmosphere buoyant, and under these conditions, even when the houses are ventilated freely, evaporation is very slow, and consequently the compost remains moist for longer periods than during cold and windy weather, when more fire-heat is needed and more water is naturally required to counteract the dryness of the air. Owing to the short periods of daylight at the present time of the year, plants that are in an active state of growth should not be forced unduly by high temperatures, as the available sunlight is not sufficient to ripen the growths as in the early autumn months; any attempt at forcing only results in soft, flabby growths, which are often lost through damping off, and the general health of the plants is therefore weakened. Under these conditions, plants in growth at the present time do not require such a large quantity of water as when more light and air can be given, and the compost should be allowed to become fairly dry between each application. At this season, there are many plants in a partial resting or dormant condition, in which they remain for varying periods, according to their respective habits. This condition is necessary for many species to maintain them in a robust state of health, and in the case of warm-house Orchids, such as the evergreen section of Dendrobiums, various Oncidiums, Platyclinis, and most of the Cattleya group, which for cultural purposes may include Brasso-Cattleyas, Laelio-Cattleyas, etc., activity of growth may be reduced by lowering the temperature, withholding moisture from the atmosphere to a certain extent, and allowing the compost to become dry, although it is not advisable to maintain such dry conditions at the roots as to cause the bulbs to shrivel, for such often results in loss of roots, as also does an excess of water at this season. Just enough water should be given to keep the plants in a plump condition. Many of the bulbless kinds, such as Vandas, except V. teres, V. Hookeriana and V. Miss Joaquin, which require a decided rest, Phalaenopsis, Aeridis, Saccolabium and the bulbless varieties of Zygopetalum, require more water during winter than those plants which make pseudo-bulbs, but very little will suffice during dull weather, when the Sphagnum-moss about the roots will absorb almost sufficient moisture from the atmosphere to keep the leaves and roots plump. The cool house Masdevallias require similar treatment during winter. Deciduous Orchids that have completed their growth and are not producing flower buds or scapes, do not require any water after the leaves have fallen unless they appear to be shrivelling, when water should be afforded to them, but not in sufficient quantity to keep the roots moist for long periods. This applies particularly to Cycnoches, Catasetums, Chysis, Thunias, etc.

THE KITCHEN GARDEN.

By Allan Falconer, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Mint.—A succession to those plants raised in boxes for very early use should now be provided for, as Mint is always in demand. There are several kinds of Mint, but the only one worth growing for forcing is the true Pea Mint. Fresh beds should be put down each year, early in June, and if kept clean by hoeing, until the runners have thrust their way between the rows, when hoeing should cease, good roots for forcing may be obtained. During the summer look out for Mint rust, as plants infected with this do not respond to forcing, and should be grubbed up and burnt to prevent the infection spreading. Where weak stocks exist it is advisable to procure fresh roots for forcing or planting, with a view to getting good cuttings for new beds in June; these roots may be procured from reliable growers at about 5s. per bushel, this quantity usually meeting the demands of a small grower for stock purposes. About the middle of December, the roots may be lifted and placed in houses, or frames, at once; it is not necessary to ripen the crowns on the benches before forcing, it being best to let them remain in the ground to ripen until required. I think the best method for forcing Mint is to put cuttings in boxes in June, and when the plants have flowered and died down after the first frost, they may be placed in an intermediate temperature, where they will produce good growths before Christmas. These are followed by a batch of roots from the beds, placed on a shallow hot-bed in December, in a frame where the heat may be turned on when required. The roots are placed closely together over the bed and covered with two inches of soil; very little heat should be applied until the shoots are breaking through the soil, when they may be forced fairly quickly. At this stage, a top-dressing of nitrate of soda should assist the colouring of the foliage. A bed may also be made up on a shallow hot-bed in a cold frame in December, and if covered during frosty weather, will give a succession of growths to the Mint grown in heat, until the outside crop is ready for use. This latter crop may be hastened by placing a frame, or hand-light, over the bed, and watering with warm water.

Jerusalem Artichokes.—These may be lifted and, after selecting the tubers for use, and saving sufficient for planting again in the spring, placed in a clamp, where they will keep much better than in a shed.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Melons.—Where ripe Melons are required towards the end of April, seeds should be sown now. To be successful in the cultivation of Melons at this early date, the house or pit devoted to growing them should be so constructed that the plants receive the full benefit of light and sunshine, which is rarely too plentiful at this season of the year. Also, the structure should have sufficient heating facilities to maintain the requisite temperature without having to heat the pipes to excess. A free-setting variety should be grown, two sorts which may be recommended, which set their fruits freely, and are of good constitution, being Hero of Lockinge and Superlative. The white-fleshed fruits of the former are not large, but are of excellent flavour, while the plant is sturdy in growth, Superlative being similar but with scarlet flesh. The soil in which the seeds are sown should be moderately light, and it is important that it be warmed to the temperature of the house before sowing the seeds. It is a wise plan to place two seeds at the edge of a sixty-sized pot. Germinate the seeds in a brisk temperature and in a moist atmosphere; if a hot-bed of fermenting material is not available plunge the receptacles in a box of damp moss, and after placing a sheet of glass over the box, put it immediately over the hot-water pipes. Provided the soil is moist when the seeds are sown, watering should not be necessary until they have germinated, when they should be stood near the roof-glass to promote sturdy growth. In the meantime, the border should be prepared in readiness to receive them, and at this season of the year it should be curtailed somewhat, while to encourage free root action it is advisable to use a lighter compost than is usual for later crops. The night temperature should not fall below 65°, a temperature of 5° to 10° higher being suitable during the day, while on bright sunny days a further rise will be very beneficial to growth. Very little, if any, ventilation is needed until the flowering period.

Early Pot Vines.—So soon as the buds of the early Grape vines in pots commence to swell, the temperature of the house may be raised slightly; a night temperature of 50°, with a rise of 5° or more during the day, should be suitable in cold, frosty weather, but in sunny weather a further rise of 10° may be allowed before a little air is admitted to the house. Water the roots with great care, for while it is fatal to allow the roots to suffer through lack of moisture, it is equally harmful to overwater them. When water is required, soak the soil thoroughly, and spray the rods when the outside conditions will allow. If air is admitted, close the ventilators early. So soon as it can be determined which are the strongest growths, the weak ones should be removed gradually.

PLANTS UNDER GLASS.

By J. Coutts, Assistant Curator, Royal Gardens, Kew.

Liliums.—Lilies for growing under glass should be potted so soon as received, as the bulbs quickly suffer if left exposed to the air for any length of time. If, for any reason, they cannot be potted, they should be laid out in boxes and covered with leaf-soil or some other protecting material. Most Liliums, especially the stem-rooting sorts, require fairly large and deep pots, as there is no doubt the formation of the stem roots is very important for the successful development of the plant. The principal Lilies for forcing purposes, coming to hand at the present time, are Lilium speciosum, L. auratum, L. longifolium and their several varieties. L. speciosum is usually represented by the varieties roseum, rubrum, Melpomene and album; they may all be grown singly in six-inch or seven-inch pots, or three bulbs may be placed in a ten-inch pot. L. auratum bulbs are best grown singly, and an eight-inch pot is none too large for a good bulb. Unfortunately, it is very difficult to obtain bulbs of L. auratum free from disease, and in this respect it is wise to secure the variety macranthum, or platyphyllum, as it is a strong grower and, so far, is not so subject to disease. All the Lilies mentioned above succeed in a compost of good medium loam, using three parts of loam to one of good flaky leaf-soil, or failing that, fibrous peat, with enough clean sand added to keep the whole open and porous. On no account should lime be added to the compost for L. auratum. After potting, the bulbs may be placed in a cold frame, or in the open at the foot of a sheltered wall, covering them with leaf-soil, fibre, or peat-moss litter. L. auratum will, however, succeed much better if kept in a greenhouse temperature. Where L. longiflorum and its varieties are grown for a supply of cut flowers, several bulbs may be placed in a pot, or they may be grown in boxes. All stem-rooting Lilies should be placed well down in the pots, to allow the stem-roots to develop. The pots may be filled with soil, instead of space being left for top-dressing, as is usually done. Lilium Henryi and L. regale are both excellent for pot culture; the latter is so easily raised from seeds that it is surprising this fine Lily is not yet available in large quantities. Lilium sulphureum, L. ochraceum, L. philippinense and L. philippinense var. formosanum are all excellent sorts for the greenhouse, and generally may be regarded as purely greenhouse Lilies. Although L. sulphureum can be grown successfully in pots, it is really seen at its best when planted out in a well-drained bed in a cool greenhouse or conservatory. L. philippinense var. formosanum is easily raised from seeds, flowers being produced in about fifteen months.

HARDY FRUIT GARDEN.

By T. E. TOMALIN, Gardener to the EARL OF BESSBOROUGH, Stansted Park, Emsworth, Sussex.

Christmas Apples and Pears.—Apples and Pears are so much appreciated at this season that no excuse is necessary for enumerating a few varieties of each which are usually at their best now. Of all dessert Apples, Cox's Orange Pippin takes pride of place, and this variety should, if possible, be planted in various aspects so that fruits may be had in first-class condition from October to February. It would, however, be very unwise to rely solely on this rather delicate variety, especially as there is no lack of other varieties in good condition at this season, a few of the best being Claygate Pearmain, Christmas Pearmain, Cockle's Pippin, Allington Pippin, Ribston Pippin and Adams' Pearmain. Pears are rather more variable in regard to their time of ripening, this period being hastened by dry, hot weather during autumn, or retarded when the opposite conditions have prevailed. There should, however, be fruits of some of the following varieties available for use at Christmas: Joséphine de Malines, Santa Claus, Glou Morceau, Monarch, Olivier de Serres and Beurré de Naghan.

Pruning Bush Apples and Pears.—Care and forethought are necessary when pruning young trees if shapely and well-fruited specimens are to be produced. The leading shoots on each branch should be pruned to a bud pointing in the direction in which the branch is desired to extend. Very young trees which have not yet formed the requisite number of branches should have their leading shoots cut just above a pair of buds pointing left and right, in order to induce two leading shoots to grow wherever desirable. The centre of the bush should be kept open, the branches being encouraged to develop into a cup-shaped system.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to the DUKE OF DEVONSHIRE, Chatsworth, Bakewell, Derbyshire.

Garden Hedges.—When the planting of a new garden hedge is contemplated, it is important that the ground is prepared thoroughly beforehand, bearing in mind that it will be occupied for some years. If the soil is not naturally fertile, steps should be taken to enrich it sufficiently to ensure quick and healthy growth A well-kept hedge is an ornament to the garden, whether it is planted merely as a screen, or because certain shrubs are preferred grown as hedges by the sides of walks, or to form a background for an herbaceous border. There is a sufficient variety of shrubs suitable for growing as hedges, both evergreen and deciduous, to suit all tastes and requirements. Many flowering shrubs are suitable for growing as low hedges, one of the greatest favourites being Lavender. It is attractive in the summer when in flower, and its glaucous, bluish-grey foliage is always a telling feature in the garden landscape. Hedges of the common Sweet Briar are always charming when seen in good condition. When planting these, it is necessary that the plants be cut back fairly hard the first season or two to ensure a well-furnished base; a Sweet Briar hedge has a decided tendency to become leggy and bare at the base if not properly attended to in the early stages of its growth. The Penzance Briars are very popular for growing as hedges, but they should have something strong and substantial to train them to, such as a strong wooden or iron fence. A hedge of this kind requires considerable care in training to keep it in good condition. To ensure the best effects in the flowering season, most of the old wood should be removed as near the base as possible, the strong, new growths being disposed evenly over the supports. The best time to do this is immediately after flowering, so that the new growths receive the maximum amount of sunshine and air to thoroughly ripen them. Many of the stronger varieties of the Wichuriana and Polyantha types of Roses make a magnificent floral spectacle when in bloom and grown as a hedge. These Roses, being of rampant growth, require practically the same treatment as the Briars. For the first few seasons after planting there will be very little old wood requiring removal, but after they are well established and the fence or supports well furnished, the removal of the old wood should be done systematically so as to keep the hedge in good condition. When planting hedges, the ground should always be trenched deeply and manured well; this will last them a season or two, but established hedges should be kept thoroughly clean, and at this season be given a dressing of well-decayed manure. There are many flowering shrubs which make most interesting hedges when not restricted by clipping into a formal shape. Any pruning necessary should be done directly after the flowering season.

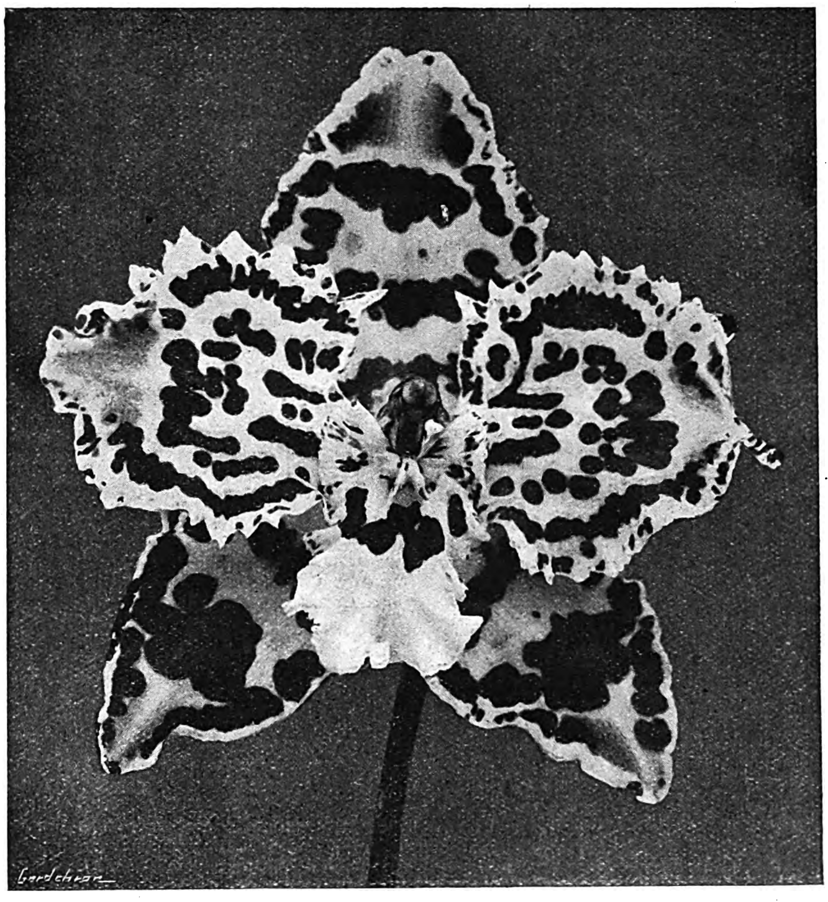

FIG. 214.—ODONTOGLOSSUM ELDORADO, CLAYGATE LODGE VARIETY.
R.H.S. First Class Certificate, December 11. Flowers red and blush. Shown by the Executors of the late J. J. Bolton, Esq. (gr. Mr. S. Lyne), Claygate Lodge, Claygate.
(see p. 477.)

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener at Jordanhill Training Centre, Glasgow.

Evergreens.—The heading back of overgrown and neglected Hollies, Laurels, Yews, etc., may, if convenient, be left until about this time, as there are so many enquiries for these for decorative purposes just now that it forms an excellent example of "killing two birds with one stone." The amount of decorative material obtained from a few overgrown plants is very large, and by making arrangements that those desirous of having it, fetch it themselves, it proves a ready means of disposing of what would otherwise have to be burned. All cut surfaces on the plants should be carefully trimmed with a sharp knife or chisel after being sawn, and painted over with some dark-coloured paint or tar. Half-hardy or tender evergreens should be treated more carefully and only those branches removed which would, in time, spoil the symmetry of the specimens; nothing can be more provoking than to see shapely plants of such subjects as Myrtus Luma, Tricuspidaria, Pittosporums, etc., ruined by an ignoramus armed with a pair of loppers.

Planting.—The weather conditions during the latter half of November were very hindering to all outside work, and planting operations were delayed. So long as the weather remains open, therefore, all arrears of this nature should be completed as rapidly as possible, and should frost intervene, arrangements must be made to carefully heel in all lifted plants, so that their roots are protected. Recently planted trees and shrubs should be examined, and where required, freshly staked, as it sometimes happens that the original stakes are put in at random, and when windy weather occurs they sometimes do more harm than good by chafing the bark of the trees they are supporting. Recently planted Roses, also, are apt to sway about, leaving holes around the stems, which generally fill with water during wet weather; should a sudden fall in temperature take place, this water may freeze and do irreparable damage at the junction of bud and stock. Any extra long Rose shoots should be reduced by half and the plants again made firm by treading. Young fruit bushes should also be kept erect and in position during their first year or two, after which, in most cases, they will be sufficiently rooted to remain erect without supports.

INDOOR PLANTS.

BURBIDGEA NITIDA.

This is an excellent subject for growing in the border of a warm greenhouse, or in large receptacles. The growth and flowers are not unlike those of Hedychium and the plant requires similar treatment, except that a higher temperature is necessary. The bright, orange-scarlet flowers are produced in a terminal panicle and are, individually, of appreciable size, while the leafy stems are also decorative, being from two to four feet high.

A rich and somewhat retentive soil is required by this subject, and a partial winter rest is advisable, although the soil should not be allowed to become too dry; the plants, if grown in pots, should be wintered in a warm house.

B. nitida was introduced from north-west Borneo in 1879, by, I believe, Messrs. J. Veitch and Sons; it is figured in *Bot. Mag.*, t. 6403, and the generic name commemorates its discoverer, F. W. Burbidge, well-known as a plant collector and writer. *Ralph E. Arnold.*

DATURA SUAVEOLENS.

Now that scented plants are in such great demand, what could be more beautiful or more easily grown than the Moonlight Flower of Madeira, Datura suaveolens, commonly known as Brugmansia. In June and again in October, its delightful fragrance fills the air, and the pure white, trumpet-shaped flowers, in large clusters, form a most beautiful picture. There is a plant here flowering for the second time this year. In June the sweet perfume of its lovely flowers attracted great admiration, and at the present time its scent is scarcely less pronounced.

The specimen alluded to is growing in a twelve-inch pot; it is five feet high, and during this, its second year of growth, it has produced over one hundred flowers.

Cuttings of the young growths are rooted easily, and if kept growing in a cool greenhouse, potting them on as required, good specimens may be secured the first year. If planted out in a border, in a light position in the greenhouse, they make much larger plants, and with very little attention provide a great display. *T. B.*

BREDIA HIRSUTA.

This is a charming member of the Natural Order Melastomaceae, producing its small, rose-pink flowers in great profusion, usually during late summer and autumn. It naturally forms a small, bushy shrub, and requires little or no stopping. Cuttings root readily in a warm propagating case, and the plants enjoy a growing temperature of 55° to 60°; when they are in flower, however, they may be placed in an ordinary greenhouse.

Bredia hirsuta should be grown in a light compost consisting of equal parts loam, peat, leaf-soil and sand; the pots should be well-drained and careful watering is essential.

ACOKANTHERA SPECTABILIS.

Acokanthera (syn. Toxicophlaea) spectabilis, from South Africa, is a small evergreen tree or shrub, which produces a profusion of white, sweetly-scented flowers during the winter months and therefore is ideal for growing in an intermediate or warm greenhouse. It is, perhaps, seen at its best when planted in a border and grown as a bush, or trained up a pillar or wall, but specimens may be grown successfully in large pots or tubs, while young plants in small pots also flower freely, specimens in six-inch pots being excellent for furnishing the benches of a warm greenhouse.

This subject grows freely in any good potting compost, while cuttings root readily if placed in a warm propagating case.

LYGODIUM JAPONICUM AND L. SCANDENS.

These two species are the most common representatives in gardens of this scandent genus of Ferns, but they are still worthy of more general cultivation, for the long shoots are, in the cut state, very useful for general decorative work, while in the cool or warm greenhouse they make beautiful specimens when trained up back walls or pillars; if required for furnishing a supply of cut material, the climbing shoots are best trained up thin string, in the same way as Smilax and Asparagus.

These Lygodiums thrive in a compost of good loam and peat, with enough sand added to keep the whole open and porous. For ordinary purposes they may be grown in pots, but where required in quantity for cutting, they are best planted out in a well-drained border, or in boxes. *C.*

ALPINE GARDEN.

ERODIUM CHRYSANTHUM.

Geraniaceae contributes many useful and valuable plants to our gardens, and the genus Erodium does not shirk its duty in providing us with many important and beautiful members.

The most attractive, in my opinion, is E. chrysanthum, a lovely native of the Grecian mountains. As a foliage plant alone it demands a place in the rock garden, and compels admiration. It is best planted in a vertical crevice where it may flaunt its tufts of soft, silvery leaves, which are delicately cut and feathered. Throughout the summer branched stems, which rise above the sheeny foliage, bearing dainty sulphur-yellow flowers, tone admirably with the silvery foliage.

E. chrysanthum makes a thick root-stock. It is perfectly hardy, but is liable to die off during wet winters. A south aspect suits it and a well-drained, preferably calcareous soil. As stated above, it likes a crevice in which to grow, and I think it is seen at its very best when on Westmoreland limestone, which makes an ideal background for so charming a subject.

Seeds are not always set, but if they may be obtained, they should be sown in spring, although in plants raised from seeds the colour of the foliage often varies, which is not a rare occurrence among silvery-leaved plants.

A sister plant to E. chrysanthum is E. Sibthorpianum, which also hails from Greece. In growth it is very similar to E. chrysanthum, differing mainly in the colour of the flowers, which are rosy-lilac. Both may be propagated by cuttings. *D. Richardson.*

CERATOSTIGMA PLUMBAGINOIDES.

Among autumn-flowering alpine plants, Ceratostigma plumbaginoides, or Plumbago Larpentae, as it is most frequently known in gardens, is an attractive plant by reason of its plumbago-blue-coloured flowers, borne in terminal heads, and growing about one foot in height, while its foliage is more or less tinted with red. As it is easily grown in any good garden soil, and spreads rapidly, it should be planted with plenty of space at its disposal.

An excellent use for this pretty plant I recently noted at the Chelsea Physic Gardens. Mr. Hales, the Curator, has planted it out on a raised bank among large stones, where its roots have every opportunity to ramble, and this position evidently suited it, as at the time of my visit, the bank was a glorious mass of violet-blue. It is an old inhabitant of gardens, as it was introduced from China in 1846. *E. Scaplehorn, Beckenham.*

MERTENSIA PRIMULOIDES.

This extremely attractive subject occasionally proves rather exacting in its requirements, but perseverance wins its reward in heads of dainty flowers, that change colour as they open, so that some blossoms are ruby, some pale and others deep blue at the same time.

I find that this plant does best in half-shade, in a deep soil of mellow loam and leaf-mould, and in close proximity to a large stone; I afford the plants a little protection from winter damp, but am not prepared to state that this is really necessary. So placed, M. primuloides does well and flowers freely. *R. E. A.*

PHYTEUMA ORBICULARE.

The choicest of the Phyteumas, or Rampions, is P. comosum, but it is difficult to grow in ordinary conditions, and cannot be recommended as a plant for everyone. The Round-headed Rampion, Phyteuma orbiculare, is of quite a different character, and may be grown in a border or in almost any rock garden or small rockery. It is not a plant with the innate attractions of some of the others of the genus, but it is not to be despised. It grows about a foot in height and produces, on sturdy stems, round heads of deep blue flowers. It is thoroughly hardy, as may be supposed, seeing that it is a native plant, being found in several parts of this country. In nature, it is found on chalky soils, so may be supposed to have a penchant for lime or chalk in the soil, but it does not appear to resent growing in a lime-free compost.

P. orbiculare is easily increased by division of old plants or by seeds sown under glass or in the open in spring. It flowers for a considerable time in summer, and is best grown in sunny places. *S. Arnott.*

HARDY FLOWER BORDER.

EREMURI.

These stately plants of the Lily family are hardy only in the sheltered gardens of the south and south-west of England. They should be given the driest and most sheltered position in the garden, and in early spring, as growth commences, they should be protected from frost by placing hand-lights, or any dry material, such as Pine needles or Bracken, over them. A position in full sun is most suitable and a rich, deep, loamy soil is the best for them; if the soil is rather poor an annual dressing of manure should be applied.

The stout, erect scapes bear spicate racemes of beautiful white, pink or yellow flowers, the inflorescence often reaching a height of from six to ten feet in some species. The chief enemy of the genus Eremurus is dampness, especially during the winter and early spring, for if water is allowed to remain in the crowns for any length of time it is liable to spoil the appearance of the spike for the whole of the season.

E. robustus and E. Olgae came from Turkistan in 1874. The former is pale pink, and grows to a height of from six to ten feet, while the latter is lilac-white. The next species to be introduced was E. himalaicus, in 1871, which has white flowers and exceeds five feet in height. E. Bungei, a dwarf species, is an attractive plant, having yellow flowers with orange anthers, and it is of comparatively recent introduction. Among other kinds, E. robustus Elwesianus, with flesh-coloured flowers, is especially attractive.

Propagation is effected by seeds sown so soon as ripe, the young seedlings being grown in frames until three years old, and then transferred to their flowering quarters. *F. S. Banfield.*

RUDBECKIAS.

The genus Rudbeckia comprises some twenty or more species, but only a few are common among our modern herbaceous plants, and these are not so widely grown as their merits deserve. They are known as Cone-flowers, because the disc-flowers are arranged on a prominent cone-like centre, from the base of which the elongated ray-florets extend in graceful beauty. The free-flowering habit, long slender stems, prominent, central, dark-coloured cone and drooping, elongated ray-florets combine to give many of these plants a light and graceful appearance, altogether in contrast to the usual heaviness of our border Composites.

Perhaps the one exception to this is the well-known double variety of R. laciniata, Golden Glow, which is indeed a heavy plant, but effective in the back of large borders or for massing in bays of the shrubbery. This appears to be the only double-flowered variety, and is probably more largely grown than any other Rudbeckia, although, to many, the type has greater attractions. R. speciosa (Newmanni) is a highly decorative border plant, its prominent black centre and rich orange-yellow ray-florets giving it a striking appearance. The stems are freely branched below, but the flower-heads are borne singly on long, wire-like stalks, and are highly appreciated for cutting.

R. hirta is of similar habit, but rather less showy, the central disc being less prominent and the ray-florets shorter. It is also not truly perennial and should be raised from seeds regularly. R. pinnata is probably the most elegant species of the genus and a very decorative plant, its long, drooping, pale yellow ray-florets, suspended from the base of an almost black, somewhat miniature cone, giving it a striking appearance. It is also very useful for cutting and exhales a pleasant anisate odour. No plants are more easily grown than the Rudbeckias, for they thrive in almost any type of soil, and are freely increased by seeds or division. *W. A.*

TREES AND SHRUBS.

ACTINIDIA CHINENSIS.

The several notes that have appeared recently on the above fine vine, and the fact that one correspondent has the fruiting form, prompts the remark that if this is also in cultivation, it is the easiest possible matter to graft it on the male form and have both. We have found that this Actinidia is the easiest subject to graft; scions will unite overnight, as may be proved by using two branches, grafting them, and placing them in a warm, moist house, and the next day new cambium will have formed.

Actinidia chinensis is hard to root from cuttings, but may be layered easily; with us, it will climb to the top of the highest trees. The fruits are very palatable, easily peeled after scalding, and, in China, they are making an excellent "Gooseberry" jam of it—this is said to be the invention of a canny Scot. Seeds when available, are germinated readily, and the seedlings, when large enough, are easily grafted with both forms if desired. There is a suspicion here that there are plants that possess the ability to fruit when planted alone; we have seen this occur, and can only reason that some individuals possess both reproductive organs. *E. O. Orpet, Santa Barbara.*

RARE LATE-FLOWERING SHRUBS.

There are many gems in the genus Lonicera, the Honeysuckle, but few so beautiful as Lonicera grata, Soland., from North America. Imagine Lonicera Periclymenum grown into a shrub about five feet high and wide, with many slender, crooked, twiggy growths, and grey-green foliage; then in June and July and early August, the whole bush covered with the characteristic, brilliant crimson and cream-coloured flowers, exhaling the typical sweet scent, and a conception of L. grata may be obtained. It is a very uncommon and excellent plant that should be grown universally; it is fond of the sun, but delights in a cool root-run. Enhancing its value, the leaves are semi-evergreen; they are oval, about one-and-a-half inch long by half-an-inch wide, and are oppositely disposed. The whorls and the individual flowers are not quite so large as those of L. Periclymenum, but, being so freely displayed, the plant suffers no lack of beauty on this account.

A small deciduous tree is Clerodendron trichotomum, a native of China and Japan, which flowers from July to September. The branches are clothed with large, ovate, or oval leaves, about seven inches long and four inches wide; they are limp and drooping, and emit a heavy, sickly odour when bruised. In striking contrast are the flowers, which are deliciously and strongly fragrant, white, star-like, and with a ruddy calyx. They are borne in loose cymes in the leaf-axils on the peculiar, fan-like branches—a mode of branching dear to the Japanese, and comparable to that of the Phellodendrons, and, in a lesser degree, to Zanthoxylum Bungei. Unfortunately, it often looks unsightly in spring, as some of the previous season's late, unripened growths usually die back during the winter. It may be increased by means of its generally abundant suckers, or by root-cuttings. The flowers are followed by blue-black fruits.

Two late-flowering shrubs of great value are Hydrangea quercifolia and H. Sargentiana. The former has irregularly-lobed leaves of dull, soft green, downy beneath. In the last weeks of June the large, rounded panicles of greenish, fertile flowers begin to appear, decorated with sterile, creamy-white blooms, which change with age to a dull crimson. It is quite hardy here, a large bush, four feet in height and five feet through, giving, every year, a fine late summer and autumn display, for the flowers continue until the beginning of December, while many of the leaves become richly coloured before they drop in winter. It is uncommon, although introduced in 1803 from the warmer parts of eastern United States.

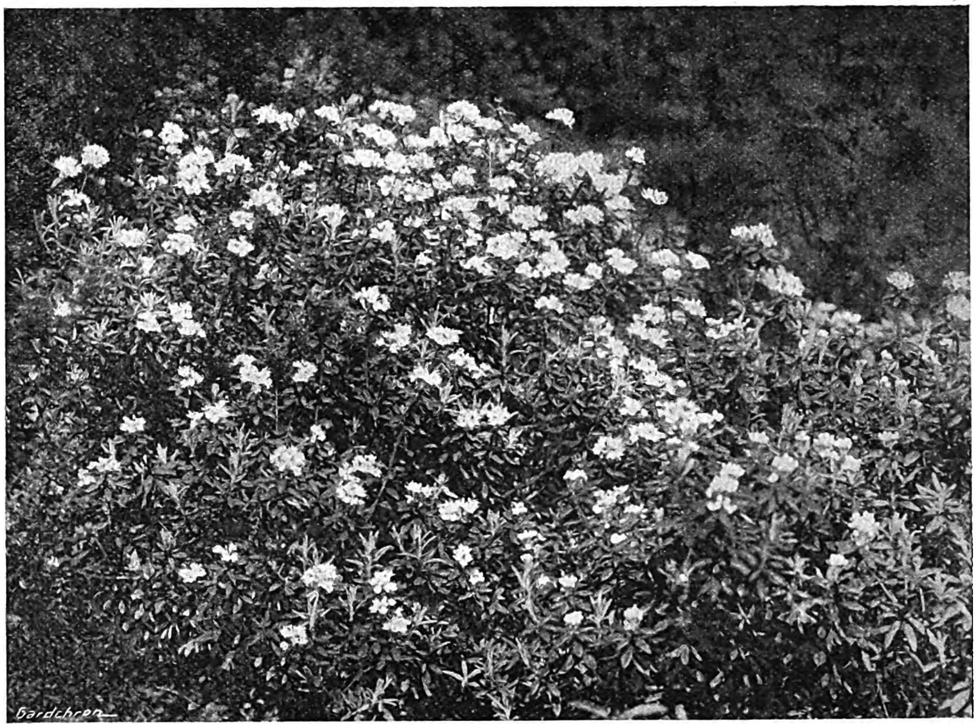

FIG. 215.—THE SUMMIT: A GROUP OF LEDUM LATIFOLIUM.

From West Hupeh, China, comes H. Sargentiana, a very distinct and imposing shrub. It is of gaunt habit, the growths being over-topped by magnificent, heart-shaped leaves, which are dull green and velvety, and which are, in turn, crowned by the great, wide corymbs, on fat, hairy stems, of rich lilac, fertile blooms, around which show to advantage the large, white, sterile flowers. It was introduced into cultivation in 1908, and flowered for the first time at Kew three years later. Not being quite hardy, it is best afforded a sheltered, semi-shady corner, for uninterrupted sunlight is too strong for the leaves, and the long stems require some protection from the wind.

It is a great pity one does not see Hedysarum multijugum more frequently, for this Leguminous shrub has many good points. It delights in poor soil and full sun, while it finds its way through other small shrubs, and does not suffer from being overcrowded; in fact, it should be planted among others to conceal its somewhat untidy growth. It flowers in summer, continuing in bloom until the end of October. The leaves are delicately pinnate and greyish-green in colour, which contrasts beautifully with the axillary racemes of rich and brilliant crimson-purple, not magenta, Pea-shaped flowers; the colour is, however, sufficiently brilliant to warrant careful placing. It is especially desirable for planting in a warm, dry position, or it may be planted among early-flowering Brooms. The seeds should be collected so soon as the petals have turned brown, as they fall quickly. H. multijugum is a native of Mongolia.

One of the most beautiful and important of the shrubs which flower in autumn is a Chinese Privet, Ligustrum Quihouii. Unlike its popular hedge-forming relatives, it is neither evergreen nor of dense bushy habit. The long, slender, sparsely-leaved branches arch upwards and outwards, giving the shrub an elegant appearance, and affording no lack of interest during spring and summer. Towards the end of August, the interest is quickened, for at the end of all the summer's growths appear creamy buds in lengthening panicles, large or small, according to the size of the branch that bears them. Then, during September, the magnificent sprays of white, bending beneath their own weight, waft their sweet scent generously to the passer-by. In a good season the flowering period of this excellent plant extends to October, the panicles being up to eight inches in length and three inches wide; the leaves are about one-and-a-half inch long. It was cultivated for the first time in France in 1862. M. Quihou, after whom it was named, was at one time the Superintendent of the Paris Jardin d'Acclimatation.

Strange to state, at the time of writing, a Rhododendron is flowering bravely. It is R. parvifolium, from Siberia and Korea, a shrub of thin, neat habit, with bronzy-grey leaves and small terminal clusters of soft, rosy-lilac flowers, which are very sweetly scented.

May I thoroughly endorse *M. W.'s* notes on Aesculus parviflora, in *The Gardeners' Chronicle* for December 18, p. 448—it is a fine shrub, and will fight its way to the light in crowded places, while it will flower even in the shade of other trees. *Graham St. Thomas, University Botanic Gardens, Cambridge.*

TEUCRIUM FRUTICANS.

The Shrubby Germander, as this member of the Natural Order Labiatae is called, is an attractive subject for planting against a wall where a shrub of moderately low stature is required. Under natural conditions—it is a native of southern Europe—it attains a height of up to eight feet, and probably approaches this in the warmer parts of these islands, but in the cooler districts, three feet, or possibly four feet, is usually its limit, as the growths are liable to be cut back during severely cold weather, even although the plant is afforded the protection of a wall, a condition advisable in all but the most favoured areas. Warmth is essential to its well-being, for unless it receives ample sunshine and is planted in well-drained soil of rather light texture, the lustre of the growths and the freedom of its flowering will be impaired.

T. fruticans is practically evergreen, its spreading growths, which are square and clothed with a white, felty covering, being furnished with oppositely placed, ovate leaves, broadly wedge-shaped or rounded at the base, and rather blunt at the apex; they are up to one-and-a-half inch in length, the upper surface being rich green and the lower covered, in the same manner as the stems, with silvery-white down, which character alone makes this shrub one of distinct charm.

During the latter part of summer, and on through the autumn, the growths of the current season's production carry flowers of unique construction and undoubted charm; they are produced singly on the axils of the small leaves or bracts on the uppermost parts of the growths, and form racemes about four inches long.

The corolla is lavender-blue or pale purple in colour, tubular at the base, where the four long stamens are attached, and spreading out into a broad, five-lobed lip. As may be imagined, the combination afforded by the colour of the flowers—when produced freely—and the silvery-white of the stems and leaves is very attractive, and if, in spring, the growths are shortened back, this charming effect may be produced annually.

T. fruticans presents no difficulty with regard to propagation, for if, during late summer, shoots are removed with a "heel" attached and inserted in sand in a cold frame, the large majority will be found to root readily. The plants should, I consider, be grown on for a year in pots before planting them out in their permanent quarters, this latter operation being best performed during the spring, when danger from severe frosts is passed.

This shrub was, apparently, introduced to this country so long ago as 1714, by the then Duchess of Beaufort. *W.*

WILD GARDEN.

ASTRANTIA MAJOR.

The Astrantias, belonging to the Natural Order Umbelliferae, may be described as rather more curious than attractive; they are, however—and especially A. major—useful for growing in the wild garden, or in semi-woodland, for they like partial shade and are not particular with regard to soil. A. major is the most serviceable, for although A. helleborifolia has larger and brighter flowers, of a clear pink colour, the blooms have an unpleasant odour, and the plant is inclined to be straggling.

The subject of this note, with its glossy, rich green, palmately-lobed foliage, may be usefully employed along the borders of woodland paths or in grassy dells. It grows to a height of about two feet, the stems being crowned with heads of curious flowers with radiating, often coloured bracts; they are greenish-white, sometimes tinged with pink. It is a good perennial, and when once established requires no further attention, for it spreads freely and seeds itself about.

There is also a dwarf Astrantia, *i.e.*, A. minor, which grows to a height of six to nine inches, and has rose-tinted inflorescences and which, although not striking, might well be given a semi-shaded position on the rock garden or in the woodland. *M. W.*

THE GENUS PRIMULA.

(*Continued from p.* 473.)

HELVENACEA (Balf. f.). Bald P.

(Nivales.)

A rather handsome perennial species with a tuft of long-stalked foliage, with small blades in comparison to the length of the stalk. Leaves three to four inches long, with egg-shaped-oblong, blunt or rounded blades about one inch long, gradually tapering to a narrowly-winged stalk dilated and clasping at the base, where it is purplish: margins of blade furnished with small lobes, which are edged with small, blunt teeth; upper surface sparsely coated with yellow meal, underside densely so. Flower stem seven to nine inches tall, stout, more or less covered with yellow meal, bearing an umbel of about eight reddish-purple blossoms, on deeply-tinted stalks from three-eighths- to one-and-a-quarter-inch long, mealy at the base. Corolla about one inch across, membranous, divided into five egg-shaped, spreading, retuse, bluntly-toothed lobes; tube cylindrical, about half-an-inch long, with a ring in the mouth.

This species grows near the Atuntsu Precipices of the Mekong-Salween divide, in north-western Yunnan, at 15,000 feet above sea-level.

Culture: As for P. calliantha.

HENRICI (Burr. et Franch.). Henric's P.

(Bullatae.)

A densely leafy plant with woody stems clothed with the remains of the previous year's foliage. It produces tufts of lance-shaped, somewhat blunt leaves, three-quarters- to one-and-a-half inch long, gradually tapering to a narrowly-winged stalk; margins sub-revolute, sinuately toothed; upper surface glandular-pubescent and acquiring a rosy tint when mature, underside covered with white down. Flowers solitary, on slender, glandular-pubescent stalks about one inch long. Corolla three-quarters-of-an-inch across, divided into five broadly heart-shaped, deeply-cleft lobes; tube cylindrical, about half-an-inch long, many times longer than the calyx. The colour of the flowers has not been recorded; they are probably pink or yellow. Not in cultivation.

Grows in clefts of rock and cliffs between Lhasa and Batang, Tibet.

Culture: This plant would probably succeed under the same treatment as advised for P. Forrestii.

HENRYI (Hemsl.). Henry's P.

(Carolinella.)

This robust plant was formerly considered to belong to a separate genus (Carolinella) by Professor W. B. Hemsley, but was included in the genus Primula by Pax. It produces a tuft of smooth, leathery, lance-shaped leaves on stalks equalling the blade in length, in all about sixteen inches long; margins furnished with spiny teeth. Flower stem twelve to twenty-four inches tall, erect, rather slender, bearing a short raceme or loose umbel of ten to twenty small blossoms, the colour and shape of which has not been recorded. Not in cultivation.

Grows on the mountains of southern Yunnan, near Mengtze, at about 5,000 feet above sea-level.

Culture: This plant would probably succeed under the same treatment as afforded members of the Nivalis group and would, no doubt, need protection in winter, as it is a native of a rather warm and sheltered locality.

HETERODONTA (Franch.). Pale-tubed P.

(Cuneifolia.)

This species is considered by some botanists to be a microform of P. cuneifolia. It produces a tuft of smooth, non-mealy leaves, one to two inches long, rather thin in texture, with oval, pointed blades tapering to a winged stalk equalling or slightly shorter than the blade; margins coarsely toothed. Flower stem slender, three to six inches tall, bearing a many-flowered umbel of violet blossoms, with pale tubes. Corolla flat, about three-quarters-of-an-inch across, with very broadly heart-shaped, bifid lobes, the segments diverging; tube a little longer than the calyx.

Grows in damp places on the Iwagison mountains of northern Hontō, Japan.

Culture: As for P. cuneifolia.

HEUCHERIFOLIA (Franch.). Heuchera-leaved P.

(Cortusoides.)

A deciduous perennial, with a loose tuft of bright green leaves with nearly circular blades about three inches across, heart-shaped at the base, borne in a horizontal manner on slender, hairy stalks three to four inches long; margins of blade divided into seven to nine lobes, which are again divided into smaller lobes or coarse teeth; both surfaces sparsely hairy. Flower stem usually flexuous, hairy, six to eight inches tall, bearing a somewhat drooping umbel of three to ten lilac-purple or violet-purple blossoms, usually with a dark or pale eye, on fairly long stalks. Corolla nearly flat, or rather concave, half- to five-eighths-of-an-inch across, divided into five rounded, shallowly-notched lobes; tube cylindrical, about three times as long as the calyx. Flowers in May.

Grows in half-shady places in rather rich soil on the mountains of north-western Yunnan and south-eastern Tibet.

Culture: Good fibrous loam and leaf-soil and a cool, shady, sheltered spot, seems to suit this plant best. It is quite hardy and easily grown.

HEYDEI (Watt). Heyde's P.

(Minutissimae.)

A densely tufted, spreading perennial species producing its rosettes of foliage on stout, creeping stolons. Leaves a quarter- to half-an-inch long, lance-shaped, pointed, coarsely-toothed, clothed with pale coloured meal below. Flower stems one to three inches tall, rather stout, clothed with meal upwards, and bearing an umbel of about half-a-dozen pale lilac blossoms on short stalks. Corolla nearly half-an-inch across, flat, divided into five broadly heart-shaped, notched lobes; tube cylindrical, many times longer than the calyx. Flowers in July. Not at present in cultivation.

Grows in rocky soil on the mountains of western Tibet, at 12,000 feet to 14,000 feet above sea-level.

Culture: It may be tried in sandy peat and friable loam in a frame or cool greenhouse, with plenty of moisture in the air and at the roots when in active growth. The plant has not, so far, been successfully cultivated in this country.

HIRSUTA (All.). Hairy P.

(Auricula-Erythrodosum.)

A beautiful perennial species from the alpine ranges of Europe, with a tuft of broadly oval or diamond-shaped, blunt leaves, one inch to two-and-a-half inches long, narrowing somewhat abruptly to a distinct stalk; margins distinctly or obscurely toothed; both surfaces clothed with coarse, yellowish or reddish, glandular hairs. Flower stem two to three inches tall, glandular, hairy, bearing a many-flowered umbel of bright pink, mauve, or occasionally pure white blossoms. Corolla three-quarters-of-an-inch to one inch across, divided into five broadly heart-shaped, notched lobes; tube cylindrical, about half-an-inch long, much longer than the calyx. Flowers in April and May.

Usually found on rock and moorland ridges, on granite formations, from the Pyrenees, throughout the Alps of central Europe, so far as the Dolomites.

Var. angustata (Widmer.), has oblong foliage, narrowing to a distinct stalk; there is a flower stem present, and the flowers are rose-coloured. Maloja.

Var. exscapa (Pax.), has nearly stalkless leaves; flower stem short or obsolete; flowers rose-coloured. Mount Javernaz.

Var. nivea (Sims.), has white flowers; it is a garden form which blossoms in March and April.

Other forms are var. ciliata coccinea, lurid scarlet, and var. ciliata purpurea, purplish-mauve.

Culture: Plant them in good friable loam and sand, well supplied with water when the plants are in growth, in a position with a southern exposure; mulch the bed in spring.

HOFFMANNIANA (W. W. Sm.). Hoffmann's P. (Petiolaris-Sonchifolia.)

A dwarf, tufted perennial, somewhat resembling a Primrose in habit, with membranous, slightly mealy or smooth, narrowly egg-shaped, blunt leaves, gradually tapering to narrow, winged stalks, or nearly stalkless, in all from three-quarters-of-an-inch to two inches long and about half-an-inch wide; margins edged with sharp, irregular teeth, as though gnawed by insects. Flower stem almost obsolete; flowers borne on slender stalks two to four inches long. Corolla nearly flat, five-eighths-of-an-inch to one inch across, divided into five egg-shaped, notched, blunt lobes; tube cylindrical, about half-an-inch long. Not in cultivation.

Grows in rocky positions on the mountains of south-eastern Tibet.

Culture: As for P. Edgeworthii. *W. E. Darnell.*

(*To be continued.*)

NOTES FROM A WELSH GARDEN.

Among the various shrubs and trees which carry their ripe fruits through December and even into the New Year, some of the Cotoneasters hold a foremost place. C. pannosa stands out among those of its genus as a winter-fruiting species which retains its rich crimson, drooping clusters longer than any other grown here. Its ally, C. Francheti, may run it close in this respect, but, good as it is, it is not to my mind so elegant in habit as C. pannosa, and for some reason difficult to determine, the birds will clear every berry off the former before they touch the latter's generous crop. Common as it is, I often think C. Simonsii does not receive all the appreciation it deserves, for in addition to the many practical uses to which it so willingly adapts itself, its ornamental value can be exceedingly high. A few bushes planted against an old shed have lately been more brilliantly coloured than anything else in the garden, and that for a longer period. The leaves are still, in December, a blaze of vivid orange and blood-red, while the many fruits, some of which are nearly as big as Horse Beans, are an intensely bright and glossy crimson-scarlet, and these we shall have all the winter.

Most of the deciduous Barberries look very sorry for themselves after a few degrees of frost, but B. dictyophylla is an exception that deserves mention for the commendable way in which it clings to its autumnal beauty. The rosy-glaucous stain of its bark and the white underparts of the leaves, in combination with the bright scarlet of some of the latter, the pale emerald-green of the others and the large, red, egg-shaped fruits, together produce a colour effect of singular loveliness, and one that prevails here until well into winter.

Hymenanthera crassifolia, that curious New Zealand semi-evergreen shrub which is a member of the Violaceae, also carries its fruits far beyond the season of most things. Its white, globular berries, often stained with a leaden colour on one side, are, unfortunately, borne underneath the branches, but this cunning concealment of its property may tend to save the latter from hungry birds. All the Pernettyas are so admirable from autumn onwards, and so delightful for table decoration indoors, that one wonders why they have not been more widely taken up by the trade at Christmas time. In the open woodland, the Heath garden and many other places where their rambling propensities need not seriously disturb us, their brightly-coloured, heavily-berried twigs, dark lustrous foliage and ruddy bark, are unrivalled during the gloomiest season of the year.

A young specimen of Callicarpa Giraldiana, a Chinese species, was not particularly attractive when it flowered in July, although it promised much when in the bud stage. However, its bright rose-lilac berries, about the size of Peas, are a pleasing and unusual colour, and they are retained for several weeks after the leaves have fallen. This little bush looks like being a decided acquisition to the late autumn garden when it gets established.

Where they do well, the Skimmias are very ornamental at this season, in spite of a rather stiff and formal appearance, which does not always blend very happily with other shrubs. To make room these have been reduced here to one old male plant of S. japonica. This lonely widower earns his place by emitting such a delightful fragrance throughout the very early spring (and not infrequently in autumn) that he fully qualifies for the name of S. fragrantissima under which he came here years ago.

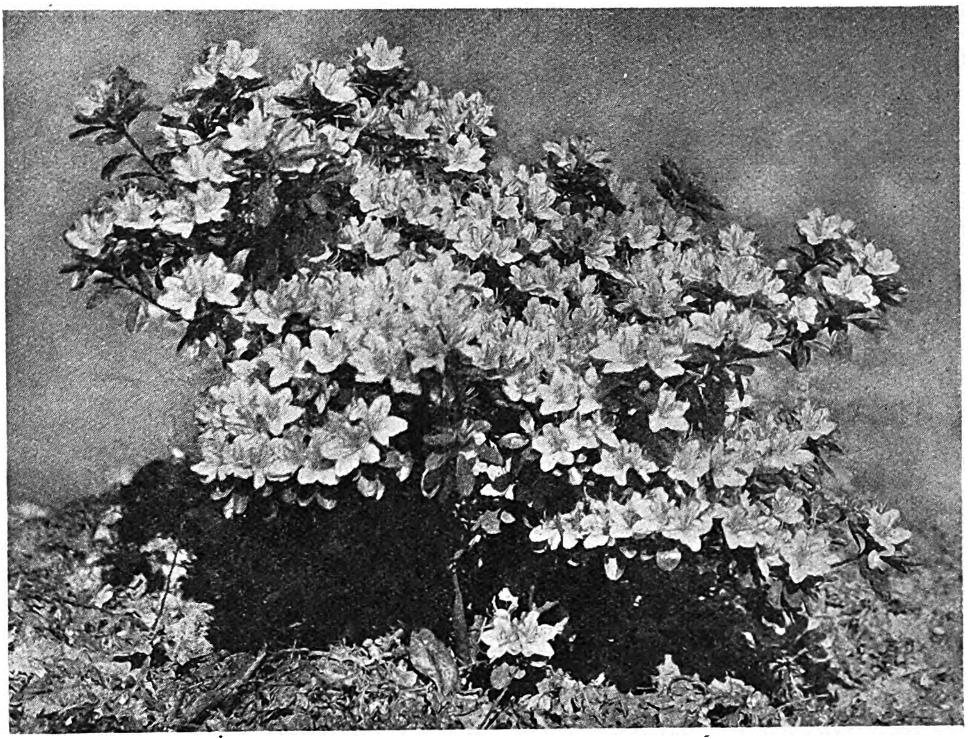

FIG. 216.—THE SUMMIT: AZALEA OBTUSA VAR. AMOENA.

Polygala Chamaebuxus purpurea never fails to flower profusely throughout the darker days of the year, and the woodland gardener who possesses a good form of this hardy, cheerful little shrubby Milkwort has a priceless treasure. Here, at any rate, it is a regular and prolific flowerer, not only at this season, but throughout the spring. I have tried several forms of P. C. purpurea, but none of them come up to a very broad-leaved one which is also large in the blossom and quite a good colour, although, perhaps, not quite so vivid in the purple as some of the named varieties. As a general rule, Erica hybrida darleyensis breaks into flower at the same time as this Milkwort, but for some unaccountable reason it is not yet showing colour, and will be several weeks behind its usual date.

Correa var. speciosa magnifica hardly earns its varietal name, but in winter-flowering shrubs one is not so exacting, and there is, after all, a certain charm of elegance in the inch-long bells of this Australian evergreen, even if they are only a pale greenish-white in colour. These blossoms are almost cylindrical in shape, with prettily cut segments and protruding stamens. In the bud they look like tiny acorns pushing out of brown-felted cups, and at that stage appear to be able to withstand considerable frost. This means that if the expanded flowers are destroyed, another set will open on the return of mild weather, and thus a succession is maintained from November to May. C. alba, which is said to be spring- and summer-flowering and to be more tender than the foregoing, has not yet flowered here. But the fact that it withstood over 20° of frost last winter without being injured suggests that it may be more robust than it is believed to be.

The above-mentioned frost killed practically all the broad-leaved, shrubby Veronicas, big old plants as most of them were. The only ones remaining for present flowering are V. Gauntlettii and V. Simon Deleaux, with deep salmon-pink and rich crimson spikes, respectively. Whether it is only coincidence or something else, I cannot say, but the red or crimson Veronicas of this class appear to be hardier than the purples or blues. At any rate, on several occasions upon which hard frost came along the survivors were generally among the red-flowered varieties.

The foliage of many of the Heaths is such a delightful feature of the garden in winter that the occasion cannot be passed by without according them some notice. Excellent as are the gold and coppery and bronzy-red hues of such kinds as Calluna vulgaris cuprea, C. v. aurea and others, the frosty silver of Erica Tetralix mollis and the glaucous sheen which pervades the sombre leafage of E. mediterranea hibernica, the unadorned greens are in their own way very charming at this season. For their fresh and gentle verdure alone most of the Tree Heaths, but especially E. arborea alpina, E. lusitanica and E. Veitchii, would be worth a place; and another which excels in that respect, although it has no other attribute of note, is the prostrate E. scoparia pumila.

The foliage of Grevillea rosmarinifolia and G. sulphurea, the one so dark and lustrous and the other a golden-green, is also singularly cheerful just now, and few shrubs blend more sympathetically with the Heaths than do these fine-leaved Australians. Moreover, from this date onwards to spring, they will be covered with blossom, the first-named bearing clusters of madder-crimson and ivory flowers and the other tufted with its jaunty cockades of golden-yellow blooms. So hardy are these interesting shrubs that last winter, when even the native Gorse was browned by the frost, they were only very slightly injured at the tips. *A. T. Johnson, Ro Wen, Conway, North Wales.*

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THE SUMMIT, LOUGHTON.

THOSE who are accustomed to travel at least fifty or sixty miles out of London at the week-end in order to garden, or to delight in gardens, may be surprised to learn that there are attractive gardens very much nearer London than that, gardens which may be enjoyed, although not studied, in an afternoon's visit. Of course, there is Kew well within the twenty-mile radius of Hyde Park Corner, but Kew belongs to the eternal order of things, and seems to have been there before London was. Men may come and men may go, but Kew goes on for ever, and London has grown up alongside the famous garden, with its arms stealing craftily towards it as though jealous of that virgin crescent lying by Father Thames. London, as its creeping barrage of streets and houses lifts, and clanks steadily forward into the open country, is to some extent complying with the law, well illustrated by many community plants, that as it expands outwards, gaps must appear behind the stretched rim. Here parks and gardens crystallise out, and we may visualize the city of the future somewhat on these lines, not in three dimensions as in America, but in two, only with a more deliberate plan to keep green the encysted spaces.

Not only are there gardens within hail of Lombard Street, but there is primaeval forest, for Epping Forest may be described bluntly as such, and it is in the warm heart of Epping Forest, some thirteen miles from the City, that The Summit is placed.

Essex has no great reputation as a horticulturists' paradise. The country is flat and the land fades gradually away in marsh and mud to a choppy, shallow sea, lost in a grey salt fog. The climate is harsh and raw as the estuarine ooze, the general evenness of the landscape offering protection neither against the crude east winds of the North Sea, nor from the south-west gales which buffet their way up the more distant Channel. The soil is in harmony with this discord; a tenacious clay, or a hungry gravel. Altogether Essex, despite certain obvious advantages patent to the very earliest settlers, is not ideal from the enthusiastic gardener's point of view. But faith is said to move mountains.

The garden at The Summit, Loughton, begun by Mr. Fred Stoker, in 1922, was hewn out of a piece of uncultivated land on the flank of the forest. Most of the original trees, including some fine old Hawthorns, Crabs and Hollies, were left standing, as a protection against wind; and after clearing the Gorse, Bramble and Bracken, whose presence indicated the quality of the soil, the garden took shape as the end of a ridge, with a precipitous escarpment to the east, the slant becoming more gentle to the south and west. The beds were dug two or three feet deep, any vegetable matter obtainable being dug into the soil, which, although poor, was free of lime. The house stands on a central plateau, in a broken sea of ever-flowering Heaths, out of which rise larger shrubs. Erica carnea provides a solid splash of colour, and other species include E. mediterranea, E. arborea and E. stricta. Among the larger Ericaceae are Pieris floribunda and P. formosa, whose shoots break in plumes of glowing crimson; Cassiope tetragona, its branches tingling with rows of milk-white bells, and Andromeda polifolia, dressed in pink; Vaccinium Mortinia; a mass of Pernettya mucronata, in autumn loaded with red berries; and biggest of all, the handsome, copper-barked Arbutus Menziesii.

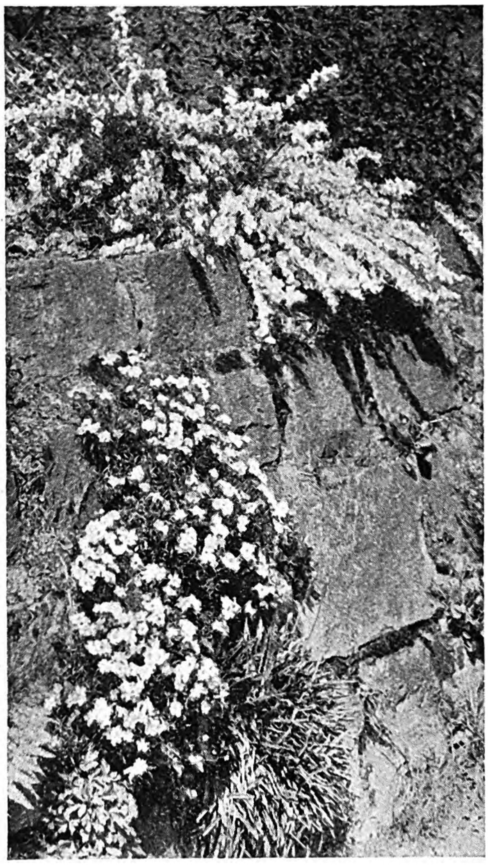


FIG. 217.—THE SUMMIT: CYTISUS KEWENSIS AND PHLOX DIVARICATA VAR. LAPHAMII ON A ROCK WALL.

An astonishing number of Rhododendrons is grown here, and although none of them is of large size yet, it seems only a question of time before they will be, since they are not merely existing, but growing, and indeed flowering. During the wet summer of 1927, they made astonishing growth. About a hundred species, besides many first crosses and hybrids, are in cultivation, and such as R. hemitrichotum, R. muliense, R. lutescens, R. racemosum, R. decorum and R. Loderi, flower freely. The chief Rhododendron areas are at the north end, where they are planted under a screen of Conifers, and on the steep eastern face.

At the north end are Pinus Strobus, P. excelsa, P. Pinaster, and other species, forming compact cover, with an undergrowth of Rhododendron Fargesii, R. sino-grande (doing marvellously well in this bleak climate), R. neriiflorum, R. Keysii, R. Falconeri, and hybrids such as R. kewense and R. Loderi.

The Summit, being 350 feet above sea-level, and exposed to the south and west, is ravished by gales. A screen of Cupressus macrocarpa has been planted here, and is growing fast, being already ten feet high. This species, however, is hardly rigid enough, and others are being tried, such as Cupressus Lawsoniana, Thuya and Bamboo. Other Conifers have been put in along this exposed front, both to strengthen the position, and for effect. There is a beautiful little specimen of Cedrus atlantica glauca; also specimen trees of Cupressus formosana, Pinus Ayacahuite, Arthrotaxis cupressoides from Tasmania, and the red-flushed Cupressus arizonica, of Greene, twelve feet high; other plants under other authorities pretend to be C. arizonica, but Greene's is the genuine article—beware of imitations! Altogether about eighty species of Conifers grow here, and it is vastly surprising to see a rather tender, tree-like Pinus excelsa looking so much at home.

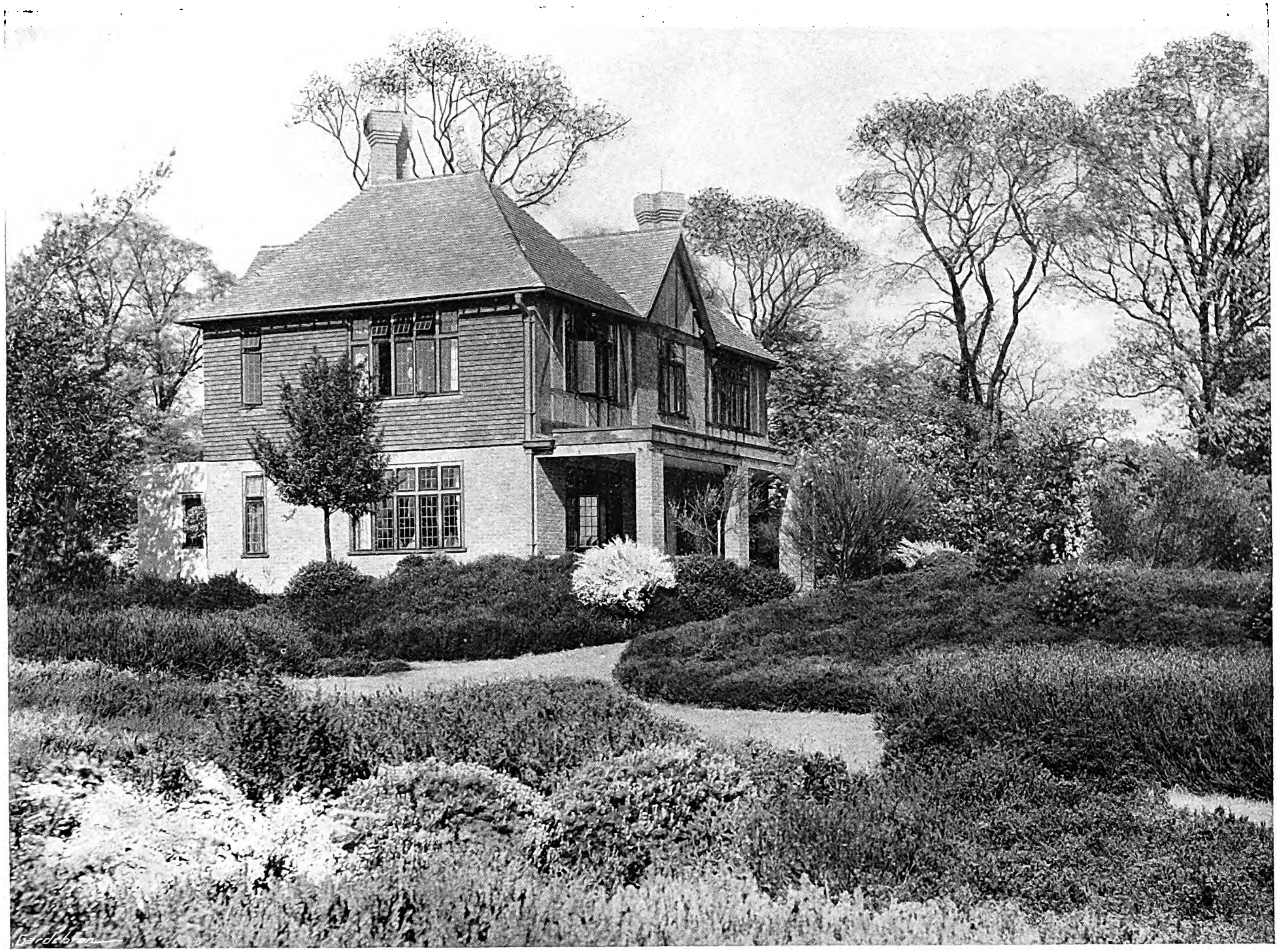
The largest native trees are of Elm and Holly, some hoary specimens of the latter affording magnificent shelter. The whole garden is turfed, and the well-kept sloping lawns are broken up by trees and shrubs, solitary or in cleverly combined groups. Among these latter are early-flowering Magnolias, summer-flowering shrubs, such as Desfontainea spinosa, Hoheria lanceolata, Tricuspidaria lanceolata, and Eucryphia cordifolia, from the Antipodes; autumn-colouring shrubs, like Rhus Cotinus and Euonymus yedoense; and some forty Barberries, notably B. Wilsonae, B. hakeoides, B. Fremontii, B. haematocarpa (from Arizona), and B. nervosa, for winter effect. Enclosed within these thickets are Lilies galore, which grow splendidly; L. Henryi, L. pardalinum and L. canadense are an outstanding success.

The eastern escarpment, which is almost precipitous and about thirty feet high, is revetted, and below each of the two low containing walls runs a path. These walls are stepped, and a variety of creeping and other plants are slowly establishing themselves; among others, Gaultheria procumbens, the Chequer Berry (often erroneously called the Partridge Berry), of America, which in autumn has scarlet berries, and Viola gracilis, which is so beautiful in spring. The paths run the length of the banks, and are reached by flights of stone steps at either end. The steep banks themselves, although they support a mixed growth, are largely given over to Rhododendrons, which in their native haunts are partial to similar conditions. Here is to be seen a fine plant of R. fictolacteum, with R. arboreum, R. Delavayi, R. Wardii, R. orbiculare, R. puralbum, R. calophytum, R. yunnanense, R. mollicomum (the two last-named flowering) and several of the Lapponicum series. Indeed, the Rhododendron collection, which numbers a hundred species, besides hybrids, is remarkably representative of the best, and covers a wide range of series. It is of good augury for the genus that these beautiful plants can be grown so well under conditions which, at first sight, one might be inclined to call hostile. The fact is, no doubt, we enjoy our gardens under the most perfect conditions of sunshine and warmth. The plants do not; no one who has ever seen a Rhododendron extravaganza in nature can possibly have any illusions on that point.

Shelter is provided on the face by some gnarled Hawthorns, and by great clumps of Holly, under the protection of which grow Embothrium coccineum, now four years old, Griselinia littoralis, Helichrysum rosmarinifolius Fuchsias and Hydrangeas. At the extreme foot of the bank are Cabbage-sized plants of Primula japonica, some fine rosettes of Gentiana Lagodechiana, and bushlets of Azalea Kirishima. Proceeding round the compass to west by south, the slope eases off, until finally the ground becomes gently undulating, open to the west, where the rolling countryside allows free passage to the gales. It is on this side that it is so necessary to protect the garden.

Among unusual or difficult plants which

Supplement to THE GARDENERS' CHRONICLE.



THE HEATH GARDEN AT SUMMIT.

have found a happy home here may be mentioned Brachyglottis repanda, Stewartia Pseudo-camellia, Caesalpinia Gilliesii, Mitraria coccinea, Philesia buxifolia, Drimys Wintori, D. aromatica, Notospartium Carmichaeliae and Sophora tetraptera.

On the southern slope are Eucalyptus coccifera, Aralia chinensis, twelve feet high and flowering in September, Styrax japonica, Magnolia Campbellii, and about twenty other species of Magnolia, including M. glauca, M. Watsonii, M. parviflora, M. Wilsonii, M. Lennei and M. conspicua. Foliage is supplied by a variety of trees and shrubs, Pittosporum tenuifolium, among others. In the autumn, there are Liquidambar formosana, Rhus cotonoides and Cornus Nuttallii.

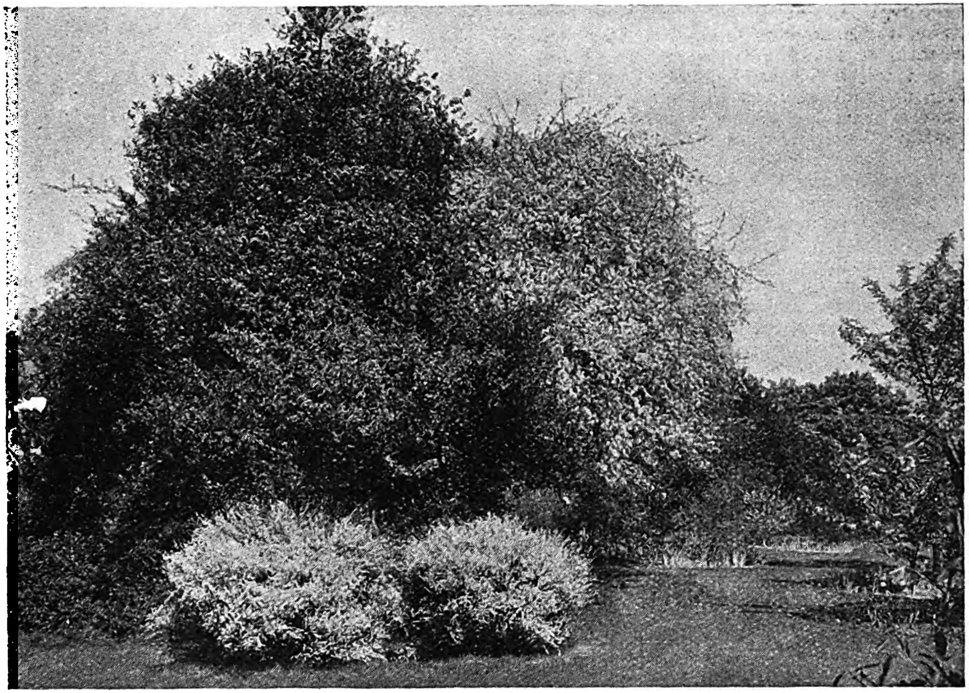


FIG. 218.—THE SUMMIT: THORNS, CRABS AND CYTISUS PRAECOX.

Two very interesting plants are Grevillea sulphurea, which is already five feet through and only a foot high, with ascending stems and narrow, rather Gorse-like leaves; and G. rosmarinifolia, which is even bigger. These act as 'living mulches' to themselves.

The test of a real garden is surely what it looks like out of season. A garden in winter is like a woman in the grey of the morning; who, if she comes well out of that ordeal, will always delight the eye when the warm blood is running like spring sap. And, thanks to Mr. Fred Stoker, the garden at The Summit stands the test very well.

By March there is abundance of colour. Some of the smaller Rhododendrons are covered with a film of blossom, and so is the canary-yellow Corylopsis pauciflora. A crimson glow hovers over the waving plants of Erica carnea, which indeed is never out of flower, and Osmanthus Delavayi is starred all over with white bells; while species of Hamamelis are passing over and Shortia galacifolia is in full bloom. In the dead of winter, English gardens have to depend chiefly on evergreens for colour effect; although it is at this season, when the glare of colour publicity is temporarily in abeyance, that the charm of pure form comes into its own. Here we have it, in the graceful, such as the Bamboos, and in the grotesque, such as the Colletias; and so this garden, which has passed through the shadow in a robe of penance—not without a quiet dignity and charm—is reborn in the spring of the year, a thing altogether lovely. Illustrations on pp. 489, 490, 491 and 493, and the Supplement Plate, show some of the beauties of The Summit. *F. K. W.*

THE CAMOMILE LAWN.

The full story of the lawn has yet to be written, but a foretaste of what a fascinating story this might be is given in *The Nineteenth Century Review* for August last, and is from the pen of Eleanour Sinclair Rohde who, in a few delightful pages, traces the story of lawn-making from mediaeval times to our own day.

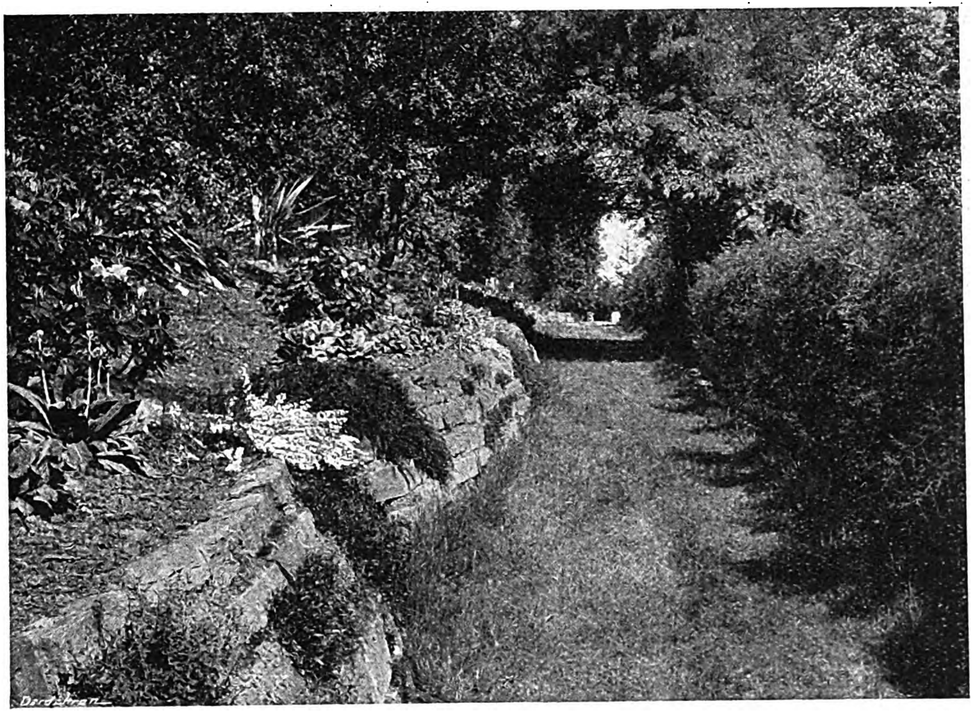


FIG. 219.—THE SUMMIT: THE ROCK WALL.

The authoress's wide knowledge of, and acquaintanceship with, old gardening literature is well-known, and ancient authors are freely quoted and referred to, giving the reader a charming story of lawn-making right down the centuries. This informative article ought to be read by all interested in our lawns, which are still our pride and glory and, as is pointed out, the envy of the whole world.

The earliest lawns of which we have any account were, no doubt, of grass, among which was planted "all manner of sweet and pleasant flowers," and its modern prototype may be said to still survive in our efforts to naturalise bulbous and other plants in the wilder or less formal parts of the garden. The modern lawn is still of grass, and in its most admired and perfect state must be weedless and flowerless—nothing short of that is permissible.

There was a period, however, when all lawns were not of grass, and it is the references to the Camomile lawn that interested me most, for it does seem a pity and a loss that we are now reduced to one Natural Order of plants for our lawn-making. It is not being even suggested that there is anything yet known in plant life that would be an improvement on grasses for the making of lawns, but the lawn of Camomile might again be made a pleasant feature in our present-day efforts to reproduce the old-time gardens that are frequently constructed here and in other parts of the world.

Happily, in at least one of the Royal gardens there still flourishes on the great lawn large areas of Camomile, and right well it looks at all times and seasons. It has at least one great merit over the grass lawn—that of being impervious to drought. London residents have often seen our parks and gardens during a dry spell, like a desert, with the grass as brown as the roadway, but no drought affects the Camomile; it maintains in all weathers its beautiful, dark green colour, a delight to the eye, soft to the tread, and fragrant when newly-cut. The areas referred to receive, like the grass, the weekly cutting by the most modern of motor-mowers, and no Daisies or other weeds flourish in its midst.

The stretches of Camomile have often given rise to questions as to how the making of a similar lawn should be carried out, and no doubt the careful instructions given in many of the older books are quite sound. Evelyn had a good deal to say about the Camomile lawn, as had many other writers right down to the early years of the nineteenth century.

An interesting experiment is about to be tried in the east, where the making and maintenance of grass lawns is difficult and costly, and when two of our greatest grass seed experts were asked for Camomile seeds, I was informed that this was not suitable for lawns, and that no doubt "Yarrow" (Achillea millifolium) had been mistaken for Camomile, an incident which shows the one time use of this fragrant herb for lawns had been quite overlooked and forgotten.

There seems to be little information available as to how the Camomile lawn would withstand the wear and tear of games, but there seems good ground for the belief that Drake played his famous game of bowls on a "green" of Camomile, but whether our modern devotees of that ancient game would prefer it to that of Cumberland turf is a question to which no answer is ventured. *T. Hay.*

WATER.

Water, in the form of aeriform vapour in the atmosphere and as a liquid in the soil, plays a highly important part in plant life, serving at once as a solvent and carrier of nutriment to the different organs of plants and entering largely into the composition of their tissues. It forms the sap destined to give life to the whole plant system, but its actual importance depends upon the volume in which it is present and the state of vegetation.

In winter, when the trees are in repose and no organic waste goes on, the soil may be said to have no need of moisture, and atmospheric humidity is injurious rather than otherwise; but when warmth causes the sap to rise and vegetation has begun, moisture is indispensable, and becomes one of the chief predisposing causes of growth and fertility. Although the soil may possess every element suited to the most luxuriant vegetation, and although light, air and heat lend concurrence under the most favourable conditions, yet, if moisture be lacking, vegetation will languish, and if its absence be prolonged growth may fail altogether. Next to the soil, the supply of water is of the greatest importance, and should receive the careful attention of the intelligent grower of plants; moreover, the soil being the medium for its conveyance to the plant, it follows that the condition of the soil is also an important factor. Unless retentive soils are well-drained and thoroughly worked, the free passage of water cannot take place, to the detriment of the plants; on the other hand, the water-holding power of a very porous soil can be materially improved by incorporating abundance of organic material with it.

The action of water on vegetation must be regarded in two distinct lights. In the first place it is the principal agent of nutrition, bringing the alimentary substances contained in the soil within reach of the plant. In the second, in the form of vapour in the atmosphere it exercises an influence on vegetation which may be beneficial or deleterious, according to circumstances.

The amount of water necessary to the soil depends on the state of vegetation; the more active the sap and the quicker the growth of the herbaceous portions of the plant, the larger the amount of moisture required. When the young leaves are growing and evaporation is going on, the organic waste thus occasioned must be compensated by a more abundant absorption through the roots. Further, with elevations of temperature, more loss occurs through transpiration, thus increasing the demand. On the other hand, when the fruits begin to ripen and the season of vegetation is on the wane, the demand decreases. Fruit trees and other trees and shrubs growing in the open ground and sending their roots to depths sufficient to ensure a constant supply of moisture, even in the driest seasons, have little need of artificial watering, although it would often be beneficial to them, especially if it be given overhead in the evenings of hot summer days. It not infrequently happens, however, that trees planted at the foot of a wall suffer considerably from lack of water, and maximum growth and fertility cannot be obtained without periodical heavy waterings. In glasshouses, where the plants are out of reach of outside influences, it becomes necessary to supply all the water needed, both by the roots and overhead, by artificial means. In dull weather, watering and syringing should be carried out with judgment, and during the depth of winter overhead syringing may be largely dispensed with. Plants growing in borders have less need of applications of water at the roots than those growing in pots, the amount necessary depending on the temperature of the house and the state of vegetation, but in all cases it should be given as sparingly as practicable, and only in the mornings, so soon as the temperatures in the houses begin to rise.

It is a fundamental axiom of good indoor gardening to avoid immoderate fluctuations in temperature, and water applied to the roots or foliage of plants should be kept so near as possible to the temperature of the house. Rain-water is best for all plants, but water from other sources is little inferior to it after a lengthened exposure to the air, and provision should be made for this where the storage capacity for rain-water is not sufficient to meet all needs.

In conclusion, a word may be said in favour of water as an insecticide, for it is anathema to such insect pests as thrips and red spider. Clear water and a good syringe are of the greatest service in all glasshouses and, in many cases, out-of-door cultivation. Their frequent use effectively checks the spread of many insect pests and, while it is not claimed that by this means alone these pests may be controlled, it is certainly a fact that their appearance and rapid spread may be regarded as an infallible token of negligence in the intelligent use of water. *W. A.*

MESEMDRYANTHEMUM.

(Continued from p. 472.)

LAPIDARIA, Schwant.

Stemless, perennial. Each adult growth with 3 or 4 pairs of crowded leaves always present at the same time, shortly united at the base, flat or slightly concave on the face, not dotted, with a minutely granulated surface. Flower solitary, terminal, pedicellate, but with the pedicel concealed in the bases of the leaves. Calyx somewhat compressed and 2-edged, sub-equally 7-lobed nearly down to its union with the ovary; lobes ovate, all but the two outer with membranous edges, dotted. Petals numerous, "loosely united at the base" ex Dinter, ascending-spreading so as to form a cup. Stamens numerous, erect, the inner much shorter and more inflexed than the outer, partly concealed in the cup of the corolla; filaments bearded at the base. Stigmas 6-7, subulate or filiform, ascending, with recurved tips, as long as or exceeding the stamens. Ovary inferior, flattish at the top, 6-7-celled; placentas on the outer wall of the cells. Capsule shortly and broadly obconic, flat, with raised sutures, at the top, with 6-7 valves and cells; valves widely spreading or recurved when expanded; expanding-keels contiguous below, diverging at the apical part, with broad membranous margins; cells roofed with membranous cell-wings, without a tubercle at the opening. Seeds.

A monotypic genus, native of Namaqualand.

The name is doubtless derived from the Latin, *lapidarius*, stony, probably in allusion to the stony ground in which it grows.

1. **L. Margaretae**, Schwant., in *Mollers Deutsche Gartner Zeitung*, 1927, p. 223. Old plants about 1½–1¾ inch high, formed of a clump of densely crowded growths, each with four pairs of thick, fleshy leaves present at the same time; leaves 6–9 lines long, 7–12 lines broad, 5–7 lines thick, oblong in young plants, broadly ovate in old plants, obtusely pointed, flat or slightly concave above, with sharp edges, and keeled at the apex, of hard or firm substance, glabrous, with a smooth microscopically granulated surface, of a peculiar rusty-ochreous colour in imported plants, but in cultivated plants whitish, with a rosy tint or in sunless years becoming greenish, with yellowish or ochreous edges and keel. Flowers terminal, appearing sessile, but with a pedicel concealed between the basal part of the leaves. Calyx sub-equally 7-lobed, puberulous; lobes about three lines long, 1½–2 line broad, oblong or ovate-oblong, obtuse, three with membranous margins. Corolla 1–2 inches in diameter; petals numerous, in 3–4 series, the outer 6–9 lines long, ½–¾ line broad, the inner gradually smaller, cuneately linear, obtuse or sub-acute, yellow. Stigmas 6–7, about 3–4⅓ lines long, filiform, acute, greenish-yellow. Capsule as for the genus. Seeds scarcely ¼ line long, pale brown.

M. Margaretae, Schwant., in *Monatsschr. f. Kakteenk*, 1919, pp. 55 and 56, with figure, and 1921, p. 170, f. 1-3. Argyroderma Margaretae, (by error Margaritae) N. E. Br. in *The Gardeners' Chronicle*, 1926, Vol. LXXIX, p. 268 and 269, f. 135. Dinteranthus Margaretae, Schwant., in *Mollers Deutsche Gartner Zeitung*, 1927, pp. 150-151, with fig.; L. Bol. in *Journ. Bot. Soc. S. Af.*, 1927, t. 2, f. 4, and *Mes.*, p. 41, t. 15.

Great Namaqualand: Near Warmbad, growing among quartzite stones, Dinter, 5,174. Bushmanland: Towards Pella. Pole Evans.

The adult, native-grown, living plants of this species, for which I have to thank Dr. I. B. Pole Evans, are very different in appearance from the young plants I have hitherto seen, and which were raised in Europe. These old plants have their leaves much shrivelled, on account of the great drought to which they have been subjected during the past few years, but even when in proper growth after a supply of rain, it is evident that they would be very crowded. For want of knowledge of its flowers and fruit, I had wrongly referred this plant to Argyroderma, because, having to place it somewhere, the vegetative characters appeared best to accord with that genus, and the flowers had not then been described.

GIBBAEUM, Haw.

G. Marlothii, N. E. Br.—Growths, when at rest, obliquely ovoid, something like those of G. gibbosum in form, but smaller, and the leaves less unequal, 12–15 lines long, composed of two unequal or sub-equal leaves united for 3–4 lines at the base; when the leaves are unequal, the free part of the larger leaf is 7–10 lines long, trigonous-ovoid, slightly compressed and bluntly keeled at the apical part, obtuse; the smaller leaf being 1–2 lines shorter in the specimen seen, and under cultivation the leaves are mostly sub-equal; when at rest the leaves are pressed together, when in active growth they are ascending-spreading; surface smooth, glabrous, green, or under natural conditions "yellow and brown," according to Marloth. Pedicels compressed and more or less 2-edged, glabrous. Calyx 6-lobed, glabrous; lobes about 2 lines ling, ovate, two of them slightly keeled. Corolla 9–12 lines in diameter, expanding in sunshine, petals in one series, 4–5 lines long, ¼-line broad, linear, obtuse or notched at the apex, magenta-purple. Stamens and staminodes about 1½ line long. Stigmas 6, spreading, 1 line long, plumosely subulate, acute. Ovary partly superior, broadly dome-shaped on the top.

Ceres Division: North of Karoo Poort, Marloth 13,157.

The only known glabrous species with which this can be confused is G. gibbosum, from which the smaller size and much less unequal leaves readily distinguish it.

PUNCTILLARIA, N. E. Br.

In the *Zeitschrift f. Sukkulentenkunde*, 1927, pp. 22-23, the species of this genus have been referred to Pleiospilos, N. E. Br., by Dr. Schwantes, who states that the fruit is alike in both genera. This is, however, a mistake, for in Pleiospilos Bolusii and P. simulans no tubercle is present at the opening to the cells, while in the fruits of all the species of Punctillaria that I have examined there are very evident tubercles, and this, together with a small difference in the marginal wings and the different leaves, I have considered as being of sufficient importance to separate them generically. In my original MSS. and keys, before I had examined the fruits of Pleiospilos Bolusii and P. simulans, I had also placed these two species under Punctillaria, and that is why the genus Pleiospilos does not appear in Phillips' *Genera of S. Afr. Flowering Plants*, for I had sent the

MSS. of the genera published in that work to South Africa at least a year before it was printed or my final keys finished. But from discoveries I have since made, I think it probable that this and one or two other fruit characters cannot always be accepted as absolute, for I find that the tubercle is present, rudimentary, or absent in different specimens of Disphyma australe, N. E. Br., and in different species undoubtedly belonging to the same section of Mesembryanthemum, it is also absent or present! So that if Pleiospilos and Punctillaria are hereafter united, then in accord with the rules of nomenclature, Pleiospilos, being the smaller genus, must be made a synonym of Punctillaria, which I had (in MSS.) founded many months before I had a chance to examine the fruits of P. Bolusii and P. simulans, and it is therefore really the oldest genus of the two as well as the largest.

Schwantes also states that P. compacta, N. E. Br. (M. compactum, Ait.) is distinct from M. nobile, Haw., but gives no reason for their separation, nor any description by which they can be identified, and I doubt very much if he has any knowledge of the plant I feel sure is M. compactum, Ait., since it quite accords with such description as Aiton (and Dryander in his MSS.) gives, and has also long been cultivated (probably for over one hundred years) in England as M. nobile. I have myself known the plant for over sixty years by that name, for I first saw it in Mr. W. W. Saunders' fine collection about 1865, and as that collection contained some of the remnants of Haworth's own collection, the plant I saw there may even have been a descendant of Haworth's type of M. nobile, and I also many times saw the plant in the collection of Mr. T. Cooper. At the same time forms of P. magnipunctata are also in cultivation under the name of M. nobile.

In Dryander's notes at the British Museum, I find it recorded that M. compactum flowered at Kew in November, 1781, that its flowers are yellow, and the "leaves as long and as thick, as a finger." Dryander's Latin description of it, translated, reads as follows: "Stemless. Leaves connate, dotted, semi-terete, triquetrous and somewhat reflexed at the apex, acute. Flowers sessile; calyx sub-cylindric, six-lobed." All this, except that he does not say that the leaves are concave on the upper side, as Haworth describes them to be, well agrees with the plant known as M. nobile.

P. compacta is not common, and to judge from the utterly different plant Mrs. Bolus has figured under the erroneous name of P. compacta, I believe that the true P. compacta is unknown in South Africa. See also *Mollers Deutsche Gartner Zeitung*, 1928, p. 400.

P. sesquiuncialis, N. E. Br. This is the plant figured as P. magnipunctata var. sesquiuncialis, L. Bol. in *S. Afr. Gard.*, 1927, p. 326, f. 13. There is no description, except that "The dots are not so marked as those of P. compacta, and the petals are narrower." By "P. compacta" Mrs. Bolus means P. magnipunctata, as it is evident she does not know what P. compacta is. But the figure represents a plant with a pair of short and thick leaves similar to those of Pleiospilos Bolusii; they are about 1½ inch long, 1½ inch broad and 1-1½ inch thick, according to the figure, obtuse at the apex and bluntly keeled. The flower is represented as about 1½ inch in diameter, with lax and narrow petals. It is certainly very distinct from P. magnipunctata, and bears no resemblance whatever to P. compacta.

Prince Albert Division: Hills near Prince Albert. Bolus.

P. Purpusii, N. E. Br.—Plant similar to P. magnipunctata, but the leaves are often less stout, and are more acute, and the solitary and sessile flowers are quite different. Calyx cylindric, sub-equally 6-lobed; lobes 4½–6 lines long, lanceolate, acute, with narrow membranous edges. Corolla 2½–3 inches in diameter, expanding in the afternoon irrespective of sunshine and closing between 5 and 6 p.m., pleasantly scented; petals numerous, in 2-3 series, sometimes widely spreading, at others forming a somewhat funnel-shaped corolla, somewhat lax, 18–21 lines long, ⅔–¾ line broad near the tips, thence gradually tapering downwards into a long, claw-like part, mostly more or less acute, sometimes obtuse, white for 8–9 lines of their length at the base, bright yellow at the upper part, and whitish-yellow, sometimes tinged with red, at the tips on the back. Stamens about 6 lines long, the central collected together, the outer gradually separating and loosely erect; filaments not bearded, white; anthers yellow. Glands very small, yellowish. Stigmas 10, about 8 lines long, filiform, with short hairs on the inner surface, exceeding the stamens and slightly recurved over them, yellow. Ovary flattish on the top.

Pleiospilos Purpusii, Schwant., in *Mollers Deutsche Gartner Zeit.*, 1928, p. 46. Mesemb. nobile, Purpus in *Monasschr.* *N. E. Brown.*

(*To be continued.*)

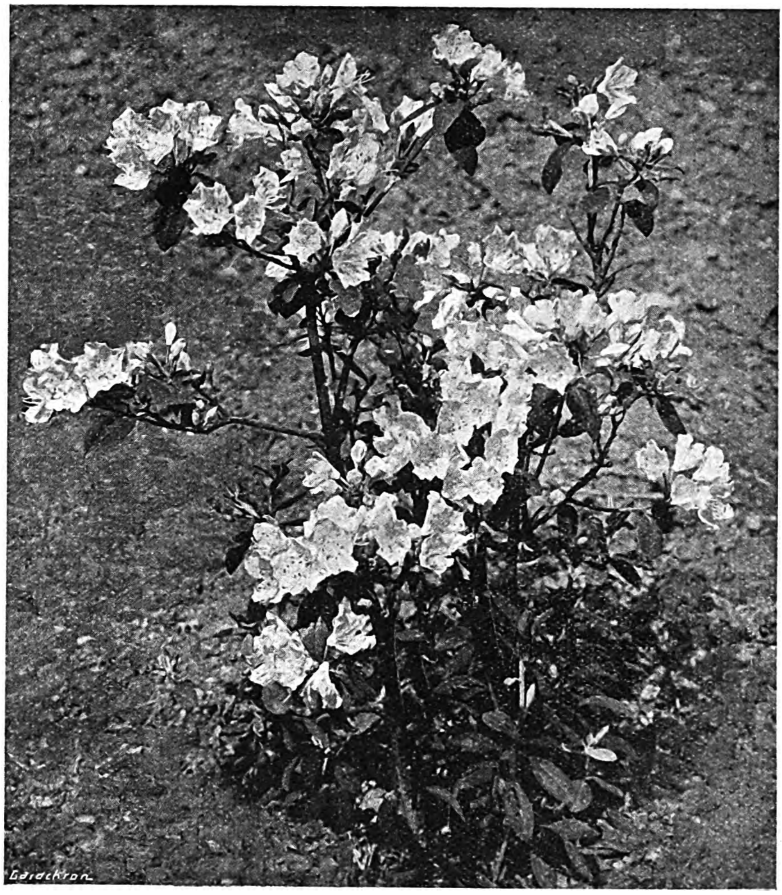


FIG. 220.—THE SUMMIT: RHODODENDRON OREOTREPHES.

NOTICES OF BOOKS.

The Ferns.*

THE Leptosporangiate Ferns are considered the most advanced types from an evolutionary point of view, and are in fact the Ferns of to-day, especially the generally cultivated ones. They are characterised by the slender stalk of the sporangium, consisting of a single row of cells, instead of the stout stalk of the archaic types, with three or four rows of cells. In the introduction to his masterly work,* the author gives a drawing, such as is often termed a genealogical tree. From an apparently fossil type, this branches off with such archaic types as Ophioglossaceae, Osmundaceae and Marattiaceae (still extant), followed by more recent types; then with dotted lines from Dicksoniaceae, Plagiogyria and Cyatheaceae, it is shown how the six main phyla (lines of descent) gave rise to the Leptosporangiate Ferns from those groups. The evolution of Ferns has proceeded along a series of converging lines, so that many of them are not what they seem to be. This gave Sir William Hooker and other early students of Ferns a great deal of trouble in fitting certain species into their classificatory systems. The involucre or indusium has been proved to be less constant than the vegetative characters. For instance, in Cibotium, the indusium is two-valved and in Patania or Dennstaedtia it is cup-shaped. Both these groups are given as sections of Dicksonia by Sir William Hooker in his *Synopsis Filicum*. Although placed in the same genus as Dicksonia, the Dennstaedtia group is characterised by a creeping habit, whereas the true Dicksonias and Cibotiums are arborescent.

The indusium, upon which the old authors laid much stress in their schemes of classification, receives much attention from the author. He thinks Hypolepis, with its one-lipped indusium may have come from some bi-indusiate Dicksonioid by the abortion of the inner indusium. This actually has been found in H. repens, where a microscopical section of a sorus revealed a vestigial lower indusium. The creeping habit of Hypolepis also connects it with that of Dennstaedtia, as well as the vestiture of simple hairs (not scales). The indusium of Hypolepis has also been described as "formed out of the reflexed margin" (*Syn. Fil.*, p. 128), and that would also refer to Pteris, but it is really a superficial outgrowth of the undersurface of the frond as shown by the microscope in the early stages of growth, and later becomes more or less merged in the edge of the leaf. In the *Flora Tasmaniae* (Vol. II, p. 138), Sir Joseph Hooker found great difficulty in distinguishing Hypolepis from Polypodium because the margin of the pinnules was so slightly reflexed that the sorus was naked as in Polypodium. Professor Bower states that the classification of Polypodium punctatum, Thunb., to be correct phyletically, should be in Hypolepis.

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* *The Ferns (Filicales), Treated Comparatively with a View to their Natural Classification.* Volume III. The Leptosporangiate Ferns. By F. O. Bower, Sc.D., LL.D., F.R.S., Emeritus Professor of Botany in the University of Glasgow. Cambridge, at the University Press. 1928. 30s. net.

Davallioid Ferns include Davallia, Humata, Nephrolepis, Oleandra, Arthropteris, Tapeinidium, Diellia, Odontosoria, Lindsaya, and Dictyoxiphium. They are amply discussed and equally as well illustrated by microscopical drawings of young growths, and sections of the rhizomes, as well as pinnae of the fronds, showing the nature of the venation, position of the sori, etc.

Pteroid Ferns include the large genus generally known as Pteris, from which four genera have been taken, and some derivatives of the Pteroid type discussed. The case of the Common Bracken (Pteridium aquilinum) is very interesting. It is one of the "most successful of all vascular plants." for its home or country is all round the globe, temperate and tropical, even within the arctic circle in Lapland. Its underground, far-creeping rhizomes enable it to form large communities and to escape the vicissitudes of climate. This habit is assumed soon after germination, for the axis begins to bifucate and penetrate the soil to suitable depths. As the early parts of the rhizome decay, separate plants are formed. Notwithstanding this vegetative power, observation shows that the Bracken can extend its range far and wide by means of its spores. It even invades the garden and anywhere else, including the damp crevices of old walls. The special feature of Pteroid Ferns is the more or less continuous line of sori all round the margin of the pinnae or pinnules. The microscope reveals that this is not the extension of a single sorus, but innumerable sori, linked together by a vascular commissure, running beneath the receptacle of the sporangia, making a community of coenosori. This elaborate sorus of the Bracken is further complicated by the presence of two distinct indusial flaps. The whole system of the plant is also highly complex, as revealed by the microscopical examination of its parts.

A typical Pteris is now limited to those Ferns with a narrowly linear receptacle covered with sori continuously united by lateral fusion, and in which the lower indusium has completely disappeared; the group is described as "a large and cosmopolitan genus, including plants of almost every kind of leaf-form and venation." Pteris longifolia, Linn., is given as a central Pteroid type from which departures are classified in sections. Of this species Sir William Hooker states (*Synop. Fil.*, p. 153): "Veins all free. Stem caespitose, involucre single. Lower pinnae linear, undivided." It is the first of the genus he describes, as he always begins with the simplest. This species used to be common in cultivation, and young plants of it appeared by hundreds out-of-doors in the seams of brickwork of hothouses.

The apparent double indusium of Phyllitis Scolopendrium (Scolopendrium vulgare) really consists of two distinct sori, each on its own fertile vein. As the veins run parallel, the indusia (single) face one another in pairs. This contiguity is not maintained in all the species, for the fertile veins in P. nigripes are neither contiguous nor parallel. The species are classed among the Blechnoid Ferns. Among the Asplenioid Ferns a very interesting case occurs in the Kew Herbarium, where a specimen of Diplazium lanceum, under the name of Asplenium lanceum, shows stages between the Dryopteroid sorus, and those of Diplazium and Asplenium proper. During the second half of last century, Thomas Moore of the Chelsea Physic Gardens, described Athyrium alpestre and A. flexile under the genus Polypodium, notwithstanding the fact that the correct names were given as synonyms, and that he occasionally found an indusium.

The above notes all indicate how necessary it is to study Ferns along phyletic lines in order to find out their true affinities and be able to classify them accordingly. This Professor Bower has kept constantly in view, and the third volume of *The Ferns*, or Filicales, is not the least interesting of the series, for it is packed with most interesting facts and splendidly illustrated. The Professor must now have been studying Ferns for about half-a-century. Students in the advanced stages, of botany as well as systematic botanists have now something to work upon. The type, paper, illustrations, and editing are above reproach. *F.*

Formal Designs in Landscape Architecture.*

In writing of formal designs in gardening, the author of this book states that his subject naturally divides itself into two branches, namely, bilateral symmetry and radial symmetry. The former relates to gardens that are longer than broad, and constructed apart from the residence; radial gardening is of many forms, but the garden is always of small size and surrounded by an enclosure of some sort. Usually they are intricate in design, but should be on level ground, and radiate from the centre. They can be laid out on half-an-acre or considerably less, but the beholder should see the whole of it at once, otherwise the construction of the design is lost. The author is of opinion that formal gardening is neglected in America.

Bilateral symmetry has to be carried out in the rectangular garden. Nine times out of ten, the area available is of this shape, or can be made to conform to it, by cutting off the irregular portions for other purposes. Even a long, narrow strip can be made into a mall (avenue). This reminds us of what Capability Brown said after he had viewed the ground of any proposed garden. He invariably said "It has its capabilities."

A formal rectangular garden should be level, and have a main axis, usually a path; but sometimes a water basin or a panel of grass. This major axis is the backbone of the garden, and two or three minor axes are permissible at right angles to the principal one. The latter must be open, and not obstructed by pavilions, trees, etc. Each axis should be provided with suitable termini, such as a pavilion, tea-house, sundial, seats, etc. The smaller objects should be placed at the termini of the minor axis. There should be no exterior view to these termini. He would exclude miles of beautiful scenery from them. In another part of the book, he observes that when fine wide outlooks are available, it is best to locate the view in the most naturalistic part of the grounds rather than in the formal garden. Many people will have some colour schemes in the formal garden, but the author doubts their taste, and advises them not to plant pink Mallows with red Zinnias, "and not to have Anthony Waterer Spiraea anywhere."

The domestic formula for a formal garden is quite of a different type; and he would divide such into public grounds, private grounds and service areas. He gives a dozen rules for the laying-out of such places. Shrubs should be planted about buildings or division screens, never planted as solitary specimens or in beds. Paths, steps and pergolas are permissible in home grounds. In a drawing of the author's grounds, the shrubbery is mostly massed at the boundaries, and to divide the service area from the play area, where a camp fire is situated at the far end.

In radial designs the garden is square, and the principal objects are placed in the centre, just the reverse way of the rectangular garden. A Rose garden is often laid-out on the radial principle, after the traditional style. Radial gardens should be small, and intricate in design, but not overloaded if the pattern is small. The main feature of these radial gardens is that every panel is matched by another, or the whole design consists of units all alike. There may be many of these small radial gardens within private grounds, as on the terraced hills of Italy. In discussing enclosures (often hated by Americans) the author states that "English gardens, doubtless the most likeable in the world, make use of walls solidly built ,of brick or stone." There is method in the author's arguments, and much that could be copied in the designing of gardens on this side of the Atlantic. *J. F.*

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* *Formal Designs in Landscape Architecture.* A Statement of Principles with Special Reference to their Present Use in America. By Frank A. Waugh, New York: Orange Judd Publishing Company, Inc. London: Kegan Paul, Trench, Trübner and Co., Ltd., 1027. 250 pages; $3.50.

THE PARTIAL STERILISATION OF SOIL BY STEAM.

Having carried out experiments on the partial sterilisation of soil by the three known methods—steam, baking and application of chemicals—I have come to the conclusion that the method of steam sterilisation is the simplest, least costly, and the most satisfactory of the three. I will therefore confine my notes to that method and deal with it from a practical standpoint only.

In the course of my experience, I have been struck by the wonderful health of Cyclamens and Begonias (both subject to eel-worm) growing in some of our leading nurseries, and have found that most of our leading specialists use steam for sterilising all their soil. Having at my command from 40 lbs. to 60 lbs. pressure of steam from a handy boiler, I have adopted a simple method consisting of a trough of brickwork divided into two beds, each of which holds one cart-load of soil, and, by a system of grids (explained later), I am able to sterilise each cart-load of soil in forty minutes.

I should state that I am indebted to Messrs. Clibrans, of Altrincham, for much valuable information and the privilege of being allowed to adopt their principles to a great extent, although my sterilising plant differs from theirs, more especially as regards details. In my particular case, I am fortunate in being able to draw steam from an existing boiler used for another purpose, without interfering with the pressure, and by the use of three-quarter-inch ordinary galvanised steam-piping, with check valves and grids attached, I have evolved a very simple and effective steriliser at the small cost of about £5 for material. For those who are not able to command steam so easily, it would possibly cost from £50 to £80 to erect a suitable upright boiler. At that low figure, of course, the boiler would have to be a second-hand one, but it would supply the necessary pressure of, say, 40 lbs. to 60 lbs., which is required for quick working and efficiency. In spite of this initial cost, I know several places where the method has been adopted and given excellent results, and where, previously, owing to eel-worm, may plants could not be grown well.

For all who have to produce flowers, fruits and vegetables of high quality, some system of sterilisation is necessary, and provided attention is paid to details, no other method is so good as steam. All soils to be sterilised should be of the right texture (neither too dry nor too wet), and if this condition obtains, the soil, after treatment, may be used for some purposes the same day. If the soil be too dry, or too moist, the steam has a tendency to blow through it, and not reach all the particles, causing bubbling and an escape of steam. There is also a tendency for the soil to become over-saturated with moisture, and then it would need drying-out before use, but over saturation should be avoided. The dimensions of the structure are such that each trough will hold one ordinary cart-load of soil. By having two troughs the process may be carried on without any waste of time, as while the first load is "cooking" another may be placed in position, ready for the steam to be turned on, whenever the other lot is sterilised; the first being either thrown out, or carted away, and the trough again filled ready for steaming. By this method, one cart-load may be sterilised every forty minutes; there is no need to turn over the soil. As a simple test, I place an average-sized Potato one inch beneath the top of the soil; this should be cooked, and ready for eating in the time specified, viz., forty minutes. I consider this test better than applying thermometers, which are so liable to get broken.

The Cheadle Royal Steriliser.

Our steriliser (Fig. 221) consists of a trough, or bed, divided in the middle to make two receptacles, and is built with nine-inch brickwork and cement. The inside measurement of each bed is five feet three inches long by two feet nine inches wide and one foot eight inches deep. This will hold exactly one cart-load of soil. Brick pillars are built at each end and in the middle, a slot being left in each near the front, to allow two sheet-iron doors (of one-eighth-inch thickness, with handles attached) to be lifted in and out and thus facilitate the shovelling-out of the soil. The door measurements are five feet by one foot eight inches. The bottoms of the receptacles are made up with concrete and a facing of cement. There is a slight drop in the level from the main steam pipe towards a condensation pipe fitted with a valve at the low end of the bed, in order to draw off condensation water before each refil. The method of utilising the steam to the best advantage, so that each portion of soil gets uniformly steamed, is provided for by a grid of steam-pipes attached to the main pipe, at right angles, a valve being fitted to each branch of the inlet pipe for controlling the inlet of steam. The grids fit into small channels sunk in the cement bed in order to carry away any superfluous moisture, and are arranged four inches from the wall all round, with eight inches between the middle sections. Each grid consists of four sections of three-quarter-inch steam-piping, with one-sixteenth-inch holes drilled every six inches at the top, with two holes drilled between each of these on either side, each at a different angle, so that the steam may emerge in every direction. The best covering for the soil while it is being treated consists of old sacks, which keep in the steam and soak up the moisture.

Important Details.

Before use, the condensation pipe valve on the grid should be opened, and the main valve opened right out. The intermediate valves should then be eased slightly to allow a small pressure of steam to clear out all condensation water in the pipes and grids, gradually turning on full steam to blow out any obstructions that may have blocked the small holes in the grids. It is sometimes necessary before starting to do this, however, to prick out these holes with a steel pin. After use, always sweep out the beds quite clean, and blow some steam through the grids. The accompanying illustration (Fig. 221) shows the simple arrangement of this steam sterilising plant. Being under cover, the sterilising process can be carried out during wet weather, thereby finding useful employment, and minimising the cost of carting, or wheeling, which may appear prohibitive during fine weather.

Advantages are that labour is saved in weeding; the soil fertility is increased, and all spores of fungi, and all insect pests in the soil are killed, which alone well repays the outlay involved in the operation. Besides this, the generally improved appearance of crops grown in sterilised soil is so striking that one cannot fail to be impressed with the advantages gained.

Only in a few cases is it advisable to use freshly sterilised soil, but some seeds may be sown at once with good results. Generally, it is desirable to leave the soil for a short period, as cuttings and young plants that are potted into newly-sterilised soil appear to stand still for a short time. I believe that the explanation is that the beneficent soil bacteria have been killed off to a certain extent, and those remaining require a little time to recover and multiply. These notes apply to our own particular steriliser, and it necessarily means that a certain amount of unavoidable carting to and from the steriliser has to be done, but a portable grid could easily be arranged for treating the soil in glasshouse beds. Where a portable boiler could be used, or one fixed in close proximity to the glasshouses, a portable grid and flexible tubing could be fixed to a steam-pipe, and the beds sterilised during the operation of digging them over. *A. Falconer, Cheadle Royal Hospital, Cheadle.*

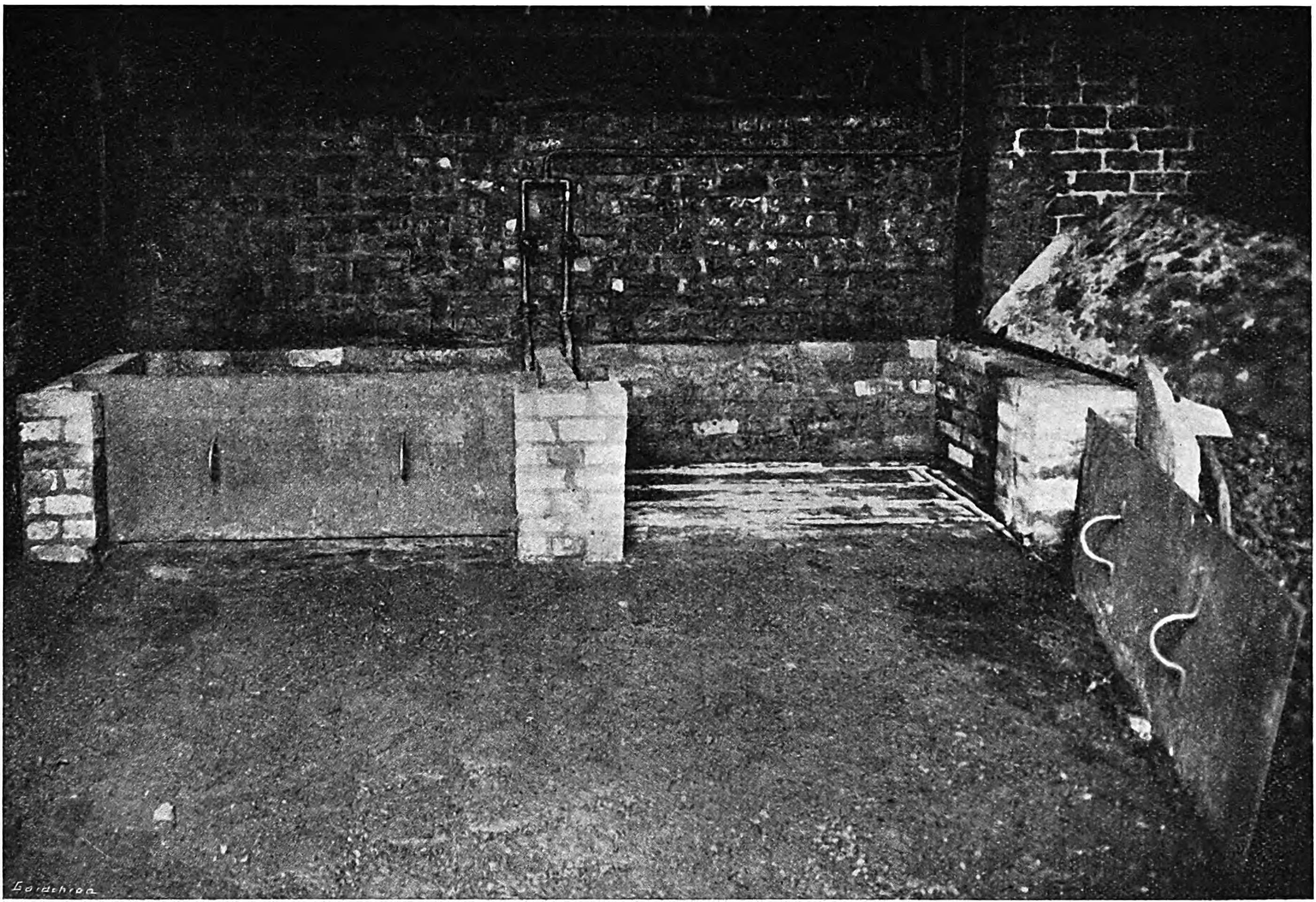

FIG. 221.—THE CHEADLE ROYAL SOIL STERILISING APPARATUS.

NURSERY NOTES.

MESSRS. CLARENCE ELLIOTT, LTD.

Although alpine plants do not, at this season of the year, naturally claim much attention, yet a visit to such an establishment as the Six Hills Nursery, Stevenage, Hertfordshire, the headquarters of Messrs. Clarence Elliott, Ltd., may result in an extremely interesting day being spent, especially if one is so fortunate as to have Mr. Clarence Elliott himself as a guide, for many of the plants seen have been collected by Mr. Elliott in their native haunts, and his reminiscences add a touch of romance to their charms.

Last year, Mr. Elliott was able to embark on a plant collecting expedition to Chile, and the many rare subjects which he collected, and which are being grown at the Six Hills Nursery, are now arriving at that stage when their value as garden plants may be appreciated, so that our recent visit was opportune.

For instance, there is an Oxalis species, at present known as C.E. 228, which he collected in the Andes at an altitude of between 6,000 and 7,000 feet, which produces clustered heads of five or six deep rose-coloured flowers and promises to be hardy, for plants which had been put out in an exposed position with a view to testing their hardiness were so far unscathed, the small, attractive leaves looking very fresh and healthy.

In the glasshouses were several Mutisias, raised from seeds collected in Chile, including the not uncommon Mutisia illicifolia; the extremely rare M. alba, with narrow leaves and stems clothed with silvery, silky down, and which produces sulphur-yellow flowers, flushed on the reverse sides of the petals with Indian-red; and M. subulata, a scarlet-flowered species that is new to cultivation. There is also, from south Chile, a very attractive Senecio, which reaches a height of about three feet and produces large heads of Cineraria-like flowers; several species of Calceolaria, including C. Fothergillii, which received an Award of Merit at the Chelsea Flower Show last spring, and which looked extremely healthy and vigorous in a cold alpine house; a giant Echinocactus species, looking like an enormous pin-cushion bristling with formidable spines and nearly two feet in diameter; and the beautiful Verbena erinoides, with lovely mauve-pink flowers. There is also a Loasa species, which attains a height of three feet and produces orange and scarlet flowers; while other choice Chilian plants are Solanum crispum album, with pure white blooms; Oxalis gigantea, which forms a bush, with woody main stems, six feet high and bears pale yellow flowers; a Verbena species (C.E. 354), which grows in swamps in south Chile, producing masses of violet-purple blooms; Fuchsia rosea, with tuberous roots; several species of Oenothera, and the rare Tropaeolum azureum.

Beside these subjects from Chile, there are yet other rare plants from Majorca, collected on a recent expedition, among them being Digitalis dubia, a perennial Foxglove with silvery, downy leaves and stems, and pink flowers; a fine batch of seedlings of this subject looked very promising. Then there is the rare Globularia marjoricensis, collected on a belated expedition by Mr. Elliott to Soller, but well worth postponing his departure from Majorca for, it being very local in its distribution.

But it was not only these rare and recently collected plants which claimed our attention, for in the general stock of this establishment there were many fine subjects which were worthy of note.

We observed many hundreds of nice little plants of the beautiful Daphne petraea and its even more charming variety grandiflora, and also of the equally desirable Juniperus communis compressus; of this latter subject there were splendid large specimens in pots, kept specially for exhibition purposes. There was a fine stock of Campanula speciosa (see *Gard. Chron.*, Fig. 52, p. 127), and also good healthy plants of Jankaea Heldreichii, together with the dwarf and uncommon Primula Allionii, and its variety alba. A large batch of Shortia uniflora looked extremely healthy and vigorous, as also did the many specimens of the by no means common Pyrola rotundifolia, while we noticed that Mr. Elliott has an extremely interesting and comprehensive collection of alpine Primulas, including a large number of varieties of the beautiful and, in several instances very rare, alpine Auriculas. A rare alpine shrub which claimed attention was Salix Boydii, which forms a tiny gnarled tree with silvery foliage and was discovered in Scotland by the late Mr. Boyd; also the late Mr. Reginald Farrer's Coffin Juniper, which he introduced from China, where its timber is greatly valued for the making of coffins, and which forms an extremely beautiful subject for the rock garden. Among other subjects that may be described as still comparatively rare in gardens, which are stocked by Messrs. Clarence Elliott, Ltd., are Viola Arkwright's Ruby, with rich, wallflower-red flowers, which caused such a sensation upon its introduction but is now practically lost to cultivation; Thymus Herba-barona, a trailing, lilac-flowered species collected by Mr. Elliott in Corsica, with a scent strongly resembling that of seed cake; Sisyrinchium filifolium, a rare species from the Falkland Islands; Silene acaulis, Elliott's variety, with salmon-rose blooms which are freely produced, discovered by Mr. Elliott on Mt. Cenis in 1920; Saxifraga primuloides, Elliott's variety, a tiny London Pride from the Pyrenees, also the hybrid Saxifraga Myra, raised by the late Mr. Reginald Farrer, and the hybrid S. patens, Elliott's variety; Polygala calcarea, a native plant forming evergreen mats, studded in June with azure-blue flowers, and Pentstemon Six Hills variety, a magnificent small, bushy form which produces freely, during May and June, large, lilac-coloured blooms. Much could be written of these uncommon subjects, of such plants as Linum narbonense, Six Hills variety, Gentiana sino-ornata, thousands of plants of which are sent out annually from the Stevenage nursery; Campanulas in variety; Aubrietias, especially the variety Carnival; Armeria Vindictive and Androsace arachnoidea superba, but we must rest content with just a passing note of them.

Of the plants that claimed attention in the alpine houses, such Saxifrages as S. Grisebachii, Wisley variety, now the pride of many alpine establishments; the true S. valdensis, S. Cherry Trees, S. arco-valleyi, S. squarrosa, a plant of which, collected in the Dolomites, was seen to be sharing a pan with Rhodothamnus Chamaecistus; S. Riverslea, a lovely hybrid just coming into bloom; and a seedling, presumed to be from S. primuloides × aizoides, and fondly named The Foundling, were worthy of note. There were also grand specimens of Lewisia Tweedyi and several other interesting subjects.

The exhibition rock garden itself was not without interest, even so late in the season, for here was to be seen the lovely Ranunculus Gouan, from the Pyrenees, still carrying a few belated flowers, which are large and rich golden-yellow. There was a white-flowered Primula Juliae hybrid already in bloom, while here also was to be seen the original Cupressus tetragona minima, only about six inches high and eight inches through after nearly twenty years' existence.

Bedding Polyanthuses, a very fine strain, are grown in large numbers at Stevenage, while the herbaceous and bedding plant departments, the latter only recently instituted, are being developed rapidly.

PUBLIC PARKS AND GARDENS.

The Bedhampton Parish Council has under consideration the provision of a recreation ground.

The Ewell Parish Council has under consideration the purchase of land at West Ewell from the Epsom Rural District Council, for a recreation ground.

The St. Helens, Isle of Wight, Urban District Council has received sanction from the Ministry of Health to borrow £1,315 for the laying out of the grounds at Puckpool Battery.

The Surveyor to the Worksop Urban District Council is preparing a scheme for the conversion of the piece of land near Memorial Avenue into a park.

The Dagenham Urban District Council has resolved to make application for sanction to borrow £1,520 for work in Valence Park, and £1,790 for Goresbrook Park.

The Deal Parks Committee of the Town Council has received sanction to borrow money for the extension to the park.

The Ministry of Health held an inquiry on December 13, at the Municipal Buildings, into an application by the Plymouth Town Council for sanction to borrow £92,639 for laying out the Central Park.

The Dewsbury Borough Council has received the Ministry of Health's sanction to loans amounting to £3,850 in respect of the following schemes, approved by the Unemployment Grants Committee as unemployment relief schemes:—Two hard tennis courts at Crow Nest Park, £500; footpaths at Earlsheaton park, £1,500; children's playground at Crow Nest Park, £1,000; approach road to Rock House Estate, £750. The Unemployment Grants Committee will contribute seventy-five per cent. of the interest and sinking fund charges of approved expenditure.

HOME CORRESPONDENCE.

Table Decorations (See pp. 336, 414 and 457).—As one, who, for several years, had charge of table decorations in a large establishment, I am in perfect sympathy with Mr. J. Butler. The ornaments which are used in table decorations at flower shows often detract from the flowers themselves. They would not, I am sure, be countenanced in any well-ordered establishment. Admittedly, they do not require the same skill to operate as ordinary vases, but the effect is often to be deplored. Professional gardeners, as a general rule, prefer the plain glass vases and the necessary candelabra to work with. Years ago, it was left to the gardener in charge to carry out his own designs and young gardeners were gradually initiated into this interesting phase of the gardening profession. This method is still in vogue in many establishments I am acquainted with. In the course of my duties, I had the occasion some time ago, of demonstrating to the members of a "Women's Institute" methods of utilising simple material for table decorations, and I gave four examples, using plain glass vases and bowls and autumn flowers. Needless, to say, I disparaged the use of the modern ornaments, as they are often crude and hamper the operator. *John Stoney, Horticultural Superintendent, Stafford.*

Ligustrum ionandrum (p. 448).—Your correspondent gave an admirable description of Ligustrum ionandrum, but I find that the great drawback to growing this fine shrub is that it is not hardy. In 1926, I saw specimens of it over six feet in height killed by frost; and in 1927 a bed of twenty specimens was completely ruined in the midlands. It is a quick grower and easy to propagate, but it does not respond well to clipping, and I doubt if it will displace any of the other varieties, or even Lonicera nitida, which is quite hardy. *W. Fifield.*

Royal Horticultural Society.—After reading his letter, I find myself in agreement with Sir William Lawrence that the Royal Horticultural Society is in a difficult position with regard to the New Hall. When hearing that the Council intended to build a large new hall detached from the old hall and offices, one concluded that they must have an assurance that they could secure some connection either above or below ground, but, apparently, there is no such possibility. So now they are in the position of having a large hall quite detached from the offices, which can only be used for a few large shows, and possibly some committee meetings, but provides no increase in office or library accommodation, the need for which was evident before the new hall was built. During the shows that have been held in the new hall, the necessity of continually passing out into the street from show to offices, has impressed itself upon the Fellows as a hopeless business. It seems, therefore, that after spending an enormous amount of money on the new hall, there is no hope of its ever providing satisfactorily for the requirements of the Society. If so, it is a serious admission, and the sooner the hall problem is fully faced the better, even if it means disposing of the present building and starting afresh somewhere else. *Joseph Cheal.*

Cats and Ultra-Violet Rays.—Why do cats dislike ultra-violet rays? Our pearl-grey tabby would always sit by the window until we inserted vita-glass to admit these rays. Now she will not go near her old place. Is it because cats are nocturnal animals? *John Stelter, Cunningham Place, St. John's Wood.*

Buddleia Davidii v. B. variabilis.—I am not quite clear as to the meaning of Mr. Laurence Cook's letter, on p. 456; however, the name Buddleia Davidii was given by Franchet in *Nouv. Arch. Mus.* Paris (Pl. David II, 103), 1887. Two years later, Hemsley published the name B. variabilis, in the *Journal* of the Linnean Society, XXVI, 120. When collecting for Messrs. Veitch in Hupeh, in 1901, Wilson introduced the variety Veitchiana, which would appear from *Hortus Veitchii* to be the first of their introductions of that species, namely, B. Davidii. *B. O. Mulligan.*

Shrubs in Jersey.—The number of beautiful Australian shrubs which thrive and pass safely through an ordinary winter in Jersey is astonishing. Take Metrosideros florida, which withstood 15° of frost, after a previous wet summer, and, up to the time of the frost, a wet winter. I planted two fairly good plants from five-inch pots two years ago, and thought it a slender chance that they would flower for some years, after the way they started to grow. I almost shouted for joy when I saw the gorgeous effect they made in the early summer after planting. Another shrub which I tried to buy, but failed, is Clianthus Dampieri. I was determined to try this, so bought some seeds, which were sown and placed in a hot-bed. I obtained five or six plants, which were potted into thumb pots. The little plants, all but two, did not seem as if they wanted to live, so as a desperate kill-or-cure effort, I planted them out. One I planted against my own house and left it in charge of a lady gardener, with a description of its beauty, and the remark that I could not buy a plant. I never saw the other plants again, but the one on my house grew apace, and I had a visit from Mr. Treseder, of Truro, who exclaimed, "Hullo, what's this?" By this time, September, it was a thing of beauty and a joy, but not "for ever." The wind was too much for it. I am now wondering if it will survive the winter. *Samares.*

Apple Scab.—In your issue of April 28 of the current year (Vol. LXXXIII, p. 285), you published a note of mine upon the above subject. In the article, I mentioned that certain trees produced scab-free fruits regularly, and suggested that poor nutrition may have the effect of inhibiting scab. A hope that this note might result in other growers relating their experiences proved fruitless, except that your experienced writer *Market Grower* considered it possible that there might be something in the suggestion. Another fruit season has come and gone, and my scab-free trees retain their reputation. They gave cleaner crops than trees which received full preventive treatment. If only I could provide the responsible condition to the rest of my trees, the gain financially would be considerable. I suppose there are few who are content with the present preventive treatment. It is costly and laborious and eminently uncertain in degree of control. It is certain that with most careful spraying the area left uncovered on many fruits is very large, compared with the size of the spore which seems ever present to take advantage of it. Then, again, the weather may make it impossible to spray at all at the necessary date, or may render useless, in an hour, the work of many hours. At present, apparently, we can do nothing to control scab except use our best endeavours to have every fruit covered with a film of chemical for a period of several weeks, so that the ubiquitous spore cannot germinate on the skin. This is proving as difficult in practice as it appears in theory. Now our method of attack assumes the presence of the spores everywhere, as indeed must be the case, and when therefore we find trees of susceptible varieties remaining uninfected, even without spraying, we must conclude that there is something about the tree itself which is responsible for the immunity. Were immunity confined to a single tree, or to one variety, one would hardly be justified in taking much notice, but where immunity covers three of the most susceptible varieties on the place, and these three are growing under similar conditions, one cannot help thinking that complete understanding of these conditions, and what they mean exactly to the trees, will give us the clue to scab control. Perhaps I may state here that the trees referred to are Newton Wonder, Worcester Pearmain and Cherry Apple, growing in close proximity to large trees which compete with them for nutriment. It may not be practicable to plant forest trees among our Apples, but can the result of such interplanting be so scientifically worked out that we can reproduce it without the agency of the trees? In my previous note, I mentioned that moving large trees resulted in the production of clean fruits. This year's crop on those trees was, however, by no means as clean as the year before, so that in this case a better and more efficient root-system has resulted in more scabby fruits. It seems to be the general opinion among growers that scab is increasing in our plantations, and several of the older generation have told me that years ago scab caused no worry at all. Why then should scab increase when we are taking much more trouble in growing the fruits? We spray more, manure more, and prune more, if not in intensity, certainly, as we believe, more intelligently. Concurrently with this, as we believe, more scientific treatment, arises a disease which bids fair to cause more damaged fruits than the older, more haphazard methods were responsible for. It seems that the problem wants tackling in a broader manner, and that all energy should not be spent in the laboratory on discovering the best way of killing the spore, but a great attempt be made to discover the reason why one tree is affected, and the other not. It is well-known that some varieties are practically scab-proof. With me, Charles Ross, Lane's Prince Albert and Bramley's Seedling may be so described. Newton Wonder is my most susceptible variety, but this variety is considered largely resistant by others, while yet other growers complain of Bramley's Seedling scabbing. Why should some varieties be more resistant than others, or more resistant in one place than another? In my humble opinion, the answer to these questions will show us a more effective method of scab control than the almost hopeless one we now practice. *E. Brown, Hillside, Doddington, Sittingbourne, Kent.*

FRUIT GARDEN.

PROTECTING FRUIT TREES FROM HARES.

Many trees, but particularly fruit trees, are subject to damage by hares and rabbits for several years after planting. The damage is not likely to be done during mild weather, but during frosty nights. Both of these pests will travel a considerable distance in order to gnaw the bark of the trees, and in doing so they may permanently injure and often kill the trees attacked.

In order to deal with attacks of this kind, small-mesh wire-netting is necessary. It may be that the whole plantation can conveniently be surrounded by wire, and where it is possible to do so, this is the most effective way of dealing with the trouble. If it is not possible to surround the whole of the trees with wire-netting, it will probably be necessary to wire each tree separately. Short lengths of wire will need to be cut and placed around the stem of the tree, the ends being fastened together so that each tree is effectively protected from attack.

If it is not possible to permanently protect all the trees immediately, temporary measures will be necessary. By simply rubbing the hands up and down the trunk of each tree several times so late as convenient in the day, the trees will be safe for a single night, as both hares and rabbits have very keen scent, and will not for several hours afterwards touch trees that have been handled.

By smearing the tree stems with some obnoxious mixture, it is possible to keep the trees safe from injury for several days, or even for weeks; but care should be taken in the choice of material for painting the stems. Tar has been used for this purpose, and in certain cases where it has been used at all freely the trees have suffered to a greater extent than they could have done even had they been severely attacked by hares. The necessity, therefore, of care in the choice of the protective material will be plainly seen.

Among fruit trees, Apples and Pears are much more subject to attack and injury than are Plums, but the latter do not escape where the plantation consists almost entirely of Plums. In a mixed plantation it is the Apples and Pears that will be injured most, the Plum trees being allowed to remain unharmed. *J. W. Morton.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held early in November, the members of Committee present were Messrs. J. B. Adamson (in the chair), A. Burns, B. Collins, A. Coningsby, J. Evans, A. Keeling, D. McLeod and W. J. Morgan. Mr. J. Keeling was invited to sit with the Committee.

First Class Certificate.

Cattleya Prince John var. ochrea, from the Hon. G. E. Vestey.

Awards of Merit.

Brasso-Cattleya Blanda (parentage unknown), and *Odontoglossum Promerens var. coeleste.*—From The Hon G. Vestey.

Dendrobium Macarthiae.—From Messrs. A. J. Keeling and Sons.

Botanical Certificate.

(Second Class.)

Liparis longipes.—From Messrs. A. J. Keeling and Sons.

Groups.

J. B. Adamson, Esq. (gr. Mr. J. Howes), Blackpool, staged a group, to which a Large Silver-gilt Medal was awarded, of Cypripediums in great variety, including C. Amita, C. Titan, C. Christopher bisepalum, C. John Hartley, C. Corsair, Westpoint variety, C. Earl of Chester, C. Gaston Bultel and C. Madame Albert Février, together with Cattleya Mrs. Pitt, C. Mantinii, and Vanda Amesiana.

The Hon. G. E. Vestey (gr. Mr. B. Collins), Birkdale, staged a group to which a Silver-gilt Medal was awarded. It included Cattleya Prince John var. ochrea, C. Fabia and C. H. S. Leon; Laelio-Cattleya Orion, L.-C. Linda, L.-C. Prince John, L.-C. Leemaniae, L.-C. Mars, and L.-C. Perseus; and Miltonia Hyeana var. La Perle. Mr. John Evans, Colwyn Bay, was awarded a Large Silver Medal for a group of fine examples of Cypripedium Maudiae, C. Wm. Lloyd and C. Alcitorii, and several seedlings, together with Odontoglossum Lambeauianum var. grandis and Vanda coerulea, while Messrs. A. J. Keeling and Sons staged Cypripedium Germaine Opoix, C. Dillimona and C. Felicity; Liparis longipes, Pleione lagenaria and Dendrobium Macarthiae; and Mr. D. McLeod showed Cypripedium Reginald Young, C. leyburnense, C. Actaeus Bianca, C. King George, and C. Mrs. F. Wellesley.

At the meeting held on Friday, November 30, the members of Committee present were:—Messrs. J. B. Adamson (in the chair), A. Burns, B. Collins, A. Coningsby, J. Evans, A. Keeling, D. McLeod, W. J. Morgan and H. Arthur (Secretary).

Awards of Merit.

Cattleya Honoria var. grandis; Cypripedium Anita var. Moonbeam, C. Bisham var. magnificum, C. Stamperland, Towneley Grove variety, and *C. Eury-Belge (Eurybiades × Queen of the Belgians).*—From J. B. Adamson, Esq.

Cypripedium Azrael (Lord Wolmer var. Plutus × Elsie II var. Grand Monarch) and *C. Vert (Maudiae Mag. × Emerald).* From Mrs. Bruce and Miss Wrigley.

Cypripedium Caliph (Nitens-Leeanum-Bectoniae × Pliny, Langley's var.). From Captain W. Horridge.

Laelio-Cattleya Zeno var. Duchess. From The Hon. G. E. Vestey.

Awards of Appreciation.

Laelio-Cattleya Zeno var. rosea and Odontoglossum crispum var. argenteum. From the Hon. G. E. Vestey.

Groups.

Mrs. Bruce and Miss Wrigley (gr. Mr. A. Burns), Bury, were awarded a Gold Medal for a fine group of Cypripediums in great variety including C. Wrigleyanum, C. Maudiae vars. magnificum and coloratum, C. Pallas var. Athene, C. Dreadnought, C. Gaston Bultel, C. King George, C. Madame Jules Hye, C. Bird of Paradise, and Bridge Hall seedlings, such as C. The God Pan var. Excelsior, C. Adrift, C. Herald, C. Queen Mab, C. Morning, C. Paladin, C. Autumn, C. Thamus, C. Vert, C. Azrael and C. Sebastian Cabot. A Special Cultural Award was granted to Mr. A. Burns.

J. B. Adamson, Esq. (gr. Mr. J. Howes), Blackpool, was also awarded a Gold Medal for a group containing Cypripedium Anita var. Moonbeam, C. Stamperland, Towneley Grove variety, C. Eury-Belge, C. Bisham var. magnificum, C. Queen of the Belgians, C. Elise and C. Alcivarna var. Radiant; also Cattleya Honoria var. grandis and C. Maggie Raphael var. alba. The Hon. G. E. Vestey (gr. Mr. B. Collins), Birkdale, staged a group for which he was awarded a Silver-Gilt Medal. It included Laelio-Cattleya Zeno var. Duchess and L.-C. Zeno var. rosea; Brasso-Cattleya Maroniris and B.-C. Jean; Cattleya Portia, Odontoglossum crispum var. argenteum, O. Priapus, O. Miguelito; Odontioda Niobe and O. Diana; and Calanthes Harrisoniae and C. Wm. Murray. Captain W. Horridge (gr. Mr. Coningsby), Bury, staged Cypripedium Caliph, C. Britain's Monarch and C. Nessus; while Mr. John Evans, Colwyn Bay, showed several interesting Orchids, Mr. D. McLeod, Chorlton-cum-Hardy, showing Cypripediums in variety.

NEWCASTLE AND DISTRICT HORTICULTURAL.

Newcastle and district is not what one would call a gardeners' paradise, and horticultural exhibitions have in the past been very unfortunate. Yet it is felt that, given time, the present Society will be able to build up a reputation worthy of the name. There is a good spirit animating this active Society, and the seventh annual exhibition of Chrysanthemums was an example of what can be achieved by a hard-working, wise and skilful committee that is certainly to be congratulated on the possession of Mr. G. W. Patterson as Secretary, while credit is also due to that very able horticulturist, Mr. John Dick, Superintendent of Parks, who presides over the meetings.

The two days' show, opened on November 21 by Councillor A. W. Lambert, M.C., Lord Mayor of Newcastle, and President of the Society, was held in the Corn Exchange, Bigg Market, Newcastle, when over four hundred entries were staged in the Chrysanthemum classes alone. This constitutes a record for the Society. Some of the blooms staged were remarkable in size, colour and texture, and it is doubtful whether more perfect specimens have ever previously come before the gaze of the public in the north.

Six Silver Cups were put up for competition, besides many other valuable prizes. The chief prize winners were:—For a group of Chrysanthemums and other flowering and foliage plants, Mr. J. B. Smith, Fawdon Nurseries (second prize only); six Japanese Chrysanthemum blooms:—first prize and Silver Cup, Mr. Alex. Hay, Stagshaw House; second, Mr. J. Haley, Monkseaton; third, Thos. Anderson, Walbottle. For the best decorated dinner table, Chrysanthemums only, first, Mr. J. Haley; second, Mr. A. Knott, Fawdon; third, Mr. T. Bell, Whitley Bay. For a collection of vegetables, first prize and Silver Cup, Mr. Thos. Etty, Heddon; second, Mr. William Bean, Ebchester; third, Mr. T. Bell, Gosforth.

Members Classes.—Mr. J. Kirkbride, Forest Hall, showed the best miniature rock garden; second, Mr. George Harris, Jesmond; third, Mr. Thos. Rogers, Benwell Hill.

The Silver Cup presented for the most meritorious exhibit by a member of the Society was awarded to Mr. T. Etty, for a wonderful collection of vegetables, perfect in every way. The "E. Brough" Silver Cup, presented for the highest number of points gained by a member of the Society, was won by Mr. J. Haley, Monkseaton.

The trade was well represented by local nurserymen who staged some excellent exhibits, among the exhibitors being Messrs. Ord Brothers, Messrs. J. B. Smith and Co., Mr. Chas. J. Dillon, Mr. T. A. Lawrenson, Messrs. E. F. Fairbairn and Sons, Messrs. Sutton and Sons, Mr. S. Thompson, Messrs. S. Finney and Co., Ltd., and Messrs. J. Patterson and Son.

GUILDFORD AND DISTRICT GARDENERS'

The annual meeting of the above Society was held on November 20, Alderman Patrick presiding over a good attendance of members.

In presenting the annual report, Mr. Patrick reviewed the work of the past year and thanked the various officers and friends of the Society for their services. It was announced that the membership had dropped, and now stood at 705. The statement of accounts showed a balance in hand of £67 11s. 7d.

Mr. Patrick was re-elected President; Mr. Norman Nation, Treasurer; and Mr. C. F. Childs, assisted by Mr. F. Fry, was elected to succeed Mr. Sawyer as Hon. Secretary, Mr. Sawyer being unable to continue in office. Mr. Percy Pettit was elected Show Secretary.

Mr. Stedman communicated the offer, which had reached him that morning, of a Silver-Gilt Medal from *The Gardeners' Chronicle*, to be awarded at next summer's show. The Ladies' Committee, with Mrs. Kinggett as Secretary, was elected with power to add, and the General Committee was elected as follows:—Messrs. W. F. Binfield, J. H. Blunden, A. Blake, A. G. Blandford, J. A. Kirkwood, W. Long, J. Mackay, T. Newman, A. E. Tylecote, G. T. Watson, A. H. White and P. G. Williams.

NATIONAL CHRYSANTHEMUM.

The Floral Committee of this Society met at the Royal Horticultural Hall on Monday, December 10, to consider novelties, two of which were submitted, and each obtained a First Class Certificate.

First Class Certificates.

Winter Sun. II. 1.b.—A handsome Decorative variety with slightly reflexing florets that form an elegant bloom; the colour is defined officially as golden-bronze, but we consider deep orange-fawn a better description. Shown by Messrs. Cragg, Harrison and Cragg.

Friendly Rival. II. 2. b.—Another bright and useful late Decorative variety that suggests descent from W. H. Lincoln as it has dark foliage and stems. The flowers have loosely incurving florets, but the incurving is chiefly at the tips. The colour is a deep and full shade of yellow. Shown by Messrs. Keith Luxford and Co.

SMITHFIELD CLUB.

A week ago, the Agricultural Hall, Islington, was the Mecca of British agriculturists, for on Monday, Dec. 10, the famous annual show of the Smithfield Club opened. The world's finest cattle, sheep and pigs; the most up-to-date agricultural machinery; feeding stuffs and fertilisers of great value were displayed in the customary manner, and the only things required to make the function equal to its predecessors was the presence of our gracious King who, most unhappily, is lying in his London Palace too ill to give agriculturists their wonted pleasure of showing their loyalty and appreciation of the compliment which, whenever at all possible, the King pays to the show. Fervent and sincere were the hopes expressed on all sides that next year would see His Majesty again opening the show.

While the majority of the visitors' first concern was with the prize cattle, sheep and pigs stalled and penned on the great ground floor, many found much interest in the galleries, for there were to be seen the magnificent exhibits of our most famous seedsmen and Potato growers. To most of our readers such names as Suttons, of Reading; Carters, of Raynes Park; Webb, of Stourbridge; Kings, of Coggeshall; Harrisons, of Leicester; and Toogoods, of Southampton, to name only some as their names occur to the mind, are associated with garden seeds of the highest quality. That their agricultural departments are of equal importance would be made fully evident from a visit to the exhibits in the galleries at the Agricultural Hall at Islington. The tiered arrays of Mangolds of gargantuan size and perfect form illustrate the excellence of the seed strains, as well as expert cultivation. as also do the Flat-pol Cabbages, which surpass an occasional table in size. Other purely agricultural vegetables include Parsnips and Carrots of great size, and the Sugar Beet, which is such an important crop in many eastern districts.

But the seedsmen are far from being unmindful of the needs of the farmer's garden, and so they included many examples of, to us, the more familiar types of vegetables, while seed and ware Potatos were extensively displayed. In their large exhibit, Messrs. James Carter and Co. showed Holborn Model and Selected Musselburgh Leeks, Perfection Beet, Ailsa Craig and Cranston's Excelsior Onions, Early Market and Early Horn Carrots, and excellent Cauliflowers, while among the many first-rate Potatos were dishes of Catriona, Majestic, Mr. Bresse, Kerr's Pink, Di Vernon and Lord Tennyson.

The garden section of Messrs. Sutton and Sons was attractively set off by vases of their excellent greenhouse Cyclamens, which drew attention to the quality of the many vegetables. The chief were Dwarf Gem Brussels Sprouts, Red Globe and Early Snowball Turnips, Selected Ailsa Craig and Sutton's A.1 Onions, Autumn Protecting Broccoli, Pride of the Market Cucumber, and Best of All Tomato, while among the Potatos were Red King Edward, Arran Comrade, Abundance, Majestic and Kerr's Pink.

A little further along, Messrs. E. W. King and Co., Ltd., had their customary large exhibit of first-rate roots and garden vegetables. His many friends were pleased to see that Mr. E. W. King had sufficiently recovered from his recent illness to be able to attend the show and extend his customary cheery greeting. Chief among the vegetables were selections of Dark Red and Intermediate Beet, Scarlet Intermediate Carrot, A.1 Onion, Snowball Turnip, Perfection Brussels Sprouts and such Potatos as Express, Majestic, Catriona, Bishop and Midlothian Early.

Their well-known Southampton Champion Onion was prominently displayed by Messrs. Toogood and Sons, who also had very shapely roots of Southampton Intermediate and New Intermediate Carrots, while the Dwarf Red Beet and the Parsnips were of fine appearance. Garden vegetables were not so prominent in the exhibit of Messrs. Edward Webb and Sons, but their grasses and Sugar Beet were well worth attention.

Messrs. John K. King and Sons included very good samples of Scarlet Model Carrot, Parsnips, Red Matchless Onions, with many Potatos, particularly Eclipse and Dargill Early. For several years Messrs. Harrison and Sons have shown at Islington plants and gathered "buttons" of an excellent Brussels Sprout, designated XXXX, which has been one of the chief vegetable features of the garden exhibits in the gallery. On the present occasion there were exhibits of the Brussels Sprout equally as good as before, and the name has been popularised to "Forox." Other vegetables of note in the exhibit included Exhibition Leek, Ailsa Craig Onion and Autumn Giant Cauliflower. Garton's well-known Wheats were set out very attractively, both as herbarium specimens and in small sheaves.

As ever, Potatos were an important feature of the vegetable exhibits, and many firms displayed a considerable variety, both as ware and of seed size. In their customary position, Messrs. Fidler and Sons had a large collection in which it was interesting to notice dishes of such old favourites as Early Puritan, May Queen and Sharpe's Express, with the newer Catriona, Di Vernon, Arran Consul, The Bishop and others.

The following growers also showed Potatos, Messrs. S. Thompson and Sons, Ltd., Messrs. W. and A. Graham, Ltd., Messrs. Little and Ballantyne, Messrs. Cannell and Sons. Mr. Frank K. Sharp, Messrs. Isaac Poad and Sons, Messrs. Robert Morris and Sons, Ltd., Mr. James Gardiner, Messrs. Kent and Brydon, Mr. W. J. Reid, Mr. W. Robertson, Mr. W. J. Campbell, Messrs. Gunn and Co., Mr. George R. Sharp, Mr. Thomas McClung, Mr. John A. Grant, Mr. Alex. Blatchford, who also had Turnips, Parsnips and Onions; and Messrs. Dickson and Sons, who had extensive displays of grasses and agricultural roots.

In their accustomed corner, Messrs. Seabrook and Sons arranged boxes of highly-coloured Apples of regular appearance. The chief sorts were Worcester Pearmain, Ellison's Orange, Wealthy, Cox's Orange Pippin and Rival. They also had shapely little bushes of Ruby Black Currant.

READING GARDENERS'.

There was a very large attendance of members under the chairmanship of the President, Mr. Frank E. Moring, at the meeting held on December 3, at the Abbey Hall, to hear a lecture on "Some disappointments with Hardy Plants, and steps to avoid them," by Mr. A. J. Macself, Editor of *Amateur Gardening*.

In his opening remarks, Mr. Macself stated that there was quite a medium course between the old belief of the "leave alone doctrine" and the "every year moving and replanting." He gave many illustrations of plants that could be left alone for a period, especially those having large, fleshy roots, and advised that young, small plants were preferable to large clumps for planting. Many useful hints were given on the propagation of such plants as Scabious caucasica, Pyrethrums, Phloxes, Heleniums, Michaelmas Daisies, etc.

The lecturer also dealt with diseases and pests and made suggestions as to the prevention of their ravages. In conclusion, he gave useful advice upon the growing of rock plants. The lecture was followed by an interesting discussion.

In the competitive section there was a large number of entries for twenty-five buttons of Brussels Sprouts, no less than fourteen lots being staged. The first prize was won by Mr. H. Goodchild, The Gardens, Queen Anne's School, Caversham. There was also a keen competition in the class for three Parsnips, some fine specimens being shown. The first prize was secured by Mr. E. Blackwell, The Gardens, Foxhill, Reading.

HEXHAM (NORTHUMBERLAND) HORTICULTURAL.

Some months ago, several prominent members of the Hexham Gardeners' Mutual Improvement Society suggested the desirability of holding a Chrysanthemum Show in the autumn. A Committee was formed to endeavour to arrange a show in connection with, but separate from, the Mutual Improvement Society, so far as finances were concerned. The result has been that a most excellent display was provided, not only of Chrysanthemums, but Orchids, Carnations, florists' flowers in variety, hardy fruits and vegetables. The President, A. J. Baty, Esq.; the Chairman, Mr. W. J. Stables; the energetic Secretary, Mr. N. S. Porteous, and the whole of the Committee are to be congratulated on the general arrangements and attractiveness of the exhibition held in the Queen's Hall, Hexham, on December 1. The honorary exhibits included a very fine group of Orchids from Clive Cookson, Esq. (gr. Mr. W. J. Stables), Nether Warden, Hexham. Among the many excellent varieties of Cypripedium were C. Chrysostum, Chardwar var., a giant among its race, C. Oakwood Giant, C. The Prince, C. A. J. H. Smith, C. Maudiæ, C. Mrs. Norman Cookson, C. Warden Surprise, C. Arthurianum, Oakwood var., C. W. H. Page var. Graciae, and many others. Calanthes were well represented by C. Harrisii, C. Cooksoniae, several plants of C. Hexham Gem, the beautiful C. Angola, and the remarkable C. Hexham Lad var. Richard, which received a First Class Certificate in London last year. Several finely flowered examples of Cymbidium Tracyanum and Odontoglossums in variety helped to make a very fine display.—A Large Gold Medal was awarded. Messrs. Fell and Co., Hexham, had a fine display of ornamental shrubs and Primulas (Small Gold Medal).

In the competitive classes for Chrysanthemums there was keen competition. The specimen plants and those arranged in groups were particularly good.

In the cut flower classes, for nine Japanese, three distinct varieties, J. C. Straker, Esq. (gr. Mr. A. Hay), Stagshaw House, Corbridge, was placed first for grand flowers of Mrs. Algernon Davis, Golden Champion and Mrs. R. C. Pulling; second, Lady Allendale (gr. Mr. J. Thomas), Bywell Hall, Stocksfield, who showed Mrs. R. C. Pulling, Julia and Cissie Brunton; third, A. H. Ridley, Esq. (gr. Mr. W. Clayton), Park End, Wall.

For three Japanese blooms, any variety, J. C. Straker, Esq., was placed first, with Majestic, F. J. Fleming and Mrs. A. Davis; second, The Dowager Lady Allendale, with fine blooms of T. W. Pockett; third, A. H. Ridley, Esq., with Majestic. Mr. Straker also led in the class for three white Japanese blooms, with good flowers of Louisa Pockett. For three Japanese yellow, J. C. Straker, Esq., led with R. C. Pulling; second, Lady Allendale, with the same variety, and Mrs. Stowell (gr. Mr. C. Foxcroft), Hexham, was third.

For Single Chrysanthemums, disbudded and not disbudded, Mr. Straker was first in each of the classes. For five blooms, Incurved, he was also chief prize winner; G. H. Weddalove, Esq. (gr. Mr. F. Bolton), Brunton Hall, second; and Mrs. W. W. Gibson (gr. Mr. C. Fox), West Quarter, Hexham, third.

For two bunches of white Grapes, A. H. Ridley, Esq., led with Muscat of Alexandria; second, J. J. Kersopp, Esq. (gr. Mr. C. Kent), The Spetal, Hexham. For two bunches of black Grapes, J. C. Straker, Esq., led with well-finished bunches of Alicante; J. J. Kersopp, Esq., was second.

For eight dishes of Apples, distinct, four dessert and four kitchen varieties, Lady Rayleigh (gr. Mr. E. MacLaren), Beaufront Castle, won first prize, with excellent fruits of Rival, James Grieve, Charles Ross, Worcester Pearmain, Rev. W. Wilks, Peasgood's Nonesuch, Lord Derby and Mère de Ménage; J. C. Straker Esq., second, and A. H. Ridley, Esq., third.

In the class for four dishes of kitchen Apples, Brig.-Gen. Morant (gr. Mr. W. Plant), The Hermitage, Hexham, led, with fine examples of Bismarck, Robert Blatchford, Bramley's Seedling and Grenadier; Lady Rayleigh was second and Captain Keith (gr. Mr. W. Cannell), Santoi, third.

The best four dishes of dessert Apples came from Lady Rayleigh, who showed good fruits of Ellison's Orange, Worcester Pearmain, James Grieve and Charles Ross; Brig.-Gen. Morant was second, and W. Suddas, Esq., Tyne View, Hexham, third. In the class for two dishes of kitchen and two of dessert Apples, J. A. Baty, Esq. (gr. Mr. Thos. Dunwell), Wyne Hall, Hexham, led with fine fruits of Charles Ross, Worcester Pearmain, Eclinville Seedling and Warner's King; Captain Keith, second, and Mrs. Benson (gr. Mr. J. Brown), Newbrough Hall, third.

There was keen competition in most of the classes for vegetables.

HARROGATE AND DISTRICT HORTICULTURAL.

The annual Chrysanthemum Show of the above Society was held at Belvedere, Harrogate, on November 21 and 22, and proved a great success, for there were about two hundred entries, and the exhibits in all departments were of a very high standard, the Japanese and Single Chrysanthemums being of exceptionally good quality.

In the floral section, Lt.-Col. Sir William Ingleby, Ripley Castle, was remarkably successful, securing no fewer than nine first prizes. Another prominent exhibitor was Mr. R. Jones, Harrogate, who won six first prizes and eight second awards; he also secured the Large Silver Medal for the premier bloom in the show, with a grand specimen of Majestic. Two special prizes were offered, the Challenge Cup, presented by A. Feldman, Esq., being won by Mr. R. Jones, while for the Challenge Shield, presented by Councillor A. Mackay, to the most successful allotment holder, the competition resulted in a tie between Mr. L. Whincup and Mr. J. Bellerby, the latter withdrawing his claim.

Other prominent prize-winners were Major H. Nicholls, Mr. P. Cardwell, Mr. H. Young and Mr. R. Etherington.

The Harrogate Corporation staged a non-competitive exhibit, which was arranged by the Parks Superintendent, Mr. Besant. For a display of Cacti, Mr. W. Johnson, an amateur grower, received a Large Gold Medal, while Gold Medals were also awarded to Messrs. P. Cardwell, Mr. A. W. Whitelock and Messrs. Keith Luxford and Co.

Both in quality and quantity the vegetables shown in the classes for amateurs and allotment holders were of a high standard, while an interesting item in the show was a Chrysanthemum plant bearing two-hundred-and-twenty-eight blooms, grown and exhibited by Mr. R. Jones.

Obituary.

Robert Holmes.—We regret to record the death of Mr. Robert Holmes, of Tuckswood Farm, Norwich, on December 1 last. Mr. Holmes was an interesting market grower whose hobby was the raising of new varieties of market value, and, while his new creations did not always come up to his hopes and expectations, horticulture is indebted to him for some very valuable flowers, and particularly Kondine Red Tomato, a variety which soon became immensely popular with market growers. Before turning his attention to the Tomato, Mr. Holmes was keenly interested in Chrysanthemum for market purposes and raised many seedlings, including Holmes's White, the best early white variety of its time. Another Chrysanthemum of his introduction was Lizzie Adcock, a good yellow sport from the even better-known Source d'Or. For some years his Sweet Pea Maud Holmes was one of the best crimson varieties.

William G. Smith.—With regret we record the death of Dr. William G. Smith, a famous Scottish botanist, which occurred recently at Edinburgh. Dr. Smith, who was a Dundee man, had a very distinguished career. He graduated in pure science at St. Andrew's University, and after teaching for some time at the Morgan Academy, Dundee, was appointed external lecturer in agriculture under the Forfarshire County Council. Later, he held the post of demonstrator in botany under the late Professor Sir Isaac Bayley Balfour. He then studied at Munich University for two years, and was awarded the degree of Ph.D., and on returning to Scotland was appointed lecturer in botany at Leeds University, a post he held for eleven years. He was appointed head of the biological department at the Edinburgh and East of Scotland College of Agriculture in 1908, and was recently promoted to the post of advisory officer in agricultural botany under the recent scheme for the carrying-out of research work in agricultural problems, fostered by the Development Commission. Dr. Smith is survived by his wife and four children—two sons and two daughters, to whom we extend our sincere sympathy.

CATALOGUES RECEIVED.

The En-Tout-Cas Co. (Syston), Ltd., Syston, Leicestershire.—Country house and Estate Work, Gardens, etc.; Hard Tennis Courts, etc.

Fisher, Son and Sibray, Ltd., Royal Nurseries, Handsworth, Sheffield.—Flower and Vegetable Seeds.

James Carter and Co., Raynes Park.—Flower and Vegetable Seeds, Tools, etc.

MARKETS.

COVENT GARDEN, Tuesday, December 18th, 1928.

Plants in Pots, etc. : Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum, per doz. ...	10 0–12 0
—elegans ...	10 0–12 0
Aralia Sieboldi	8 0—9 0
Araucarias, per doz.	30 0–40 0
Asparagus plumosus ...	12 0–18 0
—Sprengeri ...	12 0–18 0
Aspidistras, green ...	16 0–60 0
Aspleniums, doz.	12 0–18 0
—32's	24 0–30 0
—nidus ...	12 0–15 0
Cacti, per tray, 12's, 15's ...	5 0—7 0
Chrysanthemums per doz. ...	15 0–24 0
—white, per doz.	15 0–24 0
—yellow „	18 0–24 0
—pink „	21 0–24 0
—bronze „	12 0–18 0
Crotons, per doz.	30 0–45 0
Cyclamens, per doz.	24 0–36 0

	s. d. s. d.
Cyrtomiums ...	10 0–12 0
Erica gracilis, per doz. ...	24 0–30 0
— — 60's, per doz.	12 0–15 0
— — 72's, per doz.	6 0—8 0
— — hyemalis, per doz. ...	24 0–30 0
—nivalis, per doz.	24 0–36 0
— — 60's, per doz.	12 0–15 0
— — 72's, per doz.	6 0—8 0
Nephrolepis in variety ...	12 0–18 0
—32's	24 0–36 0
Palms, Kentia,	30 0–48 0
—60's	15 0–18 0
Pteris in variety	10 0–15 0
—large 60's ...	5 0—6 0
—small... ...	4 0—5 0
—72's, per tray of 15... ...	2 6—3 0
Solanums, per doz.	18 0–24 0
— 60's, per doz.	8 0—9 0

Cut Flowers, etc. : Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	15 0–18 0
—cuneatum, per doz. bun. ...	9 0–10 0
Anemone, St. Brigid, per doz.	6 0—9 0
Arums (Richardias), per doz. blooms ...	9 0–12 0
Asparagus, plumosus, per bun., long trails ...	2 6—3 0
—med. sprays	2 0—2 6
—short „	— 1 0
—Sprengeri, bun. long sprays...	2 0—2 6
—med. „ ...	1 0—1 6
—short „ ...	0 6—1 9
Autumn foliage, various, per doz. bun. ...	6 0–12 0
Camellias, white, per doz. blooms	2 0—2 6
Carnations, per doz. blooms	5 0—8 0
Chrysanthemums—	
—red, per doz. bunches ...	21 0–30 0
—white, per doz. blooms ...	3 6—9 0
—yellow, per doz. blooms ...	4 0—8 0
—bronze, per doz. bunches ...	18 0–24 0
—bronze, per doz. blooms ...	3 6—7 0
—pink, per doz. bunches ...	18 0–30 0
—pink, per doz. blooms ...	4 0—7 0
Croton leaves, per doz. ...	1 9—2 6
Daffodils, single, per doz. blooms	4 0—4 6
Fern, French, per doz. bun.	10 0–12 0
Forget-me-nots, per doz. bun.	12 0–15 0
Freesia, white, per doz. bun.	3 6—4 0
Gardenias, per doz. blooms	9 0–15 0
Heather, white, per doz. bun.	9 0–12 0
Hyacinth, Roman, on bulbs, per doz.	4 0—5 0
— — 6's, per doz. bun. ...	4 0—5 0
Iris tingitana, per doz. blooms	5 0—7 0
Lilac, white, per doz. sprays...	5 0—6 0
— mauve, per doz. sprays...	8 0–10 0

	s. d. s. d.
Lily-of-the-Valley, per doz. bun.	18 0–36 0
Lilium longiflorum, long, per bun.	4 6—5 0
— — short, per doz. blooms...	5 0—6 0
—speciosum rubrum, long, per doz. ...	5 0—6 0
— — — short, per doz. ...	2 6—3 0
Marigolds, per doz. bun. ...	5 0—6 0
Myrtle, green, per doz. bun.	1 6—2 6
Narcissus, Paper White, per doz. bun.... ...	3 6—4 0
Orchids, per doz.	
—Cattleyas ...	18 0–30 0
—Cypripediums	6 0—8 0
Poinsettias, per doz. blooms	18 0–30 0
Prunus triloba, per bunch ...	4 0—5 0
Roses, per doz. blooms—	
—Mme. Butterfly	6 0–12 0
—Columbia ...	6 0–10 0
—Golden Ophelia	6 0—9 0
—Richmond ...	8 0–12 0
—Roselandia ...	9 0–12 0
—Molly Crawford	3 0—5 0
Smilax, per doz. trails ...	4 6—5 0
Tulips, scarlet, on bulbs, per doz. blooms ...	4 0—4 6
—white, on bulbs, per doz. blooms	3 6—4 6
Violets, Prince of Wales, per doz. bun.... ...	4 0—6 0
French Flowers—	
—Acacia (Mimosa), per doz. bun.	18 0–20 0
—Chillies, loose, per pad ...	5 0—6 0
—Eucalyptus foliage, per pad	7 0—9 0
—Marigolds, per pad	6 0—8 0
—Narcissus, Paper White, per doz. bun.	3 0—4 6
— Narcissus, Soliel d'Or, per doz. bun. ...	4 0—5 0
—Roses, Safrano, per pkt. 24's	3 0—3 6
—Ruscus foliage, per pad ...	8 0–10 0
—Solanum berries, loose, per pad	8 0—9 0
—Violets, Parma, large, per bun.	8 0–10 0

Remarks.—All cut blooms and flowering bulbs should be in great demand during the next few days. Chrysanthemums are likely to remain fairly plentiful, but prices, no doubt, will advance for white and red blooms, also for the best lines in spray sorts before the end of the present week. Carnations and Roses are already considerably more valuable, owing to much shorter supplies caused by severe weather. This also applies to Violets, which are very limited in quantity. Other lines which will become more valuable are Arums (Richardias) and Lilium longiflorum. Poinsettias should meet with good demand, also Christmas Roses (Hellebores), white Lilac and Daffodils. A few sprays of mauve Lilac and Prunus, in good condition, were on sale to-day. Roman Hyacinths and white and coloured Tulips on bulbs are selling freely, as also are blue Irises and Poinsettias in pots. Supplies from the south of France are on the increase. A few boxes of Narcissus Paper White and N. Grand Primo have been received from the Channel Islands in good condition, and a few Wallflowers have come to hand. Mistleto is also arriving in fairly large quantities, and the quality is good generally. Large consignments of well-berried Holly sprays are arriving in boxes from Cornwall and Devon. At present there is an ample supply of Christmas Trees of various sizes.

Fruit : Average Wholesale Prices.

	s. d. s. d.
Apples, English—	
—Cox's Orange Pippin, ½-bushel	8 0–22 6
—Bramley's Seedling	10 0–14 0
—Newtown Wonder	8 0–12 0
—Lane's Prince Albert ...	8 0–12 0
—Blenheim Pippin, ½-bushel	3 0—6 0
— Californian— Newtown Pippin, per case	10 6–11 0
—American Jonathan... ...	10 6–11 0
—Oregon, per case	11 0–14 0
—Spitzbergen...	10 0–13 0
—Nova Scotian—	
—Ribston Pippin	26 0–30 0
—King's ...	26 0–37 0
—Golden Russet	30 0–36 0
—Baldwin ...	26 0–30 0
—Wellington ...	28 0–32 0
Bananas, per bun.... ...	23 6–40 0
Dates, dry, in cartons ...	5 0—6 6
Grapes, English—	
—Muscat of Alexandria, per lb.	5 0—9 0
—Alicante ...	1 6—3 0
—Gros Colmar	1 9—3 6

	s. d. s. d.
Grapes, Almeria, per barrel ...	18 0–26 0
Grape Fruits—	
—Honduras ...	— 20 0
—Jamaica ...	— 18 0
—Florida ...	— 25 0
—Dominica ...	— 20 0
Lemons, per case—	
—Messina ...	14 0–32 6
Nuts—	
—Brazil, cwt. ...	— 90 0
—Chestnuts, Italian, bag	20 0–30 0
— — French „	10 0–15 0
—Walnuts „	10 0–12 0
Oranges—	
—Jaffa ...	14 0–15 0
—Jamaica ...	— 15 0
—Murcia ...	14 0–20 0
—Denia ...	15 0–25 0
Pears, English—	
—Doyenné du Comice, trays, specials, per doz.	6 0–12 0
—trays, medium	3 0—5 0
—American—	
—Washington Anjou ...	24 0–25 0
—Winter Nelis	17 0–17 6
—Californian Doyenné du Comice, case	30 0–32 0
Pineapples, case	20 0–35 0

Vegetables : Average Wholesale Prices.

	s. d. s. d.
Asparagus, English	8 0–12 0
—French ...	12 0–14 0
—Italian ...	5 0—6 0
Beans—	
—Guernsey, per lb.	1 6—4 0
—Madeira ...	2 6—5 0
Beet, per bag....	5 0—6 0
Brussels Sprouts, ½-bag. ...	2 6—4 0
Cabbage, per doz.	0 9—1 3
Carrots, ½-bag...	2 3—2 6
Cauliflowers, English—	
—Cornish, crates, 18's, 24's ...	10 0–12 0
Kent, 15's...	6 0—7 0
—French— St Malo ...	8 0—0 0
Celery, washed, per doz. ...	18 0 24 0
Cucumbers, doz.	15 0 20 0
Lettuce, Cabbage, English, doz.	0 6—1 6
—French, indoor, 48's	4 0—6 0
— — outdoor ...	6 0—7 0

	s. d. s. d.
Mint, per doz. bun.... ...	4 0—6 0
Mushrooms—	
—cups, per lb.	2 0—3 0
—broilers „	1 8—2 0
Parsnips, cwt....	6 0—7 0
Peas, hothouse, per lb. ...	5 0—6 0
Potatos—	
—English, cwt.	3 6—7 0
—Azores, new per case ...	12 0–20 0
—new hothouse, per lb.	1 0—1 6
Rhubarb, forced, per doz. ...	2 6—3 6
Savoys, per doz.	1 6—2 0
Seakale, punnet	2 0—2 6
Tomatos, English, New Crop—	
—pink... ...	8 0–10 0
—pink and white ...	8 0–10 0
—Canary Island, per bundle ...	14 0–16 0

Remarks.—Business conditions in Covent Garden Market are no better than fair; in fact, for the time of the year, there is much room for improvement. Hothouse Grapes are plentiful and supplies from Belgium are also heavy. Grapes are always popular at Christmas, and prices are being maintained. There are ample supplies of Pineapples, and they are moving out satisfactorily. The earliest arrivals of Peaches and Apricots from South Africa are now available, and are selling fairly well. The demand for English Apples is not quite so keen, but there is some improvement in the trade for Apples from the United States and Canada. There are still a few English Tomatos on the market, as well as ample supplies of Tomatos from the Canary Islands. Bananas from that source are on the scarce side, but prices remain steady, with an upward tendency. Cucumbers are scarce and costly. Choice vegetables, such as hothouse Peas, Beans and new Potatos and Asparagus, have not been selling quite so freely, and prices, although still high, are a shade easier. Nuts for Christmas trade are in good supply, with a keen enquiry for Walnuts. Mushrooms remain a steady trade, with prices showing little or no fluctuation. Green vegetables are not a particularly keen business, although prices for Brussels Sprouts are inclined to move upward. Salads, mainly from France, are selling well. The trade in old Potatos is moderately good.

GLASGOW.

The tone of the cut flower market was firm last week and prices reflected a general upward trend. Chrysanthemums were in good demand at the following quotations: Ada Brooker, 2s. 6d. to 3s. for 6's; Autocrat, Favourite Red Lincoln, Framfield Pink and Winter Cheer, 2s. to 2s. 6d.; Thanksgiving Pink, 2s. to 2s. 3d.; Jean Pattison, 1s. to 1s. 6d.; Baldock's Crimson (small), 8d. to 1s. 3d.; Winter Cheer (small), 6d. to 8d.; and Tuxedo, 2s. to 3s. per dozen. Carnations advanced to 4s. to 5s. 6d. per dozen; Pink Roses sold at 6s., red and white Roses, 4s. to 6s.; Narcissi, 2s. to 4s. per dozen bunches; Richardias, 5s. to 6s. per bunch; Smilax, 2s. to 2s. 6d.; and bowls of Tulips, 1s. to 2s. each.

Christmas Trees were worth from 2s. to 10s. each, according to size; Mistleto, 5s. to 6s. per stone; and Holly, 6s. to 8s.

Despite the frequent arrival in the Clyde of shipments of American and Canadian Apples, and Valencia and Jaffa Oranges, prices have been well maintained, and in certain classes prices have advanced further. Newtown Pippin Apples sold at 15s. to 17s. per case; Delicious, 12s. 6d. to 14s.; Jonathan, 11s. to 13s.; Winesap, 11s. 6d. to 12s. 6d.; Greening, 32s. to 35s. per barrel; York Imperial, 30s. to 33s.; and Winesap, 30s. to 32s. Jaffa Oranges ranged from 17s. to 19s. for 144 and 180 counts; Valencia, 504, 15s. to 18s.; 300, 16s. to 20s.; 360, 16s. to 20s.; and Mandarin, 22s. to 28s. for cases of 420, and trays 1s. 9d. to 2s. 4d. There was very little demand for Grape Fruits and Jamaica brands were quoted nominally at 14s. per case. Winter Nelis Pears sold at 24s. per case for Californian brands, and 18s. to 20s. for Washington. Almeria Grapes realised 15s. to 40s. per barrel; hothouse Grapes, 2s. to 3s.; Belgian, 1s. 2d. to 1s. 4d.; and Teneriffe Tomatos, 16s. to 23s. per bundle.

In the vegetable market Cucumbers were unchanged at 24s. per dozen; French outdoor Lettuces made 3s. 6d. to 4s. per dozen; Cauliflowers, 4s. to 5s.; French Beans, 4s. to 5s. per box; Brussels Sprouts, 5s. per net; and Mushrooms, 2s. 3d. to 2s. 6d. per lb.

ANSWERS TO CORRESPONDENTS.

Begonia Diseased.—The Begonia plant was attacked by the foot rot fungus, Thielavia basicola. The cow manure which has been added is harmful—the affected plants requiring potash manures (sulphate of potash), but no nitrogenous fertilisers. Watering must be carried out carefully; the soil in your case appeared very moist, and the disease spreads quickly in wet and badly drained composts. The soil should be subjected to partial steam sterilisation (180°F. for three hours) before it is used.

Carnations Diseased.—*J. R.* Owing to the meagre material submitted, it is quite impossible to diagnose the disease of the Carnation foliage. The trouble appears to be physiological, but it may be due to the presence of the fungus which causes stem wilt. An entire plant must be sent before a correct diagnosis may be made.

Cottage Garden Land for Trade Purposes.—*C. B.* As your mother has resided so long in the cottage you are entitled to claim the protection of the Rent and Mortgage Interest (Restrictions) Acts, and cannot be turned out of the cottage so long as such Acts remain in force, unless the purchaser can satisfy the Court that the dwelling-house is reasonably required for his own occupation or that of any son or daughter of his over eighteen, and that greater hardships would be caused by refusing an order for possession than by granting it, or unless the purchaser can satisfy the Court that the dwelling-house is required for some person *bonâ fide* living with him or in his whole-time employment, and that alternative accommodation is available. The question whether you may, at the end of your tenancy, remove the rock plants which you have planted in your garden depends on whether they are grown for sale. A private person cannot remove flowers or plants at the end of his tenancy, although planted by himself, but a nurseryman or market gardener can do so if they have been planted by him in the way of his trade and form part of his stock-in-trade.

Pests on Begonia Optima.—*E. L.* Your Begonia plants are attacked by what is generally termed Begonia "rust," which is really a microscopic mite. The remedy you suggest should prove effective, but failing that, dipping the plants in Tobacco water, or if they are too large, spraying them with it, should check this pest.

Communications Received.—F. J.—R. F.—A. G.—J. B.—C. G. B.—J. C.—N. F. B.—J. W. M.—A. W.—H. G.—W. L.—J. S.—E. M. D.—G. F. W.

THE

Gardeners' Chronicle

No. 2192.—SATURDAY, DECEMBER 29, 1928

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 36·5°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Monday, December 24, 10 a.m. Bar. 30.3 Temp. 46°. Weather, Dull.

The Glasshouse Plant and its environment: II.—In Relation to Disease.

The mycologist of an earlier generation was so intent on discovering the fungus or other micro-organism associated with this or that plant disease that his philosophy of disease was apt to be incomplete. The skilful cultivator, on the other hand, recognising that if a plant is grown well it keeps fit, was apt to think slightingly of the work of mycologists. The new race of mycologists, of which Dr. Bewley is a distinguished member, taking a larger view of their functions, recognising that parasitic fungus, environmental conditions and host plant constitute a complex which must ultimately be studied as a whole, have bridged the gulf which at one time separated grower and mycologist, and by so doing have rendered a great service both to science and to horticulture. In illustration of this newer and truer outlook, Dr. Bewley, the first part of whose paper read before the Association of Economic Biologists was considered last week, devoted the concluding part to the subject of "the effect of environmental conditions upon certain diseases." He gave examples of his thesis from observations on the incidence of disease in the Tomato. Seedling Tomatos grown in a given soil may show no sign of damping-off when the seeds are sown in December; yet seeds sown in similar soil in June may be completely lost by attacks of the damping-off fungus (Phytophthora parasitica). The explanation is simple. The parasite flourishes in relatively high temperatures (80°F.). The nearer the temperature approaches this optimum the surer is the victory of the fungus. Other parasitic fungi which attack the Tomato—Phytophthora cryptogea and Rhizoctonia solani—have a rather lower but still high optimum for infection and spread. The optimum for the former is 75°F. and for the latter 65°F. When the temperature is below 50°F. these diseases are not vigorous enough to do much damage. They all require high humidity as well as high temperature, and advantage of this fact is taken by drying the surface soil of the seed-box by raking—a device which suffices to check the Phytophthora but not the Rhizoctonia. Another parasitic fungus is Thielavia basicola, which attacks Tomatos in the pot stage. Temperature and rate of root growth between them determine the susceptibility of the plant to this disease. The fungus is most potent to infect plants when the temperature is 55°F., but it only spreads rapidly in the plant when the latter is growing slowly. Increase the rate of growth and the disease is checked. The dreaded Stripe disease attacks plants of soft and rapid growth. Sunshine, if and when available, is the sure cure; under the sun's rays the Tomato plants harden and the disease is checked. In dull weather and high humidity the disease finds its occasion and severe outbreaks occur. Temperature also helps to defeat Stripe. With a day temperature of 75°F. the disease fails to make much progress. Yet another Tomato trouble, known as Sleepy disease, and due to the fungus Verticillium albo-atrum, shows striking temperature relations. It is a low temperature disease. A knowledge of the temperature of the first week after planting permits of a sure prophecy concerning the probability of an outbreak of this wilt disease. Temperatures between 60°F. and 75°F. favour the rapid progress of the disease, but if wilted plants are put in temperatures above 77°F. they recover; for at this temperature the fungus is unable to produce the toxins which poison the plant. Hence, Dr. Bewley recommends the following method of cure: Replace watering by overhead damping, shade the house, and keep it at a temperature round about 77°F. So also in the case of Spot disease of Cucumber, due to Colletotrichum oligochaetum. Soil sterilisation by steam, and disinfection of the infected glasshouse, together with temperature control, serve to eradicate this dreadful disease. Keep the house at a fairly even temperature above 86°F., and Spot disease makes but little progress. These carefully conducted investigations are not only of great immediate interest, but are full of promise for the horticulture in the future. The author and his colleagues deserve and have our thanks for the patience with which they have pursued their investigations, and for the valuable and suggestive results which they have achieved.

"The Gardeners' Chronicle" Almanac for 1929.—Our Almanac for 1929 is now being prepared, and we are anxious to include in it as many dates of horticultural meetings and exhibitions as possible. Secretaries of horticultural, botanical and floricultural societies are therefore requested to send us the dates of their shows and meetings for the coming year on or before Tuesday, January 1, 1929.

Royal Horticultural and Arboricultural Society of Ireland.—This useful Society held its annual general meeting of members at 5, Molesworth Street, Dublin, on the 10th inst., under the presidency of Lady Greer, O.B.E. The annual report presented was a most satisfactory one, and the financial position revealed a very happy state of affairs, showing a balance of £243 18s. 5d. on a turnover of £1,003 8s. 4d. Show expenses amounted to £412 1s., and show receipts to £326 4s. 6d. The balance sheet shows assets to the value of £542 2s. 2d.—including £300 investments, and £200 on deposit—with liabilities nil. Arrangements have been made to hold a Spring Show on April 17 and 18, 1929, in the Covered Court, Earlsfort Terrace.

American Nurserymen's Co-operative Advertising Campaign.—A large proportion of the space in recent issues of our American horticultural contemporaries have been devoted to the subject of co-operative advertising by nurserymen. A sum of nearly half-a-million dollars has been subscribed up to date, but an annual amount of 150,000 dollars is aimed at. Arrangements have already been made whereby Professor C. E. Cary, Director of the Educational Division of the American Association of Nurserymen will devote his whole time to the project and, by means of monthly bulletins, keep subscribers in touch with the progress of the campaign, and encourage correspondence from them concerning their special lines. A prominent American nurseryman, Mr. O. W. Fraser, writing in *The National Nurseryman*, puts the case for the campaign; he states that 'for a period of several years the necessary business has been good. This has been due in part to the embargo placed on foreign stock some years ago, with the resulting shortage of first-class materials, and to universal prosperity which increased the buying power of the average citizen. We have also benefited considerably through the splendid work done by garden clubs and civic improvement bodies all over the country. But all this temporary good business was not promoted to any considerable degree by the nurserymen themselves. We now have a rapidly accumulating surplus of nursery products, with a somewhat slacking interest on the part of the buying public. At the same time, we are meeting competition from many other lines which are carrying on extensive campaigns and making a strong plea for the public's money. I believe, if the plans of our campaign are heartily supported by every nurseryman, the future of the nursery industry will be bright. But the campaign cannot be a success unless every nurseryman, in every town and village, over the entire country, co-operates." A far-sighted policy of increasing sales is certainly better than the short-sighted one of reducing production.

Ashridge Estate.—We understand that the action of the National Trust in letting the shooting rights of this property to some local sportsmen, has been severely criticised in some quarters. At a recent meeting of the Hertfordshire Natural History Society a resolution deploring this action on the part of the National Trust, was passed. The resolution affirms that the preservation and shooting of game naturally results in the destruction, disturbance and discouragement of various beautiful and interesting forms of wild life; and that the establishment of this recently acquired national estate as a nature reserve is much more in accord with public feeling, and with aesthetic and scientific interests, than the letting of the shooting rights to private persons.

Potato Immunity Trials.—According to the recently-issued *Ninth Report* of the Council of the National Institute of Agricultural Botany, the Lord Derby Gold Medal Potato trials again attracted a large entry of the new immune varieties. It was decided to have two separate trials, one for three early varieties, with Epicure and Ninetyfold as controls, the other for six late varieties, with Great Scot, Majestic and Kerr's Pink as controls. The Committee responsible for the trials agreed unanimously to award a Gold Medal to the early variety 520, since named Arran Crest. This is a notable triumph for Mr. D. MacKelvie, for it is the third time in four years that he has won the medal, the varieties on the previous occasions being Arran Banner and Arran Consul. The result of the trial of the late varieties has not yet been announced, but it is possible to state that the general standard of the varieties entered for both trials was good and distinctly higher than used to be the case some years ago. The Council heartily endorses the view of the Gold

Medal Committee that the work of the firms and individuals who are engaged upon the production of varieties of the class entered for these trials nowadays, is in the best interests of Potato husbandry and is worthy of every praise.

Herb Collecting as Relief Work in China.—Interesting relief work for distressed Chinese has been organised at Tatung, North Shansi; it consists in the collection of Ephedra, a plant known locally as Ma Huang. There appears to be a great demand for the alkaloid produced by species of Ephedra, and as the plants grow wild by the roadsides and on the hills, they may be had for the gathering. At Tatung, some two hundred tons were collected within a radius of about twenty miles and the collectors received four thousand dollars. There are upwards of thirty species of Ephedra and several are hardy in this country. E. altissima was first figured in *The Gardeners' Chronicle* of June 28, 1890, p. 792, from specimens grown at La Mortola; it has brilliant scarlet fruits. This species was subsequently illustrated in the *Botanical Magazine*, t. 7,670, but no reference is made there to the economic value of this or other species. There is, however, an interesting reference in *The Treasury of Botany* to the effect that Ephedra distachya "abounds in the southern parts of Russia; its fruit is eaten by the peasants and by the wandering hordes of Great Tartary. The branches and flowers of some of the Ephedras have been used to stop bleedings and discharges."

Bermuda Lily Growers.—Cultivators and shippers of Bermuda Lilies have combined for their mutual protection under the title of the Bermuda Harissii Lily Growers' Association. This is the outcome of a meeting convened by the Bermuda Department of Agriculture, at which prices and contracts for bulbs were discussed.

Locust Plagues in South Africa.—It is gratifying to learn that success has attended the efforts of the Locust Department of the Union of South Africa to combat plagues of locusts; indeed, it would appear that with the exception of the south-west district, South Africa is now clear of the pests. Minor outbreaks are now quelled promptly, with the result that serious damage to crops—often resulting in a loss of many hundreds of thousands of pounds a year—is prevented. The scientific study of the Locust, its life history and habits, has brought about this greatly desired result.

The George Robert White Medal.—It is announced that the George Robert White Medal of Honor, a much coveted American honour, has been awarded to Colonel William Boyce Thompson, of Yonkers, New York, for his valuable services to horticulture. This is considered to be the highest award in horticulture in America, and is made possible by a fund of 10,000 dollars, left by the late George Robert White to the Massachusetts Horticultural Society. Colonel Thompson has done great work in the advancement of horticulture in the United States, among his many activities being the establishment of the Boyce Thompson Institute for plant research, and the selection of him as the recipient of this honour has met with general approval.

Legacies to Gardeners.—The late Mr. Matthew Shaw Newton, of Wye Bank, Oakfield, Ashton-on-Mersey, who died on October 29, left £100 to his gardener, Mr. Harry Wallwork.—The late Mr. James Porter, of West Park House, Leslie, Fife, who died on August 20, left £50 each to his gardeners, Mr. William Darling and Mr. George Harley.

The Foresters' Diary and Pocket Book.—To those who are connected with, or interested in forestry, we strongly recommend Webster's *Forester's Diary and Pocket Book* for 1929. The list of foresters which it contains is an exclusive feature, and the information set forth in the handbook section should prove extremely valuable to landowners and land agents, estate agents, auctioneers, foresters and nurserymen. It is interesting to note that among the information given is a list of trees and shrubs suitable for coast protection, namely:—Populus alba and P. canescens, Pyrus Aria, Acer Pseudoplatanus, Salix caprea, Pyrus Aucuparia, Quercus Ilex, Pinus species—P. Laricio, P. halepensis, P. insignis, P. Pinaster and P. silvestris we are informed, all do well on the western and southern coasts; Tamarix anglica, Hippophae rhamnoides, Cornus Mas, Sambucus nigra, Bupleurum fruticosum, Euonymus japonicus and Ulex europaeus. This *Diary* is published by Messrs. Ernest Benn, Ltd., 154, Fleet Street, London, E.C.4., at 4s. post free. It is of handy pocket size, and very well prepared, being strongly bound, with a pencil attached.

Mr. J. Hewitt.—Loyalty is a prominent trait among gardeners, as in many instances, after gaining the necessary experience, they settle down in charge of a garden and serve an employer for the rest of their lives. Mr. J. Hewitt is an example of unswerving loyalty added to skill as a cultivator and organiser. Born in 1847, he only retired recently when in his eighty-second year, after serving at Kimbolton Castle, Huntingdonshire—the residence of His Grace the Duke of Manchester—for the long period of fifty-five-and-a-half years, and for just over forty years of that period he was head gardener. In early life he had a hard struggle, as he was born on the day that his father was buried, and his mother was left to face the world with six sons and two daughters. At the age of seven he received 1s. per week as an errand boy and worked ten hours a day for that sum! Later on, he worked as a farm lad for 2s. 6d. per week, but as a young man he sought and obtained more congenial employment at Kimbolton, where he remained until his retirement, advancing from labourer to journeyman, journeyman to foreman and foreman to head gardener. During the fifty-five-and-a-half years he remained at Kimbolton, Mr. Hewitt served under three Dukes of Manchester—a fine record in one family.

MR. J. HEWITT.

Canadian-grown Grapes.—It is not generally known that in Canada Grapes ripen in the open air. In southern Ontario, where a considerable acreage is laid out as vineyards, the crop of Grapes for the present year amounted to 52,000,000 lbs., an increase of fifty per cent. over the crop of 1927.

Royal Society of Arts Lectures.—During the two first months of the New Year several lectures of interest to horticulturists will be delivered at the home of the Royal Society of Arts, John Street, Adelphi, London. The Cantor Lectures on "The Treatment of Coal" will be given by Mr. C. H. Lander, D.Sc., on January 21 and 28, and February 4. "Museums of Education" will be discussed by Sir Henry A. Miers on January 23; while Mr. Cecil Hooper will lecture on "The Pollination of Fruit Blossoms and their Insect Visitors" on February 13. The lectures commence at 8 p.m.

Medal for Best Carnation Novelty in America.—A Gold Medal, known as the Marcellus Adams Patten Memorial Medal, has been offered for award every five years by the American Carnation Society for the Carnation approved of greatest commercial value during the five-years period, the decision being made three years after the end of each period, so that the varieties distributed during the five years may be thoroughly tested. In accordance with the rules governing the award, which state that the medal shall be awarded on the result of a poll of the members of the American Carnation Society, voting cards have been issued bearing the names of the eligible Carnations, *i.e.*, those introduced between January 1, 1921, and December 1, 1925, with the instructions that first, second and third choice be recorded and the card returned. Among the varieties considered to be in the running for the first Memorial Medal are Fair Harvard, Hope Henshawe, Paramount, Lassie, Redhead, Valentine, Betty Jane, Olivette, Campfire, Winsome, Radiant, Cheerful, Otello, Gypsy, Dubarry, Spectrum, Jenny and Betty Lou. The award will be made to the variety gaining most points, first choice counting ten points, second choice three, and third choice two.

Big Potato Crops in Scotland.—The encouraging feature in connection with the cultivation of Potatos in Scotland during 1928 is the large increase in the weight of the crops notwithstanding a material decrease in the area cultivated. According to the official figures issued by the Board of Agriculture, the total produce amounted to 1,032,000 tons, which represents an increase of 233,000 tons, or 29·2 per cent. compared with the returns for 1927. The area cropped was approximately 144,026 acres, or 3,158 acres less than last year, but the yield per acre of 7·2 tons was 1·8 tons greater than in the corresponding period, and 0·7 above the decimal average. Although the proportion of the total area reported to have been sprayed was almost negligible, there were few complaints of disease.

Insect Pests in the United States.—It is estimated, according to the annual report issued recently by the Bureau of Chemistry and Soils of the United States Agricultural Department, that the annual loss to America, due to the ravages of insect pests, is 2,000,000,000 dollars, and it is urged that their control is a matter of extreme economic significance.

Appointments for the Ensuing Week.—Tuesday, January 1, Royal Horticultural Society's Committees meet: Friday, January 4: Manchester and North of England Orchid Society's Annual Meeting. Saturday, January 5: Leeds Paxton Society's Exhibition.

"Gardeners' Chronicle" Seventy-five Years Ago.—We have very great pleasure in announcing that our invaluable correspondent, the Rev. M. J. Berkeley, whose residence in the country and high scientific attainments give him peculiar facilities for investigating the diseases of plants, has undertaken, at our request, to take up, methodically, the whole subject of Vegetable Pathology, and to publish the result of his researches in our columns. His papers will begin to appear on the first Saturday in January next, and will be continued weekly as nearly as circumstances will permit. How well this eminent mycologist can conduct such inquiries our readers well know. It is not, indeed, too much to say that he is the only person in these kingdoms really capable of grappling with a subject, of which the importance is only equalled by the difficulties which surround it. Mr. Berkeley's success will, however, depend in a great measure, upon the assistance he may receive from those whose opportunities give them facilities for collecting evidence. *Gard. Chron., December 24, 1853.*

Publication Received.—*Les Cactacées Utiles du Mexique*, by Léon Diguet; Société Nationale D'Acclimatation de France, 198, Boulevard Saint-Germain, Paris.

SURFACE CATERPILLARS OR CUTWORMS.

THERE are several moths, common in Britain and other countries, the larvae of which are responsible for a great deal of damage to cultivated plants. The three most harmful kinds are the Turnip Moth, the Heart-and-Dart Moth, and the Yellow Underwing Moth. These creatures have been known for some years, but the writer's experience seems to suggest they are on the increase.

The following crops are known to be severely damaged:—cereals of all kinds, Potatos, Mangolds, Turnips, young forest trees, and many other plants. A particularly bad attack has been noticed this year in a nursery bed of Cheiranthus Allionii, a large number of the plants being rendered useless for sale.

Cutworms, as a rule, spend the hours of daylight just underneath the surface of the soil, or hidden among leaves and rubbish. At night they come out and feed usually on the stems, either above or below ground. Small-stemmed plants are bitten completely through, while Potatos, Turnips, etc., are frequently hollowed out and rendered useless for food.

The caterpillars are almost the same colour as the soil, hence they are difficult to see; damage may therefore be considerable before the pest is discovered. When the creatures are in the adult stage no damage is done, and late summer and autumn are the times when the attack is likely to be most severe.

The life-histories of all these insects are very much alike. Eggs are laid on the leaves and stems of common weeds and cultivated plants, and they hatch out into caterpillars in about twelve days. As a rule, only one brood is produced, but in a warm season a second brood may appear. Between February and April the caterpillars are fully-fed and turn into brown chrysalids in the soil. They remain in this stage until June, when the moths emerge, and the life-cycle begins again. Various control methods are available, but one of the most essential things is to keep the land from getting foul. The above-mentioned case was due entirely to the fact that alongside the nursery was a piece of waste land very foul with weeds. Constant hoeing will injure some of the cutworms and bring others to the surface of the soil, where they may be eaten by birds. In small plots it is often possible to get rid of them by hand-picking. A pointed stick to scratch the soil near the surface will expose many of them.

A poisoned bait is often recommended, made up as follows:—bran, 25 lbs.; Paris Green, ¼ lb. The bran should be moistened with water and the Paris Green well mixed with it; spread the material over the attacked plot in the evening at the rate of 2 lbs. to ten square rods. During the past season the writer has obtained good results by using calcium cyanide, 1 lb. to thirty gallons of water, and applied at the rate of one gallon to every square yard. This is a deadly material to use, and care must be taken when mixing it not to inhale the fumes. Apply it around the plants, but not on them, and this should result in the death of all cutworms which are in the treated soil. Millipedes and many other harmful soil pests may be destroyed by the same means. *T. G. Bullock, Leicester.*

ROSE GARDEN.

DECORATIVE ROSES.

AMONG the qualities to be desired most in garden Roses are clearness of colour in the flower, good foliage of substantial texture, uprightness in habit, so that the flowers are held firmly and displayed well on long stems, and fragrance, in which so many beautiful varieties are deficient. Varieties possessing these qualities are generally the most suitable for the decoration of our gardens, and also the most satisfactory for floral decorations.

Undoubtedly the most attractive tints among the present-day Roses are those of copper, terra-cotta, deep orange-salmon and pure yellow, and a very large number of varieties in these shades exist in the Hybrid Tea and Pernetiana sections. Madame Edouard Herriot, one of the earlier introductions, is still among the most effective in this section, its erectness, brilliant colour and free-flowering habit making it a highly desirable variety, and if the colour of the blooms appears somewhat harsh when they are cut, this is not so apparent in the surroundings of the garden. Lady Pirrie, of a softer colour, is excellent for cutting and invaluable for massing, while Henrietta is a popular variety, yielding sweetly-scented and exquisitely-tinted, coral-coloured flowers. The pure orange of Emma Wright is well displayed against its glossy foliage, while the vivid orange-red of Severine, the distinctive fawny-orange of Lamia, and the rich colouring of Los Angeles and its companion W. F. Dreer, makes them all popular decorative varieties. Independence Day, of compact, bushy habit, and bearing well-shaped, fragrant flowers, is a fine bedding Rose, as also is Aspirant Marcel Rouyer, a free-flowering sort with long buds of perfect shape; as a single of similar colouring, Isobel cannot be beaten.

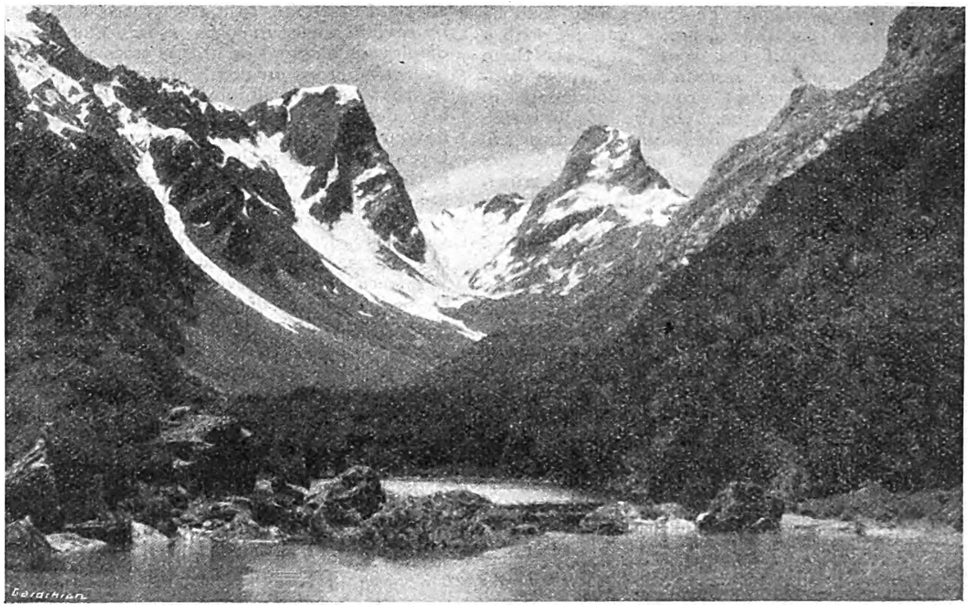

FIG. 222.—THE HOME OF RANUNCULUS LYALLII AND R. BUCHANANI.

A view of the Humboldt range in the Southern Alps of New Zealand.

(see p. 506)

Among yellow varieties Golden Emblem is still one of the best for colour, but although a strong grower under some conditions, it is apt to die back badly under others; Mrs. Wemyss Quin, not quite so deep in shade, is a good bedder and free-flowering; Mabel Morse, with large flowers of good shape, is an excellent variety; Margaret Dickson Hamill is a great acquisition, while Christine, Golden Ophelia and its newer companion Roselandia, are varieties of considerable merit. The lovely apricot-tinted Rev. F. Page Roberts is one of the best of the newer introductions.

White Roses must, of necessity, suffer more quickly from inclement weather than coloured varieties, but in spite of this few would deny them a place in the garden. Frau Karl Druschki still retains its popularity in spite of its lack of fragrance, for the flowers are absolutely pure white and of immense size when disbudded. Mrs. Herbert Stevens, with a long bud of ideal shape, is very free-flowering and therefore an excellent bedding Rose, while Clarice Goodacre is also a perfectly-shaped Rose of great merit, although not quite such a pure white in colour. Of a creamy or blush white, Madame Jules Bouché has large, full flowers of good shape; Pharisäer, with great length of petal, yields flowers of exhibition standard, and La Tosca, an old variety with attractive flowers of considerable substance, are worthy of attention as decorative Roses. Neither can one pass the new variety Abol, almost white, but with petals slightly flushed pink; its fine, large and exquisitely perfumed flowers are exceptional.

Of Roses in pink shades, there is ample choice, including those wonderful old varieties Caroline Testout and Mrs. John Laing, both good, self-coloured pink sorts which retain their popularity; probably no other varieties of this shade are so widely grown. Madame Abel Chatenay yields an excellent flower, distinctly fragrant and desirable when cut, but its general failure to make shapely plants somewhat detracts from its value as a bedding Rose. Mrs. Henry Morse, of very similar colour, has all the good points of the last-named, and appears to be a more regular grower. Lady Ashtown is a deep pink of merit, being free in growth and flowering, but lacking in perfume. Varieties of paler shades are not so much in demand, as many of them lose their distinctiveness with age of flower. Ophelia and Madame Butterfly are two salmon-flesh varieties, slightly shaded with yellow or copper, and both delightfully fragrant and of great merit.

The red Rose is generally the first to catch the eye, and there is a wealth of good red varieties, varying in shade from clear red to rich velvety-crimson. The beautiful General MacArthur, with its upright habit, clean, glossy foliage and fragrant, richly-coloured flowers, is almost ideal for both room and garden decoration. Richmond is also an excellent variety, with shapely flowers of vivid crimson, but it should be disbudded or the colour will degenerate; while Etoile de Holland has bright red flowers with a decidedly scarlet glow under the darker shading, although it is not quite such a strong grower as its parent, General MacArthur. Red Letter Day and K. of K. are two of our most highly coloured red Roses, and although semi-doubles, they are both excellent garden varieties. Hoosier Beauty has all the good points that a good crimson Rose should possess—richness of colour, good form and delicious fragrance—its one fault being that it does not stand erect. Colonel Oswald Fitzgerald has rich velvety-crimson blooms of perfect shape but lacking in perfume, and Hadley, one of the darkest-coloured Roses we have, bears flowers of perfect shape and sweetly-scented, on stiff stalks.

The Hybrid Perpetuals furnish us with a considerable number of good old red Roses. Général Jacqueminot, one of the oldest varieties, is still worth growing, and in spite of the wealth of newer varieties, such well-known favourites as Captain Hayward, Duke of Edinburgh, Fisher Holmes, Hugh Dickson and Prince Camille de Rohan, still retain much of their former popularity. *A. W.*

The Week's Work.

THE ORCHID HOUSES.

By W. GILDEN, Orchid Grower to Dr. F. CRAVEN MOORE, Manchester.

Deciduous Calanthes.—In districts where the atmosphere is clear and free from injurious fogs, the early-flowering Calanthes should now be making a fine display of graceful spikes of beautiful flowers, which will remain perfect for a considerable time, especially if the plants are placed in a slightly lower temperature and the atmosphere kept much drier than that in which the plants were grown. Only sufficient water will be required at the roots to keep the flowers fresh, and after the spikes are cut no water will be needed for several weeks, as the plants require a decided rest, which may be accomplished in a dry and light position in the intermediate house. If room is limited, the plants may be turned out of the pots, the soil shaken from the roots, and the bulbs examined closely for scale insects, which, if present, may be removed easily at this stage with some approved insecticide and a small brush, care being taken to avoid injuring the dormant buds during the operation. The bulbs may then be placed closely together in boxes or pans, with a little sand around the roots to keep them steady; they may remain under these conditions until the young growths commence in the early spring months. On the late-flowering varieties, the flower-spikes now growing will require encouragement in developing flowers early in the year. The plants should be grown in a position where all the available light can reach them, and the roots kept moderately moist so long as the flower-scape is still growing. Any feeding at the roots should be discontinued as the buds form, or the colour will be adversely affected. In smoky districts, where the early-flowering varieties have been retarded to escape the December fogs, suitable cultural conditions should be afforded the plants to encourage them to flower during late January, when there is less danger from fogs; allow the plants all the light possible, and wash the glass inside and out each time it becomes dirty.

THE KITCHEN GARDEN.

By ALLAN FALCONER, Gardener to the Cheadle Royal Mental Hospital, Cheadle, Cheshire.

Tomatos.—Seeds may be sown in boxes of sterilised soil. After watering the soil with boiling water, and while the soil is still warm, place the seeds one inch apart, covering them with some fairly dry, sterilised soil. Place the boxes either in a propagating case, or over the hot-water pipes and cover with glass and paper. So soon as the first sign of germination takes place, lift the boxes up to the light.

Exhibition Onions.—I have come to the conclusion that in districts which are cold, such as this particular area, it is an advantage to sow specially selected seeds of Onions during the last week of the year, so that the plants have a long season of growth to make sturdy plants in six-inch pots for planting out. I have proved to my own satisfaction that unless strong plants are produced for exhibition purposes, before planting in cold soils, growers cannot hope to compete against those with more favourable soil, at least, in respect to size. Before sowing the seeds it is an advantage to go to the trouble of selecting all the large ones from a packet, as these should give the best results, usually being produced from the centre of the seed-head, and naturally being well ripened. When saving Onion seeds this is a point worth noting. There are many favoured methods of Onion growing, and all have their adherents. Personally, I prefer to sow the seeds in boxes four inches deep, in sterilised soil composed of two parts loam, one part leaf-mould and one part Mushroom-bed manure, with some sand and wood-ash added, sifted through a quarter-inch mesh sieve, and made firm. After sowing the seeds, water the soil well and place the boxes in a temperature of 50° to 55°. So soon as the seedlings are ready to be transferred to sixty-sized pots, place them in a light position in a temperature of 55° to 60°, and as they advance gradually harden them off, eventually potting them into six-inch pots.

HARDY FRUIT GARDEN.

By T. E. TOMALIN, Gardener to the EARL OF BESSBOROUGH, Stansted Park, Emsworth, Sussex.

Retrospective.—Notwithstanding gloomy forebodings consequent on the wet, sunless summer which preceded it, the past season was, on the whole, not unfavourable to fruit growers. The very severe frosts of the middle of March last, and again in April, certainly had an adverse effect on those trees which were then in full blossom, but it is interesting to note that not all kinds, even of those in flower at these periods, suffered, for while Apricots, Peaches and some varieties of Plums and Gages were scarce, Sweet Cherries and Morellos bore good crops, while the crop of Damsons in this district was a record one. Pears, although not so abundant as in 1927, were nevertheless a fair crop, and the quality and flavour of the fruits, due to the influence of a sunny autumn, has been excellent. The exceptional heat of September and early October had, however, the effect of hastening to maturity the late varieties by several weeks in some cases. The wonderful display of blossom on Apple trees was followed by heavy crops on nearly all varieties, so much so that severe thinning was necessary. The best dessert varieties are of exceptionally good flavour as a result of the abundant sunshine, Cox's Orange Pippin being particularly good in this respect, and for the same reason the fruits are keeping sound and plump in the store. The same cannot be said regarding the softer varieties of cooking Apples, for these, like the Pears, have not kept so well as usual. Fig trees suffered severely from the effects of the severe frosts of last winter, which injured the soft, unripe wood resulting from the sunless growing season of 1927, but well protected trees carried and matured some fine fruits. Nuts were generally bad in this district, but bush fruits and berries were plentiful. Mention must also be made of the exceptional plague of wasps. Not only were nests extraordinarily plentiful, but the first of these appeared much earlier than usual, and the long spells of fine weather favoured the development of large numbers of ground nests, many of which would, in ordinary English summers, have been drowned.

PLANTS UNDER GLASS.

By J. COUTTS, Assistant Curator, Royal Gardens, Kew.

Lachenalias.—Specimens that are now well advanced in cold frames may be removed to a cool, airy greenhouse, where they should be given a position well up to the roof-glass; the disadvantage of frames, when growth is well advanced, is that a free circulation of air cannot be maintained, especially during spells of inclement weather, which often prevent the removal of protecting covering for days at a time. They should be assisted by occasional feeding, using for this purpose soot-water, or diluted liquid manure, made preferably from cow or sheep manure. If so desired, a portion of the stock may be brought on in a slightly higher temperature, but care should be exercised if this is attempted, as, naturally, Lachenalias do best when grown under cool, airy conditions, an average temperature of 40° to 45° suiting them very well.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to Sir CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Ripe Grapes.—Where a suitable Grape-room is available, the Grapes may be cut and placed therein, choosing a fine, dry day for this operation. But before proceeding with the work of cutting the Grapes, the bottles in which they are to be placed should be filled with water, placing a piece of charcoal in each; the bunches should then be cut with as much wood as may be spared, to ensure the stems passing well down into the water. Each bunch should be examined carefully for faulty berries, which should be removed. It will also be necessary to examine the bunches at frequent intervals after they are placed in the Grape-room. If it is necessary to leave the Grapes on the vines, maintain as dry an atmosphere as possible, and this will necessitate the use of a small amount of fire-heat, with sufficient top ventilation to keep the air circulating.

Young Vines in Pots.—Vines that were propagated early in the present year should be pruned hard back, leaving only two or three eyes. When it is seen that the cut surfaces have become dry, the wounds should be dressed with styptic to prevent bleeding when the vines start into growth. Repotting should take place when the vines have made two or three inches of growth, otherwise, if potted into larger receptacles during their dormant state, very careful watering will be necessary when starting them into growth, which should take place so soon as possible, to allow for a long season of growth.

THE FLOWER GARDEN.

By J. G. WESTON, Gardener to the DUKE OF DEVONSHIRE, Chatsworth, Bakewell, Derbyshire.

Lily-of-the-Valley.—There are many small nooks and corners in every garden, some of which would be suitable and might well be planted with this favourite sweetly-scented flower. As the foliage tends to become somewhat shabby after mid-summer, it is advisable not to plant Lily-of-the-Valley in a prominent position, but as, where it is happy, it will take care of itself and quickly spread over a large area, it may be planted among shrubs and under tall-deciduous trees, such positions being very suitable. This subject prefers a damp, cool soil, and slight shade, but is not really fastidious as to texture of soil. Now is a good time to plant it, and plenty of leaf-mould should be incorporated with the staple soil when preparing for new plantations. Established beds and clumps should be cleaned of all weeds and rubbish, and given a good top-dressing of fine leaf-soil, or failing this, old potting compost.

Evergreen Hedges.—These are best for density of growth, and none is better than a well-kept Yew or Holly hedge when an efficient screen is required. These are sometimes passed by as being of slow growth, but trees of every size are now stocked and prepared specially for this purpose by nurserymen, and if those of good size are used, the hedge becomes effective at once. Yew hedges may be planted at the present time if the ground is in good condition, but Holly bushes are best planted in April and May, according to the season and locality.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener at Jordanhill Training Centre, Glasgow.

Drains.—The recent wet weather has been beneficial in a way, as it has shown very distinctly where drains are either not functioning properly or are unable to cope with the extra surplus water. A note should be made of all places liable to be flooded, and so soon as time permits the existing drains should be overhauled, and, if found faulty, repaired. Where new drains are necessary, the present is a suitable time to lay them, and where a good fall into a stream or other outlet is assured, there will be no further trouble; but where the ground is flat, very careful grading of the drains is necessary in order to give them a regular fall all the way. In connecting up branch drains to the main ones, avoid, so far as possible, entering them at right angles, as this has been found a source of trouble in course of time, as the junctions are liable to get choked. The angle at which branch drains should enter the main one to secure satisfaction should be between 25° and 30°; this may be readily attained by curving the branch drains slightly as they approach the mains.

TREES AND SHRUBS.

CORIARIA TERMINALIS.

THIS hardy, herbaceous sub-shrub is so distinct that it might well find a place in all gardens where a light soil exists; it grows rapidly in a sunny position and bears terminal and tapering spikes of glistening yellow or amber fruits, arranged upon a reddish-crimson stem. The flowers are comparatively insignificant, but the foliage assumes fine autumnal colouring, so that during the fall this plant is quite a conspicuous ornament; the berries are poisonous.

C. terminalis is, I believe, a native of Sikkim, and was introduced in the early years of the present century; it is hardy in all but the colder districts and never fails to attract considerable attention when seen in a well-fruited condition.

CALCEOLARIA VIOLACEA.

THIS interesting and very beautiful species is, unfortunately, only hardy in favoured districts, where it will do well if planted at the base of a warm wall and afforded some winter protection; it is an ideal conservatory shrub and, planted out, will soon form a specimen of considerable proportions, well-furnished with the attractive bright green leaves and smothered, in season, by showy, mauve flowers. I have known this Calceolaria to live for some years in the open garden in unfavoured localities, becoming herbaceous, but it then loses much of its beauty and is never quite satisfactory; it is very easily propagated by cuttings during the summer or autumn months.

The corolla is mauve or pale violet, spotted with deeper violet beneath, the lip spreading in a campanulate manner, thus giving the flower a distinctive appearance. The ovate-lanceolate leaves are coarsely serrated and greyish-white on the under surface.

C. violacea was introduced from Chili in 1853, and is figured in the *Botanical Magazine*, t. 4929. *Ralph E. Arnold.*

POLYGONUM BALDSCHUANICUM.

FOR producing a prolonged floral display shrubby climbers are invaluable, and one that distinguishes itself among this class is the subject of this note. How gloriously it was to be seen flowering this past season in many gardens. Always a rampant grower, it does not flower so freely every season as it did this year. The long spell of sunshine had much to do with this beautiful result, no doubt. The foaming masses of small flowers are mostly white, but sometimes there is a tinge of pale pink to be noticed on some plants. Whether this variation is due to the soil or whether there are two sorts, I have never discovered. I saw, during early autumn, in a north London garden, the biggest expanse of this creeper I have ever seen—the surface space approximated ten feet or more square, in addition to which there was a further narrow length of several yards. For covering high, substantial pergolas and big rustic erections quickly, this climbing Polygonum is to be recommended. *C. Turner.*

FABIANA IMBRICATA.

ALTHOUGH a native of Chile, this very interesting Erica-like shrub succeeds quite well in the open in the south of England, but it should be given protection in the colder counties. It is to be seen at its best on a south or south-west wall, where it blooms profusely throughout May and early June. The flowers are pure white and tubular in shape.

Fabiana imbricata forms an excellent acquisition to the Heath garden when planted in masses, or for conservatory decoration if grown in a compost containing peat. All lengthy growth should be pruned hard back to prevent unshapeliness. Propagation may be effected by means of cuttings, which should be inserted in a good sandy loam and placed in a cold frame in August. *C. R.*

ALPINE GARDEN.

CALCEOLARIA POLYRHIZA.

GIVEN a moist, cool position on the rock garden this quaint little Calceolaria will take very good care of itself, rapidly covering a considerable area with a thick carpet of hirsute leaves; the solitary flowers are produced with great freedom on stems a foot or rather more high, and sometimes, in accordance with situation, rather less. The small flower is soft yellow, with the faintest suspicion of brown spotting, on many flowers scarcely discernible or nearly absent.

A companion species is C. plantaginea, of somewhat slower growth than C. polyrhiza and with larger leaves than those of that species, pleasantly crinkled or irregularly serrated; the flowers, too, are larger than those of C. polyrhiza, while they are clear, pale yellow in colour, and freely produced. C. plantaginea is a Chilian plant, introduced in 1826 and figured in *Bot. Mag.*, t. 2805. I find that these Calceolarias are perfectly hardy under the conditions advised.

Yet another good Calceolaria is C. John Innes, with comparatively large yellow flowers poised upon sturdy stems; this, I find, enjoys a rather more sharply-drained soil than do the foregoing plants.

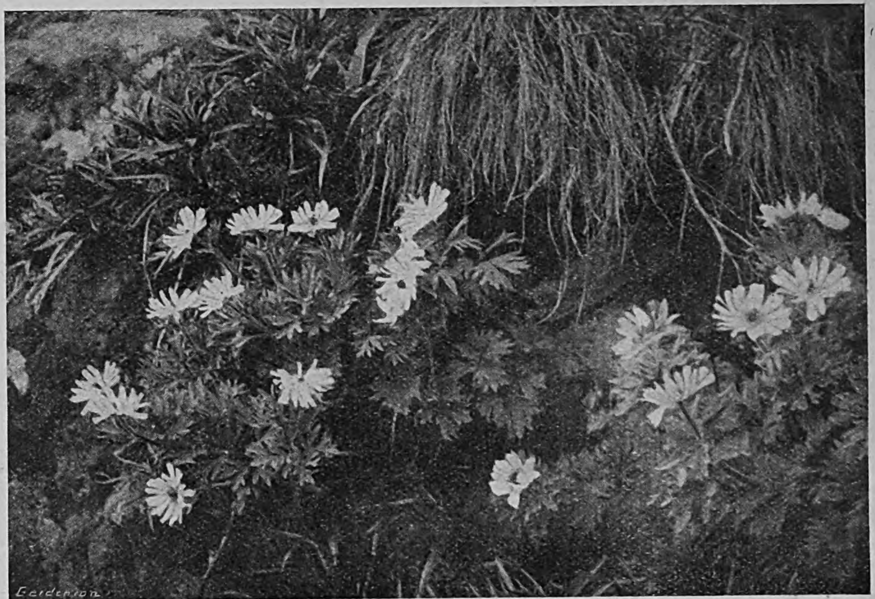

FIG. 223.—RANUNCULUS BUCHANANI IN ITS NATIVE HABITAT.
Humboldt Range, Southern Alps, New Zealand; 4,500 feet alt.
(see p. 506.)

ANDROSACE LANUGINOSA.

THIS is a good-tempered species if planted in well-drained, sandy soil, in a rather high position on the rock garden; the trailing, silvery shoots, covered with minute silky hairs, and the clusters of soft rose-coloured flowers, are very beautiful, and an added merit is the plant's long flowering season, lasting even into October.

Androsace lanuginosa will succeed in chalky soils; its greatest enemy is dampness, so that in a "green" winter it may prove advisable to afford it the protection of a sheet of glass. It is easily propagated by means of layers or cuttings.

A. lanuginosa is a native of the western Himalayas, being found at an altitude of from 7,000 feet to 10,000 feet, and of it there is a most desirable variety known as Leichtlinii, or oculata, the larger flowers of this form being characterised by a conspicuous eye. As a draping for a large stone this plant is extremely pleasing, and it rarely fails to do well in a free soil and a warm, sunny position.

CYANANTHUS LOBATUS.

THIS lovely subject has the added merit of flowering in the late summer and autumn, when colour on the rock garden is very welcome. The whole plant is slightly succulent in character, the prostrate stems appearing annually in spring, and are later covered by a well-sustained succession of clear, somewhat cold, blue flowers, not unlike Periwinkles in appearance, and very beautiful. It is quite hardy, although, perhaps, just a little impatient of excessive winter moisture, and so a site high up on the rock garden should be chosen for it, where it will thrive in well-drained, gritty loam, mixed with some peat or leaf-soil. Some of its congeners, of recent introduction, are exquisite plants—there is one, as yet, I believe, unnamed, with hoary foliage and flowers of the clearest blue, a delightful combination. This may prove a difficult subject owing to the damp winters which we experience, and may be more at home in the alpine house than on the rock garden. C. Farreri (?) has green foliage and flowers of a deep shade of blue, and should prove adaptable to the open rock garden.

These subjects bid fair to rival the Gentians, and are ideal for growing in pans in the alpine house or for planting in stone sinks. Cuttings afford a means of increase and division is practicable, if not so desirable as the former method.

C. lobatus was introduced from the Himalayas in 1844, and is figured in *Bot. Mag.*, t. 6485.

C. incanus, introduced from Sikkim many years ago, may prove to be the plant recently introduced and so far not named; the description of C. incanus, as given in various works, exactly describes this "new" plant, an alpine gem of the first water. *R. E. A.*

FLOWER GARDEN.

POLYGONATUM JAPONICUM.

THIS subject, usually known as Solomon's Seal, together with P. multiflorum, is a capital one to associate with Lily-of-the-Valley in the woodland and wild garden, or in selected spots in the rock garden and water garden.

These two species will grow almost anywhere, and may be planted at any time during their dormant season, that is, from October to March, and when well established, they increase rapidly.

The long, graceful spikes of pale green foliage are in great request during the spring for use with cut flowers for decorative purposes, and may be easily forced into bloom for this purpose. *W.*

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RANUNCULUS LYALLII
(HOOK. F.).

RANUNCULUS Lyallii forms a very conspicuous portion of the sub-alpine vegetation of the Southern Alps, in the South Island of New Zealand. It is by far the most outstanding member of the genus, being without doubt the finest Ranunculus in existence. In New Zealand this handsome plant has many popular names, of which Mountain Lily seems to be the most widely used, and is evidently bestowed on the plant because of the virginal purity of its large, snow-white flowers; the popular mind obviously associates the name "Lily" with any herbaceous plant which produces relatively large, white flowers.

R. Lyallii (Figs. 222, 224 and 225) was first described by Hooker in the *Handbook of the New Zealand Flora*; it has since been figured in the *Bot. Mag.*, t. 6,888, and in Cheeseman's *Illustrations of the New Zealand Flora*, t. 3; it is said to have been introduced to Britain about 1879, but even so, the paucity of knowledge of this plant's habitat and cultivation is evident from the fact that in no fewer than two well-known dictionaries of gardening published within the last decade, it is termed "The New Zealand Water Lily."

This fine Ranunculus has somewhat of the habit of Anemone japonica, but the huge, saucer-shaped, glossy-green leaves, and the graceful panicles of snowy-white flowers, dwarf even A. japonica into insignificance. R. Lyallii is a tall, erect, almost entirely glabrous perennial herb, reaching about four feet in height in favoured positions. The rootstock is a thick rhizome, usually growing close to the surface of the soil, and furnished with abundant cord-like roots. As the plant develops, one end of the rhizome decays, while the apex increases in length, the plant in this way gradually occupying new ground. In this way, branching of the rhizome, followed by decay of the connecting part, causes one plant to become divided into several isolated specimens after a few years' growth.

The leaves, which are summer-green only, are kidney-shaped in the young plant, but when mature they become large, fleshy, circular and concave, and may be so much as fifteen inches in diameter, with thick, fleshy petioles and broad, silky leaf-sheaths. This unusual-looking Ranunculus is worthy of a place in the garden if only to exhibit these unique leaves, which are capable of storing quite a teacupful of water after a shower. The physiological significance is not thoroughly understood, although some authorities consider that the water may be absorbed by the leaf-veins.

When the flower stem arises from the centre of the leafage it more than fulfils the promise of great things given by the foliage. The stem may grow to a height of from one to four feet, bearing many-branched panicles of pure white flowers, each with a glowing centre of golden-yellow anthers. When it is noted that quite a mediocre inflorescence will produce so many as twenty blooms—an inflorescence bearing sixty blooms has been seen—and each flower is from two-and-a-half to three-and-a-half inches in diameter, it is scant praise to say that this is truly a noble plant. A really well-developed specimen in full flower is a wonderful sight, and anyone who has been privileged to see several acres of this plant painting white a whole mountain-side, will not readily forget it.

In an altitudinal range of from 3,000 feet to 5,000 feet, R. Lyallii is often abundant, in fact, in favoured areas it sometimes covers several acres, to the exclusion of almost every other plant; this is particularly so on moist, southern hillsides, shaded from the heat of the noonday sun. Although it also grows exposed to the full glare of the sun it seems to prefer well-drained, rather deep soil or shaded hillsides, or moist areas along the banks of mountain streamlets.

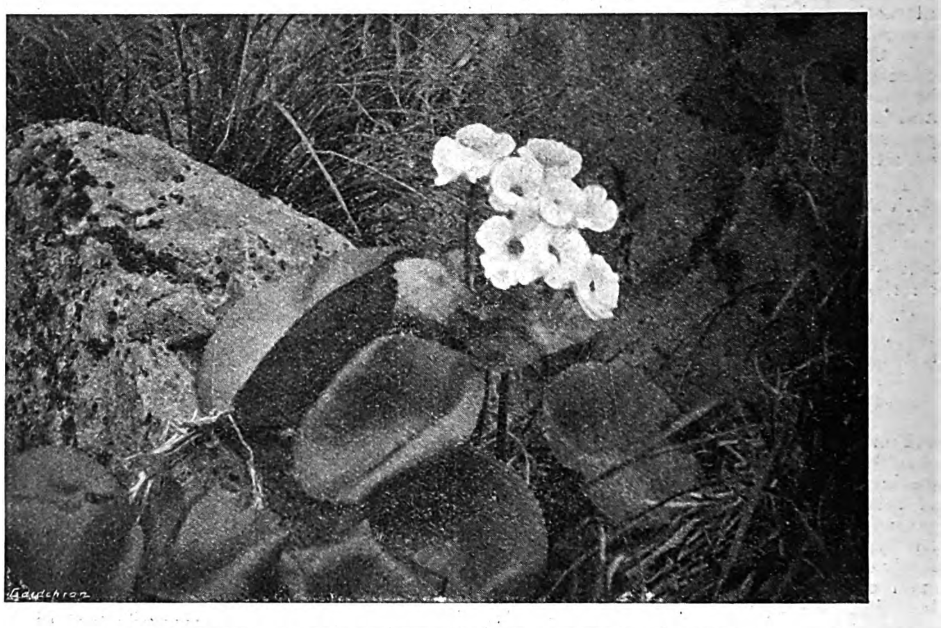

FIG. 224.—RANUNCULUS LYALLII ON THE HUMBOLDT RANGE, NEW ZEALAND; 4,500 ft. alt.

Another white-flowered species is R. Buchanani, Hook. f. (Figs. 222 and 223), a remarkably beautiful plant, but although it has much of the habit of R. Lyallii it is a much inferior species. In its natural habitat, R. Buchanani is easily recognised by its being more or less covered with long, silky hairs. Usually about four inches broad, the leaf blade is kidney-shaped in outline, with three to five lobes, each of which is coarsely and irregularly toothed. The flower stems attain a height of some twelve inches, and they seldom bear more than two or three white flowers. The flowers are considerably smaller than those of R. Lyallii, being generally about one-and-a-half inch to two inches in diameter. R. Buchanani has an altitudinal range of from 4,000 feet to 5,000 feet; it is usually found in the south-eastern portion of the Southern Alps, where it seems to prefer a habitat exposed to full sunshine, with soil of a gravelly nature, moist, but provided with excellent drainage.

The interesting point about these two species of Ranunculus is, that whenever they meet they hybridise, and the resulting hybrids cross among themselves and with the parents, causing a swarm of hybrids to come into existence. Where there is no R. Buchanani present R. Lyallii will cover acre after acre and show no sign of diversity of foliage, and likewise, when R. Buchanani is growing by itself it remains constant over wide areas. The fact of these two plants remaining true to type over large tracts of country is, of course, sufficient to prove that they breed true among themselves, and may be considered valid species. To a botanist not familiar with its history, any one of these numerous intermediate forms could be considered worthy of specific rank, and it is now generally surmised that it was from just such material that Cheeseman created and described his Ranunculus Matthewsii.

It is from such groups of hybrids that several authorities consider new species arise. By means of hybridisation, nature is able to create simultaneously a large number of new forms and from these she selects and fixes those best suited to the environment. It should be emphasised that generally it is not a single hybrid that is met with, but scores. These hybrid swarms show astonishing diversity, and innumerable gradations of character between the species concerned. In fact, the number of hybrids is so great in some localities that within a few minutes one may collect a series of specimens showing every gradation of leaf form between the typical R. Lyallii and the typical R. Buchanani.

Having visited these Ranunculi in their native mountains, let us now see how they behave when subjected to cultivation in the garden. Most of the wildings of the New Zealand mountains have the reputation of being very shy of civilisation, but that is really not so. If we take the trouble to discover their likes and dislikes, we generally succeed in the garden with no more than ordinary attention.

The cultivation of R. Buchanani and the various natural hybrids is similar to that of R. Lyallii, except that R. Buchanani prefers a gravelly soil and a rather sunny position, while R. Lyallii does best in a semi-shaded position, with plenty of deep soil. The essential requirements for the cultivation of R. Lyallii are perfect drainage, abundance of moisture, a deep, cool soil, and a semi-shaded position. When all these conditions are provided, there should be no difficulty in cultivating this remarkable Buttercup successfully. It may be added that, with us, R. Lyalli succeeds better under the open, raised-border system of cultivation than in the rock garden. The soil must never become dry and likewise there must be no stagnation if R. Lyallii is to flourish.

The best method of propagation is by seeds, although dormant rhizomes may be used. Good seeds should be sown in ordinary seed compost in a cold frame so soon as procured. They usually lie dormant until spring, when, under ordinary circumstances, they will germinate freely. We have found that seeds kept three months before sowing germinate quite well, which seems to suggest that seeds introduced into Britain from New Zealand ought to grow quite successfully. In a few months seedlings should be of a suitable size to be lined out in nursery beds. By the following spring they will be ready for planting out in their permanent quarters. Although a few precocious individuals will produce flowers during the second year, the young plants really reach the flowering stage when three years old.

The breaking up of dormant rhizomes should not be practised, except under exceptional circumstances. R. Lyallii does not like having its roots molested. The long, cord-like roots go down to great depths, and cannot be preserved intact when the plant is dug up. The root usually takes at least a year to get over this check. Seedling plants tend to produce long roots, but the frequent transplanting causes the formation of fibrous roots, which simplify matters very considerably.

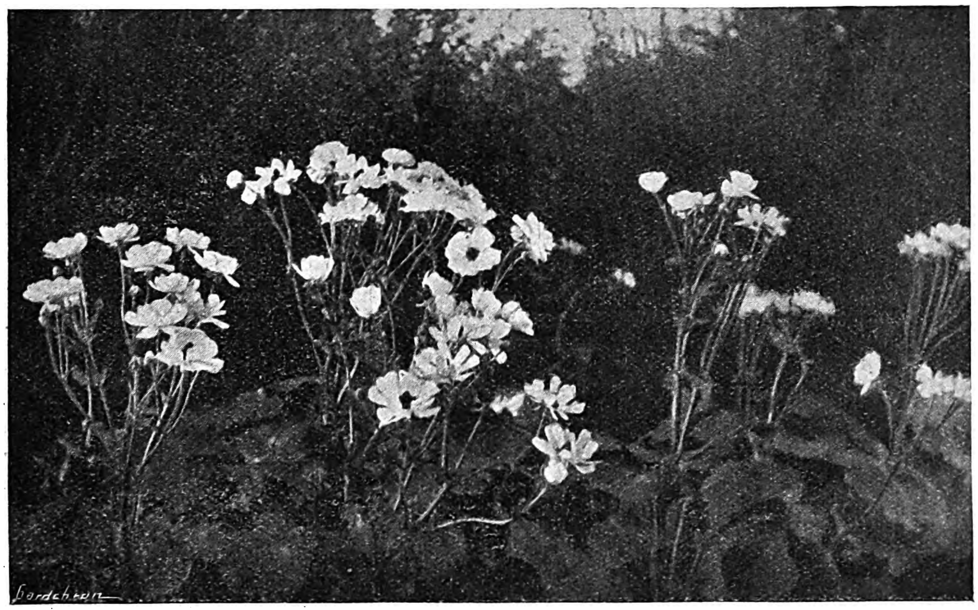

FIG. 225.—RANUNCULUS LYALLII IN THE DUNEDIN BOTANIC GARDENS.

There seems to be little doubt that the chief reasons why R. Lyallii is not better known as a garden plant are, its detestation of root disturbance, and the inaccessibility of the plant's natural habitat. R. Lyallii is seldom found below an altitude of 3,000 feet, which means that until quite recently, anyone who went to collect this plant had to negotiate at least some 2,000 feet of dense forest, and for many years the only people who sought to collect this plant for garden purposes would be chance tourists, who were visiting the area in summer—a time when the plant is least likely to survive root disturbance. A few plants would reach lowland gardens, but they would die off within a few months, or might even linger a year or more, but rarely became established. So it is not surprising that this plant was considered a difficult subject to grow. But now that dormant rhizomes can be procured, we are able to grow it in our gardens, where it produces myriads of seeds and self-sown seedlings. So it is to be hoped that in a few years this plant will be thoroughly domesticated and within reach of all lovers of beautiful plants. *A. W. Anderson, Dunedin.*

UNEMPLOYMENT INSURANCE ACTS 1920-1927.

I am directed by the Minister of Labour to state that there appears to be some misunderstanding among estate owners and farmers as to the position of certain of their employees under the Unemployment Insurance Acts. Any such misunderstanding may have arisen, to some extent, as a result of the publication in the Press of a letter from this Department dated February 7, 1928, to a correspondent who forwarded it to the journal in which it was published.

I am to explain at the outset that this letter, to the effect that an estate worker who did various jobs about an estate was not insurable against unemployment, was an informal ruling relating to an individual case given in the light of the facts in that particular case, and was in no sense intended to be of general application.

I am to state that in the case of Adcock and Barnes, which was referred by the Minister (with several other cases of a similar nature) to the High Court for Decision under Section 10 (1) of the Unemployment Insurance Act, 1920, and which was decided by Mr. Justice Roche in the King's Bench Division in July, 1927, the learned Judge laid down a formula or working rule for use in the case of persons employed on agricultural estates, with the reservation that he could only state a working rule such as he would adopt himself on his present information and such as he would regard as open to correction and modification if circumstances made it necessary or desirable. This working rule reads :—

> "Persons are employed in agriculture and horticulture when employed upon any operations done about the production, preparation, or transfer of the products of a farm or garden or orchard in the best saleable condition to a first buyer or to a salesman or agent for sale if one be employed, or to a distinct business under one proprietorship as in Daniels' case. But if the industrial status and occupations of the employed persons are such that, though they are working about or in connection with a farm or garden or orchard, they may properly be said to be essentially pursuing their own special occupations, they are not employed in agriculture or horticulture within the meaning of this rule."

I am to state that in certain cases some little difficulty was experienced in the application of the latter part of the rule. Accordingly, the Minister decided to seek further guidance from the High Court on this question, and recently referred to the High Court the cases of an estate carpenter and an estate smith. The estate carpenter was engaged for the greater part of his time in repairing farm buildings and cottages, chiefly mending sashes, windows and doorsills and making floor alterations. He did a little painting. He also built cow-stalls on one farm. He worked in this way for five days a week and spent one day at the saw bench sawing up, with other estate employees all the fire-wood for the mansion, and all timber for use on the estate. He also did some fencing and a little gate-hanging. Prior to this employment, he had worked as a carpenter for various building firms. It was decided by Mr. Justice Roche that he was insurable under the Unemployment Insurance Acts.

The other case referred by the Minister was that of a farm smith who also worked on the land. In giving judgment, Mr. Justice Roche stated that this was a very difficult case on the borderline. As regards status, the man was both a skilled agricultural labourer and a skilled blacksmith, as he had been both in the course of his life. He was employed roughly two-thirds of his time on work as a farm smith, and the remainder on ordinary agricultural operations. In the particular circumstances of his case, his Lordship held that, as the man was employed for "a very substantial part of his time" as an agricultural labourer, he had not lost his status as such, in spite of his craftsman's work, and accordingly that he was not insurable.

It will be appreciated in the light of this explanation that a man employed on a farm or estate in the exercise of some special craft is insurable under the above Acts. Such a man is also insurable if he be employed partly in the exercise of some special craft, and partly as an agricultural labourer, unless his duties as an agricultural labourer occupy him for "a very substantial part of his time."

Any employer who is in doubt as to the position of an employee should supply full particulars of the man's duties to a local office of this Department, and ask the office to refer the matter to headquarters for a ruling. *A. Kingham, Ministry of Labour, Montagu House, Whitehall, S.W.1.*

HARDY SHRUBS FOR FORCING.

Many shrubs are grown chiefly for forcing, either to produce a supply of cut flowers or to furnish and brighten the conservatory during the winter months.

Deutzia Lemoinei, an hybrid between D. gracilis and D. parviflora, is an excellent subject for this latter purpose, as also are the Syringas, Viburnum Carlesii, V. tomentosum var. plicatum, Philadelphus Lemoinei, and many others.

Shrubs for forcing may be bought quite cheaply, but it is much more interesting and economical to grow one's own supply of plants. These may be raised from seeds or cuttings, or in some instances they may be grafted and should be allowed to grow for two or three years without being permitted to flower.

In the early stages of growth particular attention should be given to the shape of the plants; all weak and straggling shoots should be removed. Most shrubs may be forced when three or four years old; some require a rest every alternate year, while others may be forced for several years in succession.

The ground selected as the nursery for these subjects should be exposed to full sun, to enable the young shoots to become well-ripened. A rich, medium loam will be found most suitable, adding peat, leaf-mould and sand for Ericaceous plants. They may be lifted from the nursery beds and potted in well-drained soil, and then plunged in ashes until required for use.

Choisya ternata, Rhododendron Nobleanum, R. Rosy Bell and R. flavum, and many Roses may be forced into bloom for Christmas, but February, March and April are the months when forced shrubs are usually at their best. A temperature of from 45° to 50° is sufficient for the first fortnight, after which it may be raised to 60° or more with sun-heat. As the buds begin to swell the plants may be subjected to a higher temperature, but it is better to take a week longer, with a lower temperature, than to hasten them into growth. It is essential that a moist atmosphere be maintained in the forcing house, and that the plants be syringed several times a day. As the flowers commence to open the plants should be removed to a cool house. Specimens required for Christmas decoration should be transferred to the forcing house about the middle of November.

Of the plants that are suitable for this purpose there are Deutzia gracilis, D. parviflora and D. Lemoinei, which may be grown for three successive years if not subjected to too much heat; the free-flowering Forsythia suspensa, from which all weak and badly placed shoots should be removed, while the plants should be hard pruned directly after flowering; and the Laburnums, which, if to be forced successfully, should be potted in the spring for use the following year.

Magnolia conspicua and M. stellata make fine plants, for the glistening white, star-like flowers of the latter are produced abundantly and often completely hide the bare wood. Philadelphus Lemoinei should not be forced too much, and all its old flowering wood should be removed so soon as the flowers are over.

Some of the most beautiful and easily managed subjects belong to the genus Prunus. They may be had in bloom from February until April. The plants should be potted up from the nursery beds in October, or they may be grown in pots and used for successive years. After flowering they should be well pruned and given frequent dressings of manure to induce strong growth. Some of the most useful are Prunus serrulata and its double pink variety, P. triloba var. flore pleno, and P. subhirtella; while the flowering Peaches, varieties of P. Persica, are perhaps the loveliest of all, especially the double, red-flowered varieties.

The genus Pyrus also contains some excellent species that may be forced. Of these there are the white and pink forms of P. floribunda, P. Scheideckeri, which is a free-flowering hybrid, and P. spectabilis, the flowers of which are at first deep rosy-pink, changing to a blush tint when fully open, and remaining on the plant for several weeks.

Ribes aureum and R. sanguineum might be included, for the fragrant bright yellow flowers of the former are very beautiful when open, while several species of Spiraea force readily in an intermediate temperature, and will flower in February. If properly pruned and fed they may be used for two or three years.

Staphylea colchica will produce large panicles of pure white flowers from Christmas onwards, but the plants should be rested in alternate years. *F. S. Banfield.*

NERINES.

The genus Nerine furnishes us with a number of useful autumn and early winter-flowering bulbous plants, natives of South Africa, which are of easy culture if their needs are understood. The flowers are produced in umbels of from six to twenty, and are borne on stout stems which develop during the later months of the year and precede the foliage. There are now many beautiful varieties, with a wide range and brilliancy of colour, which form a pleasing contrast to the more restricted tints of the flowers of autumn. As cut flowers they last fresh a long time and as pot plants they remain decorative in a room so well as in the greenhouse, for several weeks.

In the cultivation of this plant it is generally emphasised that the resting of the bulbs is the point of chief importance, but important as this may be, it should not be overlooked that the treatment of the plants during active growth is an equally important factor, and during this period they should have every attention as regards watering, regular feeding, and a sunny position. New leaves generally appear when the spikes are fully developed, and growth continues throughout the winter and finishes in the spring. Their activity is thus greatest during that part of the year when activity in plant life generally is inclined to be low, and to ensure good results they should receive every possible encouragement during this period. A rather warmer temperature than that afforded by an ordinary greenhouse is advantageous to them during the winter months, for unless the foliage is fully developed in a suitable temperature, flowering cannot be wholly satisfactory. They require a light position, a reasonable amount of air and liberal supplies of water, thus a shelf near the roof glass in a house where the temperature never falls below 50° at night is a good position for them. As the spring advances, the foliage will begin to turn yellow, and they may then be stood in any odd corner of the greenhouse or even in a frame, fully exposed to the sun for the ripening period. Water should be gradually withheld until they become quite dry, in which condition they should be kept until the flower-spikes begin to rise again. N. Bowdeni, which remains more or less evergreen, should not be dried off so completely.

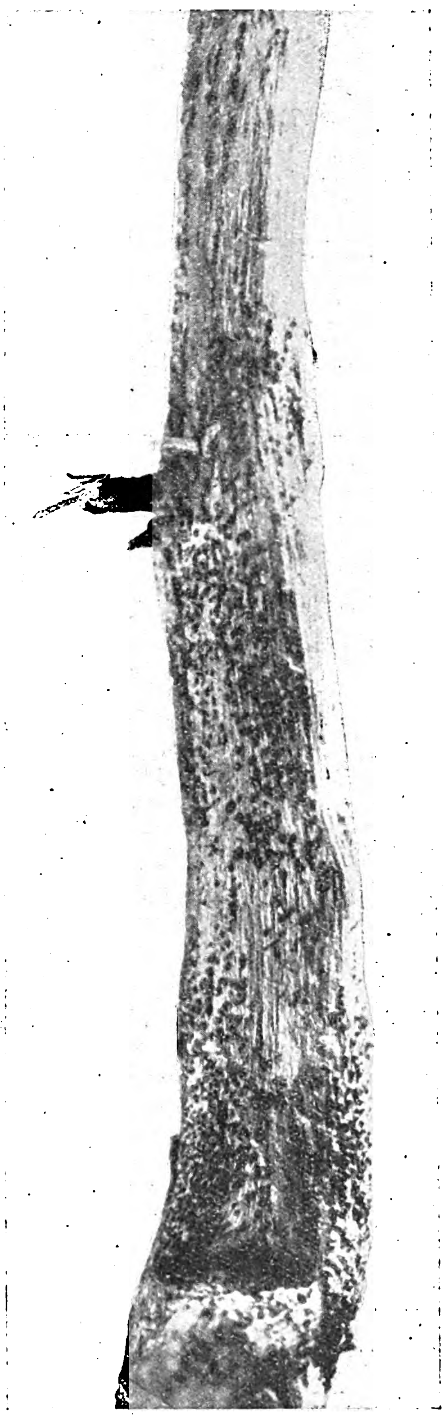

FIG. 226.—BLACK DOT DISEASE OF THE POTATO.
(Diseased haulm).

A pot-bound condition is favourable to the production of flowers, and pots crowded with bulbs usually flower freely, an annual top-dressing of rich compost being sufficient to keep them healthy for a number of years. When repotting becomes necessary the best time to carry out the operation is immediately after flowering, just as new growth commences. Unless the pots are already so large that an increase of size would make them inconvenient to handle, it is better to transfer the whole mass of soil, roots and bulbs into the next size practicable. When it is necessary to divide large clumps, they may be potted singly in small pots, or two or three in a pot, but probably a considerable proportion of the bulbs will not flower the first year after disturbance. Newly potted bulbs need very careful watering until the plants get a good hold of the fresh compost. The compost should consist of good rich loam, with enough coarse sand or broken mortar rubble to keep the whole porous, and a forty-eight-sized potful of bone-meal to a bushel of soil may be added. A similar compost should be used to top-dress plants not repotted, and pot-bound plants should be assisted during growth by frequent applications of dilute liquid manure.

The Nerines are among our oldest cultivated plants, N. sarniensis, the so-called Guernsey Lily, having been cultivated in Paris so long ago as nearly three hundred years. It came to this country not much later in its history, and has been grown regularly in the Channel Islands for the English market for over two hundred years. N. Fothergillii major is one of the best of the species, its colour being brilliant salmon-red, shaded scarlet. It is one of the earliest to flower, is very dependable, and has given rise to many of our best garden hybrids. There is a very large number of these garden hybrids, and many of them are first-rate plants of surpassing beauty, yielding flowers of a much larger size than the older varieties, and some of them with undulated and recurved segments. Dozens of varieties of merit could be selected without exhausting the list of desirable sorts, but I will only suggest that the following half-dozen should be in every collection:—Empress Queen, large flowers of delicate old rose, with glistening silver sheen; Mansellii, with handsome, satiny, rose-cerise flowers which glow in the sunlight; Mrs. George Barr, with blooms of the most delicate shell-pink, the centre shaded rose; Queen Alexandra, with large flowers of bright cherry-red, the petals elegantly waved; Scarlet Glow, with fine, open blooms of vivid salmon-scarlet; and Boadicea, a deep crimson-scarlet, with golden lustre and reflexed petals.

Nerines produce seeds quite freely when hand-fertilised, and the seeds should be sown so soon as ripe. The resultant plants should be grown on until they reach flowering size, which is generally in the third year. *W. A.*

THE BLACK DOT FUNGUS OF POTATOS.

The Black Dot disease, Colletotrichum atramentarium, is a familiar fungus to gardeners on dead and dying Potato haulms (Fig. 226), but it is an undecided question as to whether this organism inflicts damage to the crop in England, although it is recognised as the cause of a destructive disease abroad.

This year has been remarkable for the absence of "blight" (Phytophthora infestans) and observation has given rather strong circumstantial evidence that Colletotrichum atramentarium was responsible for the early death of the haulm and consequent reduction in yield on a considerable part of a six-acre field of the variety King Edward, near Spalding, Lincolnshire.

Considering the fact that the fungus is an "old timer" in mycological literature, it is rather interesting that we should have no record in this country of the presence of the sclerotial bodies (the black dots) of the fungus, on the tubers.

This is probably due to the confusion of the fungus with the sclerotia of Silver Scurf (Spondylocladium atrovirens) with which it is frequently associated.

Examination of the tubers from the field mentioned above during early September, showed that the Black Dot sclerotia were abundant on the "heel" ends. Further search showed that they were plentiful on tubers grown at Holbeach (October 5, variety King Edward), and since then their presence has been recorded on tubers from Boston, Lincolnshire (Ministry of Agriculture *Report*, November 11).

Fig. 227 shows the Black Dot sclerotia on the surface of a King Edward tuber; without magnification, they are just visible to the naked eye. (The two hyphae present are probably of Rhizoctonia solani). *W. F. Cheal, D.I.C., Kirton Agricultural Institute.*

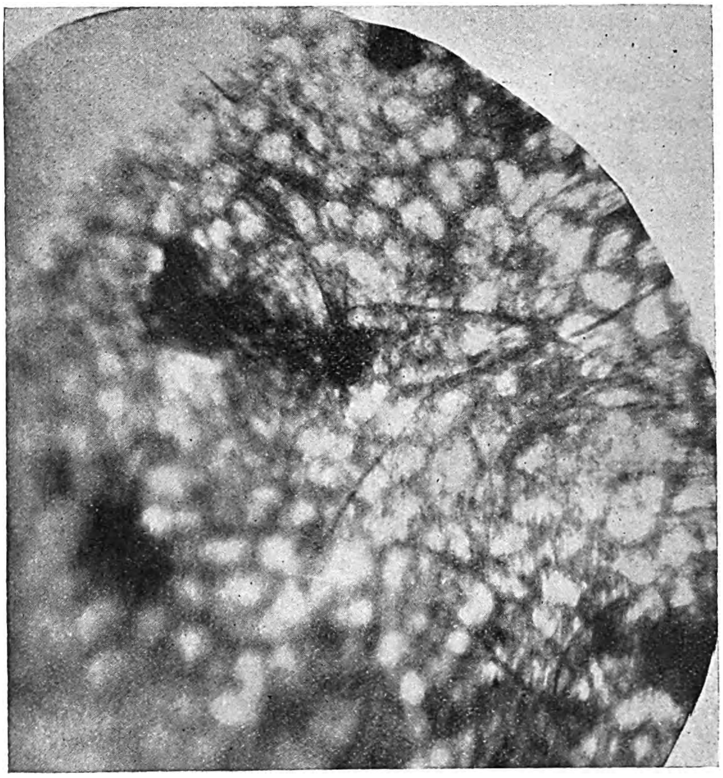

FIG. 227.—BLACK DOT DISEASE OF THE POTATO.
Sclerotia on tuber of Potato King Edward.

THE GENUS PRIMULA.

(*Continued from p.* 489.)

HOFFMEISTERI (Klotzsch). Hoffmeister's P.
(Denticulata.)

A DESIRABLE perennial sub-species of P. denticulata, with a somewhat short rootstock, clothed with numerous thick, broadly oval, pointed scales, about three-quarters-of-an-inch long, which form a large, fleshy resting bud in the winter. The smooth, non-mealy, erect leaves, which are not fully developed at flowering time, have oblong, lance-shaped blades gradually tapering to a broadly-winged stalk, in all from one inch to three inches long; margins revolute, edged with obscure, rounded, shallow teeth. Flower stems stout, two to four inches tall, bearing a dense head of numerous lilac or purple blossoms after the manner of P. denticulata. Corolla about half-an-inch across, slightly concave, divided into five heart-shaped, notched lobes; tube cylindrical below, slightly constricted at the mouth, about half-an-inch long, much exceeding the calyx in length. Not in cultivation.

The plant is a native of the north-western Himalayas and probably grows in similar situations to those inhabited by P. denticulata.

Culture: As for P. denticulata.

HOOKERI (Watt). Hooker's P.
(Petiolares.)

A delicate, deciduous perennial with stout, fleshy roots produced from a thick rootstock, and tufts of dark green, egg-shaped, spathulate or narrowly egg-shaped-oblong, usually, stalkless, leaves, half-an-inch to one inch long, with rounded tips, and margins furnished with sharp, recurved teeth; both surfaces smooth and non-mealy. Flower stem obsolete or very short. Flowers one to three, white, on short stalks. Corolla more or less funnel-shaped, about three-quarters-of-an-inch across, divided into five oval, entire lobes; tube cylindrical, twice as long as the calyx.

Grows in damp, half-shady places near Lachen, in the Sikkim Himalayas, at 12,000 feet above sea-level.

Culture: Friable loam and a small quantity of leaf-soil, in a damp, half-shady spot, should suit it.

HOPEANA (Balf. f.). Hope's P.
(Sikkimensis.)

A beautiful, fragrant, tufted perennial subspecies of P. sikkimensis, with a short, somewhat woody rootstock and fibrous roots. Leaves up to about five inches long and three-quarters-of-an-inch across, papery, elongate-oblong or lance-shaped, with broad, rounded tips and tapering at the base into long, narrowly-winged stalks half as long again as the blade, and tinted red at the base; margins irregularly toothed or torn as though gnawed by insects; both surfaces sprinkled with minute, capitate glands. Flower stem about twelve inches tall, covered with creamy-white meal, slender, bearing an umbel of three to six creamy-white, drooping blossoms on slender, down-curved, mealy stalks about three-quarters-of-an-inch long. Corolla funnel-shaped, about half-an-inch long, densely coated with white meal within; lobes rounded, shallowly cleft; tube cylindric below, funnel-shaped above, smooth within, at times tinted with pale green or pink. Flowers in September. Introduced in 1916.

Grows among boulders in peaty soil by streams on the mountains south-east of Angduphorang, in the Bhutan eastern Himalayas, at about 13,500 feet above sea-level.

Culture: Plant it in sandy peat and fibrous loam, in an open, sunny spot, and treat as a bog plant when in active growth.

HUMICOLA (Balf. f.). Stoloniferous P.
(Cortusoides.)

A pretty, slender sub-species of P. heucherifolia, with long, fleshy, creeping stolons, bearing tufts of downy leaves, with heart-shaped, deeply-lobed and cut blades one to three inches across, on downy stalks, in all about six inches long; margins of lobes sharply and irregularly toothed. Flower stem six to eight inches tall, bearing an umbel of two to four rose-coloured blossoms, on short stalks. Corolla about three-quarters-of-an-inch long, divided into five broadly heart-shaped lobes; tube about twice as long as the calyx. Flowers in July.

Grows in damp shady places, with its stolons rambling on loose moss, near Kagwrpw, Tsarong, south-eastern Tibet.

Culture: Plant it in peat and chopped Sphagnum-moss, in a cool, shady spot in the rock garden, and keep the roots very moist when in growth.

HUMILIS (Pax et Hoffm.). Humble P.
(Souliei.)

A beautiful dwarf sub-species of P. Souliei (Franch.) with a tuft of graceful, membranous leaves, with triangular or triangular-obiculare, pointed blades from a quarter-of-an-inch to half-an-inch long, truncate at the base or abruptly contracted into a slender stalk, three-quarters- to one-and-a-half inch long; margins edged with sharp, saw-like teeth of unequal size; upper surface smooth, underside coated with white or yellow meal, especially on the nerves. Flower stem one to two inches tall, covered with very fine down below, mealy towards the tip, bearing one to five rose-blue flowers in a terminal umbel, on slender, mealy stalks about a quarter-of-an-inch long. Corolla nearly three-quarters-of-an-inch across, with oblong, entire, or rarely slightly-toothed lobes; tube cylindrical below, dilated towards the throat, more than twice as long as the calyx. Flowers in June and July. Not in cultivation.

Grows on the mountains near Tatsienlu, in eastern Tibet, at from 13,500 feet to 14,500 feet above sea-level.

Culture. It should succeed in good fibrous loam and peat, in a cool, half-shady spot, with protection from damp in winter.

HUPEHENSIS (Craib.). Hupeh P.
(Petiolaris-Sonchifolia.)

A tufted perennial with broadly lance-shaped, papery leaves, with rounded tips, and tapering at the base into narrowly winged stalks, in all about two inches long; margins sharply and irregularly toothed; both surfaces nearly smooth, or covered with minute, glandular down. Flower stem one to one-and-a-half-inch tall, bearing an umbel of four to eight blossoms on stalks three-quarters-of-an-inch to one inch long, covered with glandular down. Corolla about three-quarters-of-an-inch across, divided into five narrowly heart-shaped lobes, slightly cleft in the centre; tube about half-an-inch long, with a distinct ring in the throat. The colour of the blossoms has not been recorded, but it is probably some shade of purple.

The plant is found near Fang, in Hupeh, central China.

Culture: It should succeed out-of-doors under similar conditions as advised for other members of its section.

HYLOBIA (W. W. Sm.). Yunpi P.
(Petiolaris-Davidii.)

A handsome, robust perennial species with the whole of its parts, with the exception of the corolla, more or less covered with minute, meal-producing, glandular hairs. The thick, woody rootstock, which produces numerous roots, is clothed at its apex with oblong, membranous scales about one inch long; the somewhat membranous leaves, produced in tufts, have narrowly egg-shaped blades about six to eight inches long, rounded at the tip, almost stalkless, or contracted into a winged stalk; margins cut into teeth like those of a Dandelion; underside paler than the upper. Flower stem six to nine inches tall, smooth below, covered with meal-producing hairs among the flowers, which number from six to twelve and are borne on erect, rigid stalks in a loose umbel. Corolla blue, about half-an-inch to three-quarters-of-an inch across, with heart-shaped lobes, retuse at the tip; tube about half-an-inch long. Flowers in April. Not in cultivation.

Grows in woods near Yun-pi, in Yunnan, western China.

Culture: Good, somewhat heavy loam and leaf-soil, in a cool damp, shady spot, should suit it. *A. W. Darnell.*

(*To be continued*).

NOTICE OF BOOK.

The Book of Garden Animals.*

In the course of nineteen chapters, the author of this book describes so many animals as inhabitants of, or visitors to, the garden as might well appal the uninitiated or inexperienced and prevent them from making a commencement in gardening. All of them are wild animals, nothing being said about the domestic cat. Some of the animals are harmless and others destructive, while the author, writing from the point of view of the naturalist, condones those birds which take some toll of ripe fruits.

Four chapters are devoted to birds, including both the common and the rare ones, as well as those that are shy and can seldom be seen except by those bird lovers who can contrive a means of seeing them, even at close quarters. Ordinary observers have to be content listening to the song of an unknown songster. It will be a revelation to some that the cock bird of the linnet acquires his most ornamental plumage by the wearing away of the ends of certain feathers. While the aerial evolutions of a flock of starlings, before roosting, are described, nothing is said about the peculiar noise made by a flock of some thousands, and which resembles the sound of a distant waterfall. The robin, in spite of his many good qualities, is said to be the bully of the smaller birds. He sometimes meets his match, however, in one of his own species. A gardener was digging one day, closely attended by a robin. A second one came on the scene and, when challenged by the first, held up his head, swelled out his breast and throat, churred and twittered in a menacing manner, which the first one evidently understood, and withdrew, without accepting a combat.

The mammals that frequent gardens include the mole, red squirrel, long-tailed field mouse, and red-backed vole. All of these are unwelcome visitors to gardens at certain times of the year, however attractive they may be to the naturalist. Reptiles, on the other hand, are harmless in the garden, yet are more persecuted than any other animal, perhaps. The slow-worm, a legless lizard, is said to be "found in far greater numbers near houses than in the open country," their hiding places being under stones and in the soil at the foot of garden walls. This is contrary to the experience of the writer of these notes, although such might be the case in gardens surrounded by woods or heathland. He quite agrees, however, that the slow-worm is "much misrepresented in name, habit and character," as dead bodies of this and the ring or grass snake testify, whether near or far from houses.

Chapters are also devoted to the amphibians, such as toads, frogs and newts. Others deal with slugs, snails, the earth worm, spiders, crustaceans, myriapods and insects. All of these are ascribed to their Natural Orders, and the descriptions, while fairly full, are not encumbered with many technical terms, so that the ordinary reader can easily grasp the full meaning of the details. There are gardeners who regard everything that creeps, runs or flies in the garden as an enemy, but a study of this book would enable them to distinguish between garden friends and garden enemies, which are at all of frequent occurrence.

The book is illustrated with many full-page plates, prepared from photographs of the objects under discussion, and with some line drawings in the text. The letterpress is large, easy to read, and the editing well done. However, one error has escaped the eye, where the technical name of the slow-worm is spelt Angius instead of Anguis.

HOME CORRESPONDENCE.

Memorial to the late John Cypher.—Following the reference in your columns to the suggested Memorial to the late Mr. John Cypher, I am desired by the Committee of the Manchester and North of England Orchid Society to state that it is quite in agreement that something should be done to perpetuate the memory of one of the finest exhibitors the country has known, and it will be only too willing to assist in whatever may be decided upon. You will no doubt be inundated with communications in respect to the same, and we shall no doubt be able to gather from your future issues what steps to take. *H. Arthur, Secretary.*

Root-stock Problem in Apple-growing.—I have been very interested for some time past in the experiments that are taking place at some of our experimental stations on the above subject. I have also heard Professor Barker, of Long Aston, lecture on this most interesting subject. Now, no doubt, several like myself have wondered what direct influence these experiments will have on Apple-growing generally in this country. From observation, it seems to me, that the present trouble is not that our commercial growers cannot produce plenty of good fruits, but that, owing to foreign competition, they do not seem able to realise the price for their fruits consistent with the cost of labour. That being so, I cannot for the moment imagine, during these times of agricultural depression, anyone being so rash as to put down several thousand acres, to Apple growing, however expert they may be. Commercial growers have improved considerably of late years in their methods of packing, etc., but in this respect they have still a "lot to learn" from our friends overseas. I do not for one moment wish to discourage the valuable work that takes place at our experimental stations, but it does not seem to be so much how to grow good Apples as how to dispose of them profitably. *H. Howard Grace, Bristol.*

Eomecon chionantha (*pp.* 428, 475).—Abetted by my bad handwriting, your compositors, in setting up my note, drove home, by the mistake they made with the names, my argument in favour of Latin names. Thus Andenken an London ("Memories of London") was printed Andenken au Loudon, while in my garden it has become Ann Duncan; all perfectly natural mistakes. Your skilled proof-reader can pick up a mistake like levcantha for leucantha, but cannot be expected to correct Haageundschindtii. *William Lawrence, Burford.*

—— Failure to grow this charming plant successfully, referred to by Mr. Arnott (p. 428), is possibly due to soil. My soil is distinctly heavy and cold; and when I planted it two years ago it almost died. The following spring I dug it up, mixed about fifty per cent. peat with the soil, and replanted it near a south wall. It immediately revived, easily survived last winter, flowered abundantly, and is now spreading freely beyond the patch of peat. *E. H. Thompson.*

Twin-flowered Cypripediums.—With reference to twin-flowered Cypripediums, mentioned by your correspondent in the issue of December 8, p. 457, I have noted a similar occurrence here. Out of a batch of some eighty plants of C. insigne two have shown this tendency. On the one plant there are two stems each carrying one bloom, and one stem with two blooms, about three inches apart; while the other plant has three or four single-flowered stems, and two stems with twin flowers. These latter are placed on the stem about six inches apart; all are quite normal blooms and fully developed. *G. H. Murchison, The Garden, Mytton Hall, Whalley.*

Pyracantha Rogersiana.—I notice that one of your correspondents, who signs himself William Ackworth, has referred to a plant which he names Pyracantha Rodgersiana (p. 448). The correct name of the plant is P. Rogersiana, not P. Ro(d)gersiana; it was not named, like the well-known herbaceous perennial of the Saxifrage Order, after the United States Naval Commander, Admiral Rodgers, but after the more humble individual who addresses you, and spells his name without a "d." There were somewhat similar and new Pyracanthas, grown from seeds, sent home by Mr. G. Forrest, and collected upon the Lichiang Range during the Bees' expedition of 1910. In February, 1914, I sent specimens of both these plants to the Royal Horticultural Society's meeting at Vincent Square. Two years later, the Hon. Vicary Gibbs showed specimens of them both in flower. The one was named after him, the other after me, and they were duly described in *The Gardeners' Chronicle*, December, 1916. I might add that they make a very ornamental show grown at the park here, and sometimes keep their yellow and orange-red berries—where the birds do not seem to have found them out—so late as April. They also make quite the best of garden hedges, a fact which is only just beginning to be realised. I corrected a similar mistake in the spelling of its name by a corrrespondent who wrote in the *Spectator* about a year ago. *Chas. Coltman-Rogers, Stanage Park, Radnorshire.*

Gros Colmar and Alicante Grapes.—In reply to *Puzzled*, p. 434, Gros Colmar is of second-rate quality as a dessert fruit, owing to lack of sweetness, and sometimes a strong foxy flavour. Very often it is of poor colour, too, as it requires a long season of growth, plenty of heat, and good cultivation generally in order to attain its greatest excellence; even then I have known it banned from some of the best tables. It has taken well in the market where large, showy Grapes are favoured and quality counts for very little. Alicante is easily grown and attains a good colour without so much heat: it is sweet when well ripened, but devoid of flavour. It has the merit of keeping well for a considerable time, and is one of our most useful late Grapes; when well finished it should always rank before Gros Colmar for dessert, although it does not appeal to the general public like that variety. But a good judge knows when to place Gros Colmar before it, as it may possibly occur occasionally that Gros Colmar is at its best and Alicante is shown in poor condition. *W. H. Divers, V.M.H.*

FOREIGN CORRESPONDENCE.

EARLY FRUITFULNESS.

Concerning the early fructification of young fruit trees (raised from seeds) by means of early grafting (see *Gard. Chron.*, No. 4,859, p. 456), I know by experience over many years and in several instances, that the height of two metres and more on which the grafts should be placed, according to the opinion of M. Sannier, is not at all an essential condition for success. I have observed that a very favoured method is that the graft should be placed on the old wood, not on the young, strong but infertile suckers. Young shoots with a downward tendency have proved useful in my hands. I have now in my garden some such shoots from a last year's graft placed so low that they reach the ground, and already showing some buds that will give flowers next year. *Dr. A. Ragionieri, Castello, Italy.*

The Book of Garden Animals, by E. Fitch Daglish, Ph.D., F.Z.S. London: Messrs. Chapman and Hall, Ltd., 11, Henrietta St., Covent Garden W.C. 2. Price 7s. 6d. net.

FRUIT REGISTER.

APPLE EPICURE.

This is yet another of the several fine varieties of Apples introduced by Messrs. Laxton Bros., of Bedford, and although it is at present too early to forecast the position it will take among dessert Apples, it displays every indication of being a really first-class variety. It was thought very highly of by the Fruit Committee of the Royal Horticultural Society when placed before it on the occasion of the meeting at Vincent Square on August 28 of the current year; it was recommended for the Bunyard Cup, subject to the recommendation being confirmed next year, and it was also suggested that it be included in the commercial trials of fruits now being conducted at Wisley.

The rounded fruits are of medium size, flattened at the apex and base, with a small closed eye; the slender stem, about an inch in length, is set in a rather deep cavity. The skin is pale yellowish-green, the side exposed to the sun being richly flushed with red, while the flavour is pleasantly sweet.

Apple Epicure was raised from a cross between the popular varieties Wealthy and Cox's Orange Pippin. *F.*

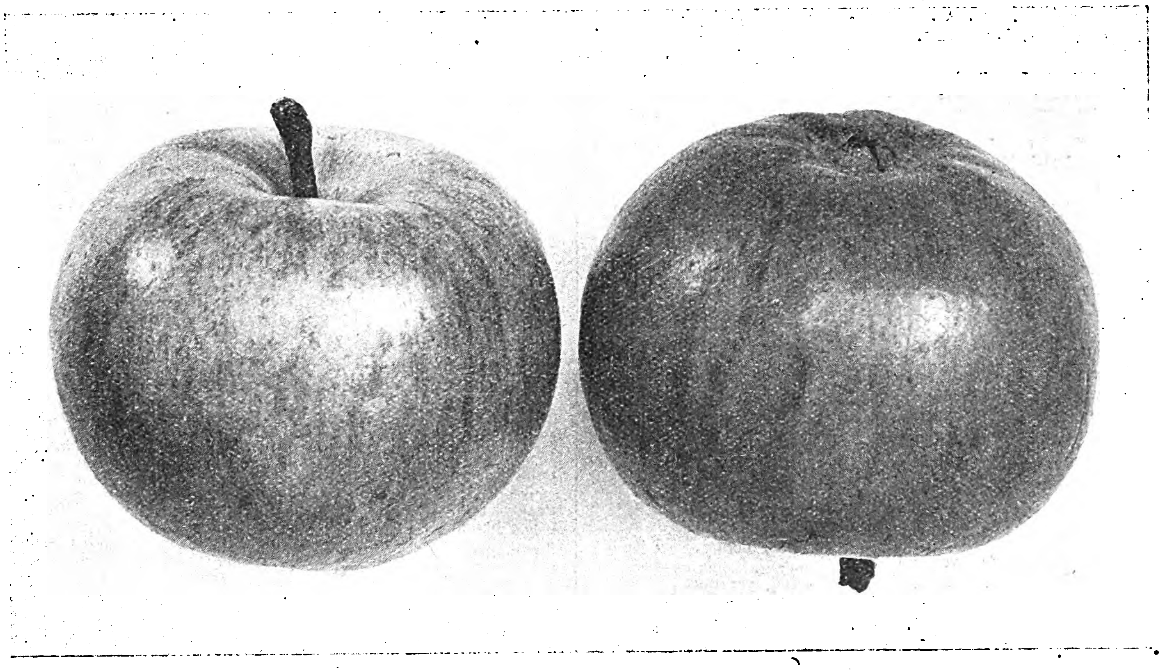

FIG. 228.—APPLE EPICURE.

FRUIT GARDEN.

PROLONGING THE FRUIT SEASON.

The period during which choice varieties of Apples and Pears may be obtained in season can be lengthened by careful planting. Suitable positions should be chosen, and the trees planted in cool, medium and sheltered situations, while for those intended to ripen earliest, wall-trained trees should be given the most sheltered positions available.

It is not necessary to deal with keeping varieties in this way, but for those varieties of Apples and Pears which remain in good condition for a very short period of time there is no better method of prolonging the season during which these may be obtained while they are at their best.

Not every variety is suitable for planting in exposed positions, and those which blossom very early in the year should not be planted where there is danger of late frosts.

Trees planted for early maturity of their fruit should be kept well open so that every part of the tree receives its full share of sunlight, but in no case should early fruits be gathered before they are well ripe, or they will suffer through skin shrinkage and be spoilt.

Trees on dwarfing stocks are much more easily provided with shelter than are trees on more vigorous stocks, and may with advantage be planted where early fruits are desired.

Differences in soil will affect the time of ripening of the fruit, and where such differences occur on the same plantation, use should be made of this as an aid to extending the fruiting period. Warm soil will assist the production of early fruits, and if in addition a piece of land is available with even a slight slope towards the south, very early fruits may be expected. Cold soil, with a slope in a northerly or easterly direction, will keep back the ripening period by many weeks.

With choice Pears, especially those which remain in good condition for only a short time when ripe, every advantage should be taken of the various uses to which soil, situation and shelter may be put, to prolong the period during which the ripe fruits may be obtained.

It has not been found that the various types of stock on which Apple trees are grown influence the time of ripening to any extent, although Apples on one or two types of Paradise stocks do appear to be ready for use earlier in the year than do those on Crab stock, and there are certainly differences in colour and quality of the fruits from trees on different stocks. *J. W. Morton.*

PUBLIC PARKS AND GARDENS.

The Birmingham Town Council has approved the proposal of the Parks Committee to purchase 108 acres of land adjoining Pype Hayes Farm at the price of £100 per acre.

The Bognor Urban District Council has resolved to make application to the Ministry of Health for sanction to borrow £10,693 for the development of the Marine Park.

The Bournemouth Town Council proposes to lay down a new bowling green at the bottom of Alum Chine, at the estimated cost of £1,150, the work to be carried out by the park superintendent. Tenders are to be invited for laying out pleasure grounds on the Ilford Estate.

The Charlton Kings Urban District Council has received a gift of £550 to provide a recreation ground, and has decided to purchase a site at The Beeches.

The Keymer Parish Council, Hassocks, Sussex, has decided to approach the Public Works Loan Board with a view to raising a loan of £1,500 for the purchase of eight acres of land adjoining the Adastra recreation ground.

SOCIETIES.

HITCHIN CHRYSANTHEMUM.

Unfortunately, like so many other provincial towns of modest size, Hitchin suffers in regard to exhibitions because it lacks sufficient accommodation. The New Town Hall is a very pleasing building and well-situated, but it is not large enough to properly accommodate the display provided by the Hitchin Chrysanthemum Society. The November show was excellent in every way, except that many classes had to be crowded together.

The leading classes for cut blooms contained some of the finest Japanese blooms seen this season, and the best would have borne comparison with those shown by Mr. C. Beckett at Westminster. These especially fine flowers were exhibited by Mr. B. Franklin in his first-prize exhibit in the premier class for six vases of three blooms each, and his varieties, of magnificent proportions, fresh and bright, were Mrs. B. Carpenter, Yellow Majestic, Majestic, Red Majestic, Princess Mary and T. W. Pockett; second, the Marquis of Salisbury (gr. Mr. R. H. Hall), Hatfield; third, Lady Whitehead (gr. Mr. Carter), Stagenhoe Park. Mr. Franklin won comfortably and secured the twenty-guinea Challenge Cup. Major W. Sheriff, Stevenage, led for four vases of Japanese blooms, with Mrs. B. Carpenter, Majestic, Yellow Majestic and Red Majestic, in fine form; he also was awarded a Challenge Cup; second, R. D. Oldham, Esq. (gr. Mr. Kellaway), Greyfusie Hall; third, Mr. W. G. P. Clarke, the popular Secretary. Mr. B. Franklin was again premier prize-winner in the class for six Japanese blooms, and was followed by Lady Whitehead and the Marquis of Salisbury, respectively.

E. Martin Smith, Esq. (gr. Mr. Miller), Codicote Lodge, Welwyn, won first prize in keen competition in the class for six vases of Single Chrysanthemums, with splendid examples of Juno, Mr. J. Harris, Molly Godfroy, Bronze Molly, Joyce Moore and Robert Collins; second, Major J. F. Harrison (gr. Mr. A. J. Hartless), King's Walden Bury; third, the Marquis of Salisbury. Another fine class was the one for six vases of Decorative Chrysanthemums, and here F. Ransome, Esq. (gr. Mr. W. Robinson), Newlands, led with clean examples of Rayonante, The Wizard, George Carpenter, Cranfordia, In Memoriam and a white sort; second, Lady Whitehead; third, Major Harrison.

E. Martin Smith, Esq., led for twelve stems of perpetual-flowering Carnations, with Major Harrison, second. The last-named competitor had the best big vase of large Japanese blooms and added foliage.

F. Ransome, Esq., showed the best Cyclamens, and **Lady Whitehead** was successful in both classes for winter-flowering Begonias; while in the class for three flowering plants, other than those specified, Major Harrison led with Clerodendron fallax.

In the fruit section there was a capital display, Major Harrison winning the Challenge Cup and first prize for a collection arranged on a space six feet by three feet; this effort and those of Viscount Hampden (gr. Mr. Gulling), The Low House, and E. Martin Smith, Esq., who came second and third, respectively, made an effective contribution to the show. J. Howard Carter, Esq. (gr. Mr. J. Gates), Ardeley Bury; Major Harrison and Lady Whitehead were prize-winners in the Grape classes.

Vegetables were splendid, but the exhibits were crowded. Messrs. Sutton's prizes for a collection of six kinds were won by Major Harrison, E. Martin Smith, Esq., and Lady Whitehead, respectively, while in the class provided by Messrs. James Carter and Co. E. Martin Smith, Esq., led, followed by Lady Whitehead and Mrs. Carl Holmes.

Other leading prize-winners in various sections of the show were Lady Whitehead, W. G. Willmott, Esq., R. T. Oldham, Esq., H. J. Moss, Esq., Major Harrison, W. O. Times, Esq., Mrs. Edbroke and Mrs. Creasey.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The monthly meeting of this Society was held in the R.H.S. Hall, on Monday, December 10, Mr. Charles H. Curtis in the chair. Ten new members were elected. The sum of £167 3s. 4d. was passed for payment to seven members from their Deposit Accounts, and £124 3s. 8d. was passed for payment to the nominees of two deceased members. The sick-pay for the month on the Ordinary side came to £118 6s. 5d., and in the State Section to £109 9s. 6d.; Maternity claims totalled £8 10s. 0d. The sum of £57 0s. 6d. was passed in grants to sixteen members for dental and optical treatment, and eight other cases were considered.

Obituary.

William Kilgour.—We have to record the death of Mr. William Kilgour, late schoolmaster at Blair Drummond, Perthshire, which occurred at Glasgow on December 14. Mr. Kilgour, who was advanced in years, was an ardent horticulturist, and was well-known to a wide circle as one of the best growers of Auriculas in Scotland. Although he specialised in these, Mr. Kilgour was keenly interested in all branches of gardening, and while at Blair Drummond his garden was of great interest. He retired a number of years ago and went to reside in Glasgow. For several years he contributed frequent notes to the *Journal of Horticulture* under the signature of "B. D., South Perthshire." Mr. Kilgour was of a most genial nature and made many friends by whom his death will be much regretted.

ANSWERS TO CORRESPONDENTS.

Chrysanthemums Mildewed.—*K. E. W.* At this late season of the year, you can do little else but dust the affected leaves and stems with flowers of sulphur.

Names of Plants.—*J. C. and Co.* Iris alata.—*H. L. B.* 1, Acacia Baileyana; 2, Juniperus Sabina; 3, Cupressus pisifera var. plumosa, a juvenile stage, generally known as Retinispora; 4, Eupatorium Weinmannianum; 5, Pteris exetica var. albolineata; 6, Davallia bullata; 7, Aspidium falcatum; 8, Juniperus chinensis (juvenile stage); 9, Iris unguicularis. *J. M.* Abies Nordmanniana.

Communications Received.—H. H. C.—A. G.—J. A. J.—J. H.—F. S.—L. S.—S. W.

MARKETS.

COVENT GARDEN, Monday, December 24th, 1928.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d.	s. d.
Adiantum cuneatum, per doz.	10 0	12 0
—elegans	10 0	12 0
Aralia Sieboldi	8 0	9 0
Araucarias, per doz.	30 0	40 0
Asparagus plumosus	12 0	18 0
—Sprengeri	12 0	18 0
Aspidistras, green	16 0	60 0
Aspleniums, doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Cacti, per tray, 12's, 15's	5 0	7 0
Chrysanthemums per doz.	15 0	24 0
—white, per doz.	15 0	24 0
—yellow „	18 0	24 0
—pink „	21 0	24 0
—bronze „	12 0	18 0
Crotons, per doz.	30 0	45 0
Cyclamens, per doz.	24 0	36 0
Cyrtomiums	10 0	12 0
Erica gracilis, per doz.	24 0	30 0
— — 60's, per doz.	12 0	15 0
— — 72's, per doz.	6 0	8 0
— — hyemalis, per doz.	24 0	30 0
—nivalis, per doz.	24 0	36 0
— — 60's, per doz.	12 0	15 0
— — 72's, per doz.	6 0	8 0
Nephrolepis in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia,	30 0	48 0
—60's	15 0	18 0
Pteris in variety	10 0	15 0
—large 60's	5 0	6 0
—small	4 0	5 0
—72's, per tray of 15	2 6	3 0
Solanums, per doz.	18 0	24 0
— 60's, per doz.	8 0	9 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum decorum, doz. bun.	15 0	18 0
—cuneatum, per doz. bun.	9 0	10 0
Anemone, St. Brigid, per doz.	6 0	9 0
Arums (Richardias), per doz. blooms	9 0	12 0
Asparagus, plumosus, per bun., long trails	2 6	3 0
—med. sprays	2 0	2 6
—short „	—	1 0
—Sprengeri, bun. long sprays	2 0	2 6
—med. „	1 0	1 6
—short „	0 6	1 9
Autumn foliage, various, per doz. bun.	6 0	12 0
Camellias, white, per doz. blooms	2 0	2 6
Carnations, per doz. blooms	5 0	8 0
Chrysanthemums—		
—red, per doz. bunches	21 0	30 0
—white, per doz. blooms	3 6	9 0
—yellow, per doz. blooms	4 0	8 0
—bronze, per doz. bunches	18 0	24 0
—bronze, per doz. blooms	3 6	7 0
—pink, per doz. bunches	18 0	30 0
—pink, per doz. blooms	4 0	7 0
Croton leaves, per doz.	1 9	2 6
Daffodils, single, per doz. blooms	3 6	4 0
Fern, French, per doz. bun.	10 0	12 0
Forget-me-nots, per doz. bun.	12 0	15 0
Freesia, white, per doz. bun.	3 6	4 0
Gardenias, per doz. blooms	9 0	15 0
Heather, white, per doz. bun.	9 0	12 0
Hyacinth, Roman, on bulbs, per doz.	4 0	5 0
— — 6's, per doz. bun.	4 0	5 0
Iris tingitana, per doz. blooms	5 0	7 0
Lilac, white, per doz. sprays	6 0	10 0
— mauve, per doz. sprays	9 0	10 0
Lily-of-the-Valley, per doz. bun.	18 0	36 0
Lilium longiflorum, long, per bun.	4 6	5 0
— — short, per doz. blooms	5 0	6 0
—speciosum rubrum, long, per doz.	5 0	6 0
— — — short, per doz.	2 6	3 0
Marigolds, per doz. bun.	5 0	6 0
Myrtle, green, per doz. bun.	1 6	2 6
Narcissus, Paper White, per doz. bun.	9 0	12 0
Orchids, per doz.		
—Cattleyas	18 0	30 0
—Cypripediums	6 0	8 0
Poinsettias, per doz. blooms	18 0	30 0
Prunus triloba, per bunch	4 0	5 0
Roses, per doz. blooms—		
—Mme. Butterfly	8 0	12 0
—Columbia	8 0	15 0
—Golden Ophelia	9 0	12 0
—Richmond	8 0	12 0
—Roselandia	9 0	12 0
—Molly Crawford	3 0	5 0
Smilax, per doz. trails	4 6	5 0
Tulips, scarlet, on bulbs, per doz. blooms	3 0	3 6
—white, on bulbs, per doz. blooms	3 6	4 0
Violets, Prince of Wales, per doz. bun.	4 0	6 0
French Flowers—		
—Acacia (Mimosa), per doz. bun.	18 0	20 0
—Chilies, loose, per pad	5 0	6 0
—Eucalyptus foliage, per pad	7 0	9 0
—Marigolds, per pad	6 0	8 0
—Narcissus, Paper White, per doz. bun.	4 0	4 6
— Narcissus, Soliel d'Or, per doz. bun.	4 0	5 0
—Roses, Safrano, per pkt. 24's	3 0	3 6
—Ruscus foliage, per pad	8 0	10 0
—Solanum berries, loose, per pad	8 0	9 0
—Violets, Parma, large, per bun.	8 0	10 0

Remarks.—Supplies have been fairly plentiful for the Christmas requirements. Carnations were somewhat erratic in price, and supplies increased towards the week end, but Roses were below requirements. All Liliums remained normal in price. Daffodils, Tulips, Irises, etc., were soon cleared each day.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples, English—		
—Cox's Orange Pippin, ½-bushel	8 0	22 6
—Bramley's Seedling	10 0	12 0
—Newtown Wonder	9 0	11 0
—Lane's Prince Albert	8 0	10 0
—Blenheim Pippin, ½-bushel	3 0	5 0
— Californian—Newtown Pippin, per case	8 0	10 6
—American Jonathan	10 6	11 0
—Oregon, per case	11 6	12 6
—Spitzbergen	9 0	10 6
—Nova Scotian—		
—Ribston Pippin	26 0	30 0
—King's	26 0	37 0
—Golden Russet	30 0	36 0
—Baldwin	26 0	30 0
—Wellington	28 0	32 0
Bananas, per bun.	23 6	40 0
Dates, dry, in cartons	5 0	6 0
Grapes, English—		
—Muscat of Alexandria, per lb.	5 0	9 0
—Alicante	1 6	3 0
—Gros Colmar	1 9	3 6
Grapes, Almeria, per barrel	18 0	26 0
Grape Fruits—		
—Honduras	—	20 0
—Jamaica	—	18 0
—Florida	—	25 0
—Dominica	—	20 0
Lemons, per case—		
—Messina	14 0	32 6
Nuts—		
—Brazil, cwt.	—	90 0
—Chestnuts, Italian, bag	15 0	25 0
— — French „	8 0	10 0
—Walnuts „	10 0	12 0
Oranges—		
—Jaffa	14 0	15 0
—Jamaica	—	15 0
—Murcia	14 0	20 0
—Denia	15 0	25 0
Pears, English—		
—Doyenné du Comice, trays, specials, per doz.	4 6	8 0
—trays, medium	3 0	4 0
—American—		
—Washington Anjou	20 0	22 6
—Winter Nelis	15 0	16 0
—Californian Doyenné du Comice, case	25 0	30 0
Pineapples, case	20 0	35 0

Remarks.—The volume of business preceding the holiday was moderately satisfactory. Pineapples were not particularly plentiful but were decidedly expensive, such is the popularity of this fruit at Christmas. Supplies of hothouse Grapes were sufficient for the demand that ruled at prices which no doubt were satisfactory to the growers. Apples, mainly from the North American Continent, were in plentiful supply and quoted at moderately reasonable prices. English Apples were cheaper at the week-end, and both Cox's Orange Pippin and cooking sorts met a poor demand. Pears were also offered at lower prices, and the demand fell away, even for excellently packed and grown English Doyenné du Comice. As is usual at this time of the year, Mushrooms became, and will remain for a day or two, a very poor line of business. Cucumbers are scarce and maintain comparatively high prices. A few English Tomatos are still available, but Canary Island produce is now so good and reasonable in price that there is only a small demand for English produce at high prices. Green vegetables for a day or two before Christmas recovered a point or two in price level; Brussels Sprouts especially did rather better than of late, but the increase was merely temporary, and green vegetables this week will be cheap. Choice vegetables have sold moderately well, with the exception of Asparagus, which is very cheap for the time of the year, supplies being plentiful from France and Italy, while home-grown hothouse Asparagus is also plentiful. The first shipment of the season of New Potatos from the Canary Islands is to hand, but this section is slow, the demand being at par. The old Potato trade responded to increased demand for the Christmas trade, but conditions here will be on the slow side for the next week or so.

THE WEATHER IN NOVEMBER.

Dry, easterly conditions prevailed for rather more than the first week of November, but thence forward the weather was extremely wet and generally stormy, the winds varying only from south to some point of west. The storms culminated in two very wild gales from off the sea on the 23rd and 25th with extreme hourly rates of 60 and 59 miles, respectively, and gusts at rates of 88 and 86 miles per hour. The mean temperature of the month was 45½° or 2¼° above the average, a maximum reading of 61° occurring on the 12th, although the early easterly spell had been cold (after the 1st). Scarcely 48 sunny hours, however, were recorded, or nine fewer than the average, Rain fell on 23 days, or six more than the normal number, and the total quantity was so much as 5·72 inches, which implies an excess of 2·65 inches. Hail fell on four days. Ground frost occurred on 11 nights, and frost, in the shade, four times. Visibility varied very much in the course of the month, but thick fog was only reported on three dates. *Joseph Baxendell, The Fernley Observatory, Southport.*

CATALOGUES RECEIVED.

McHattie and Co., Chester.—Flower and Vegetable Seeds.

Alfred Dawkins, 408, King's Road, Chelsea.—Flower Vegetable Seeds.

Clibrans, Ltd., Altrincham.—Flower and Vegetable Seeds.

Stewart and Co., 13, So. St. Andrew Street, Edinburgh.—Flower and Vegetable Seeds.

SCHEDULE RECEIVED.

The Royal Botanical and Horticultural Society of Manchester and the Northern Counties.—Exhibition to be held in the Town Hall, Manchester, on Thursday and Friday, April 18 and 19, 1929.—Secretary, Mr. Arthur Eastwood, 59 Ennismore Street, Burnley.

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